Colorado Opioid Profile

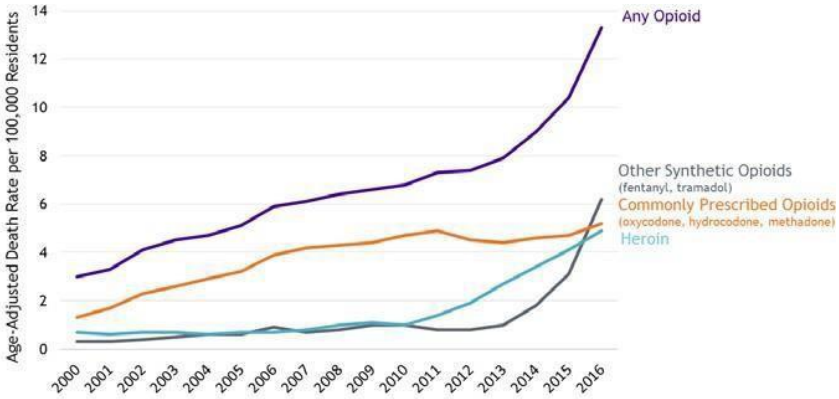
Total Population in 2017: 5,609,171

Both nationally and in Colorado, opioid use disorders have emerged as a significant public health concern. While prescription opioids can help people manage their pain, they also come with serious risks and potential complications. Prescription opioids should be prescribed and used carefully. These drugs are chemically similar to heroin and can increase the risk of addiction or overdose, even if taken as prescribed.[1] This report summarizes fatal overdose trends, prescribing practices, and patient behaviors that may increase the risk of an overdose to better understand the scope of the opioid epidemic in Colorado.

National Opioid Overdose Trends

More than 63,000 Americans died from drug overdoses in 2016.[2] Opioids (either prescription or heroin) were involved in two out of every three of these deaths.[2] In the United States from 2015-2016, other synthetic opioid-related drug overdose death rates doubled from 3.1 deaths per 100,000 residents to 6.2.[2] The rate of heroin-related drug overdose deaths and other commonly prescribed opioid-related overdose deaths increased by 20 percent and 10 percent respectively from 2015 to 2016 (Figure 1).[3]

Figure 1: Opioid-Related Drug Overdose Death Rates, United States, 2000-2016



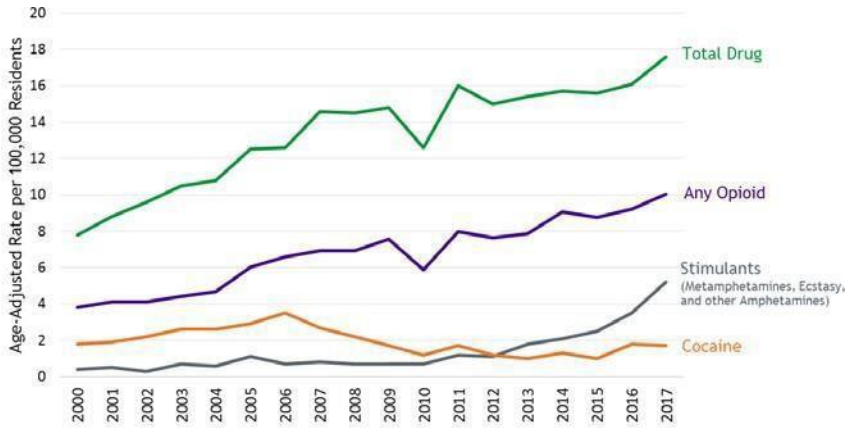
Age-adjusted rates are standardized using the 2000 US Population Standard.
Total drug overdoses were identified using the following underlying cause of death ICD-10 codes: (X40-X44, X60-X64, X85, Y10-Y14). Drug overdose deaths were then scanned for the following ICD-10 codes in the multiple cause of death fields: Any opioid (T40.0-T40.4, T40.6), heroin (T40.1), commonly prescribed opioids (T40.2-T40.3), and other synthetic opioids (T40.4).
Source: CDC/NCHS, National Vital Statistics System, Mortality; Accessed from https://www.cdc.gov/drugoverdose/data/analysis.html on October 18, 2018.

Colorado Opioid Overdose Trends

In 2017, 1,012 Coloradans died due to drug overdose, and 57 percent of those deaths involved an opioid. Figure 2 shows overdose death rates by substance. From 2016-2017, opioid-related overdose death rates increased by 9 percent to 10.1 deaths per 100,000 residents; stimulant-related overdose death rates rose to 5.3 deaths per 100,000 residents, representing a 49 percent increase.

Some of these increases in overdose deaths may be due to improved reporting of the specific drugs involved in fatal overdoses. In 2017, 85 percent of overdose deaths mentioned the specific drugs on the death certificate compared to 75 percent in 2013.

Figure 2: Drug Overdose Death Rates, Colorado, 2000-2017

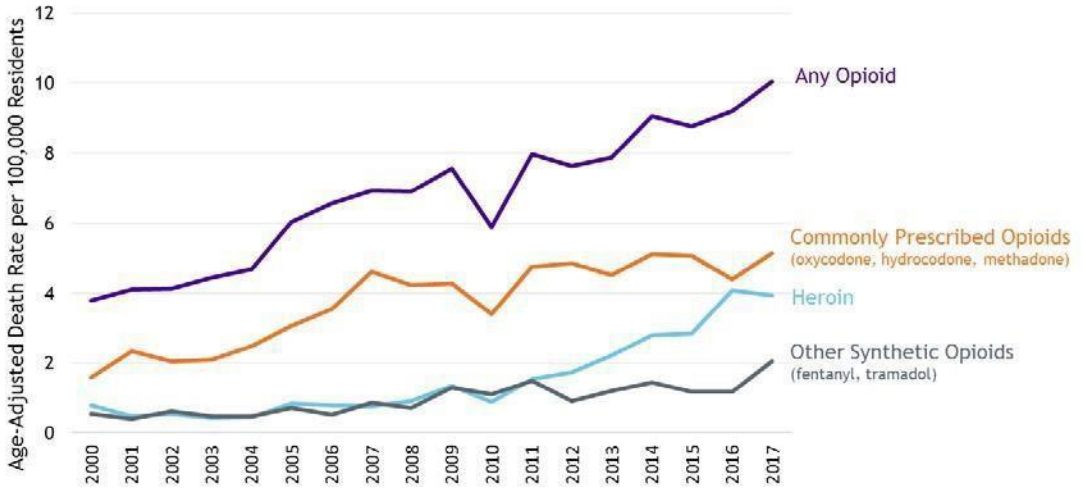


Age-adjusted rates are standardized using the 2000 US Population Standard.
Total drug overdoses were identified using the following underlying cause of death ICD-10 codes: (X40-X44, X60-X64, X85, Y10-Y14). Drug overdose deaths were then scanned for the following ICD-10 codes in the multiple cause of death fields: Any opioid (T40.0-T40.4, T40.6), methamphetamine or other stimulant with abuse potential (mention of T43.6), and cocaine (T40.5).
Source: Vital Statistics Program, Colorado Department of Public Health and Environment

COLORADO
Department of Public Health & Environment

Figure 3 highlights the trends for opioid categories. Rates for commonly prescribed opioid-related overdoses have remained steady over the past five years, with a non-statistically significant increase from 2016-2017 going from 4.5 to 5.2 deaths per 100,000 residents. While heroin-related rates declined slightly from 2016-2017, rates have significantly increased since 2013. In 2017, there were 3.9 deaths per 100,000 residents, which represents an increase of 76 percent from 2013. Synthetic opioid-related overdoses increased significantly between 2016 and 2017, with rates in 2017 estimated to be at 2.1 deaths per 100,000 residents. As mentioned in the previous paragraph, these increases in other synthetic opioids and heroin-related overdose deaths over the past five years could be due to improved reporting.

Figure 3: Opioid-Related Drug Overdose Death Rates, Colorado, 2000-2017



Age-adjusted rates are standardized using the 2000 US Population Standard.
Total drug overdoses were identified using the following underlying cause of death ICD-10 codes: (X40-X44, X60-X64, X85, Y10-Y14). Drug overdose deaths were then scanned for the following ICD-10 codes in the multiple cause of death fields: Any opioid (T40.0-T40.4, T40.6), heroin (T40.1), commonly prescribed opioids (T40.2-T40.43), and other synthetic opioids (T40.4).
Source: Vital Statistics Program, Colorado Department of Public Health and Environment

Regional Opioid Overdose Trends

Prescription Opioid Overdose Death Rates

From 2013-2017, there were 1,635 prescription opioid-related overdose deaths in Colorado. This translates to a rate of 5.8 deaths per 100,000 Colorado residents. Map 1 shows the opioid overdose rates by countyfor 2013-2017. County rates varied widely throughout Colorado. Between 2013 and 2017, Delta County had the lowest opioid death rate at 1.8 deaths per 100,000 residents and Conejos County had the highest with 13.6 deaths per 100,000.

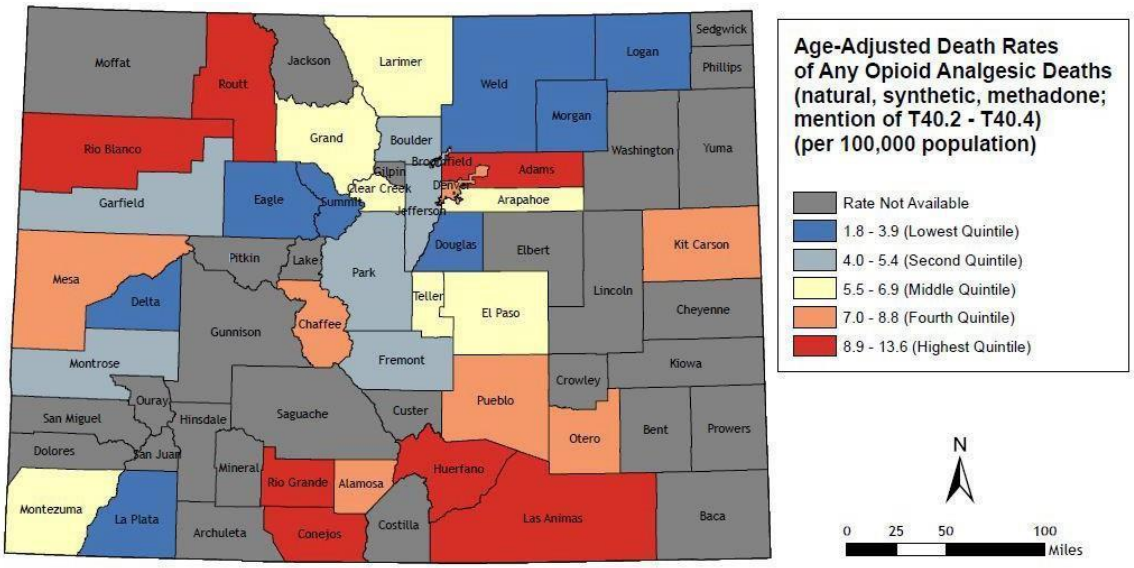
Map 2 displays these same rates by the 21 health statistics regions. CDPHE uses these regions to improve the ability to estimate rates in areas with small counts of drug overdose deaths. Between 2013 and 2017, 8 regions, primarily located in the Northeast and Southwest corners of the state (Regions 1, 5, 3, 9, 10, 12, 16 and 18), had significantly lower rates than the state average. Region 5 (Cheyenne, Elbert, Kit Carson, and Lincoln) had the lowest opioid-related death rate with 1.4 deaths per 100,000 residents. Region 20 (Denver), Region 14 (Adams) and Region 7 (Pueblo) all had statistically higher rates than the state average. Region 14 had the highest rate with 9.6 deaths per 100,000 residents.

Colorado Prescription Opioid Death Statistics 2013-2017

Number of Prescription Opioid-Related Deaths:
1,635

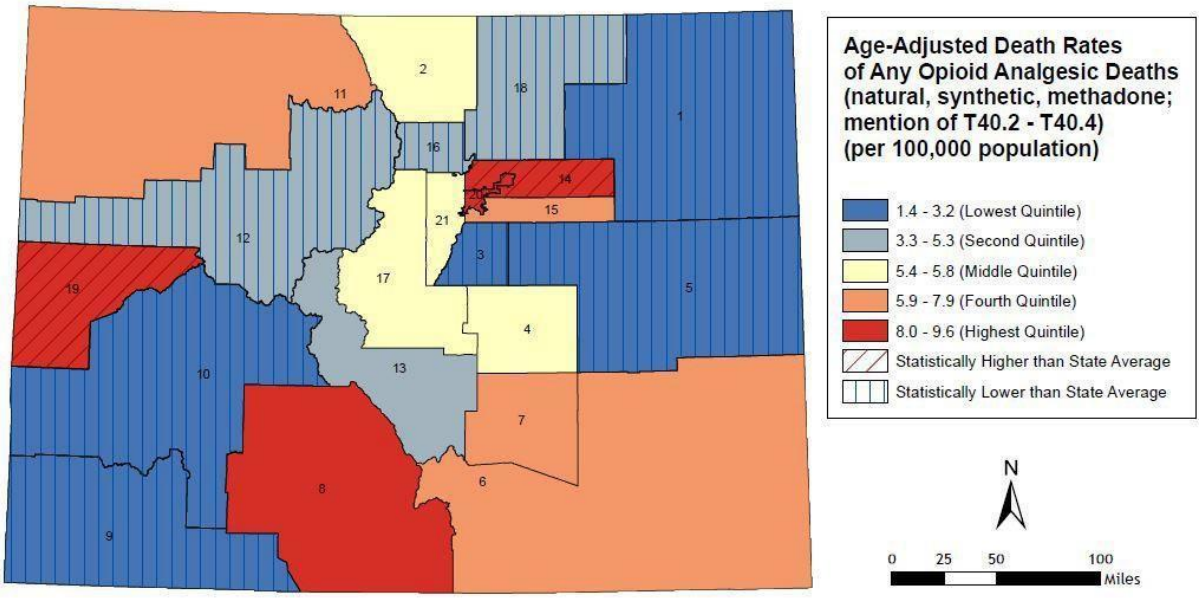
Age-Adjusted Rate per 100,000 (CI):
5.8 (5.5,6.1)

Map 1: Prescription Opioid-Related Age-Adjusted Overdose Death Rates by County, Colorado, 2013-2017



* Missing Indicates one or two events in a category
Rates are per 100,000 population
Some deaths in which the drug was poorly specified or unspecified may involve opioid analgesics.
Opioid analgesics include natural and semi-synthetic opioid analgesics (for example, morphine, hydrocodone, and oxycodone) and synthetic opioid analgesics (for example, methadone and fentanyl).
Definitions used based on NCHS Data Brief, No. 81, December 2011, "Drug Poisoning Deaths in the United States, 1980-2008".
Source: Vital Statistics Program, Colorado Department of Public Health and Environment.

Map 2: Prescription Opioid-Related Age-Adjusted Overdose Death Rates by Health Statistics Region, Colorado, 2013-2017



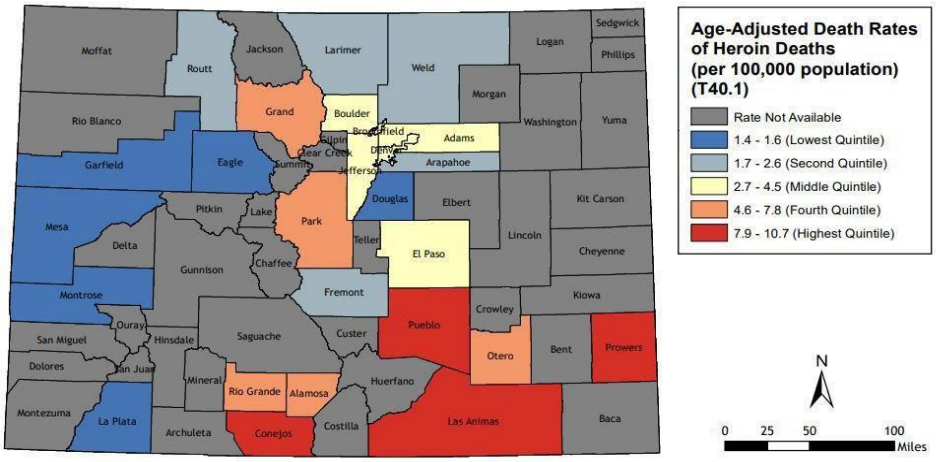
* Missing Indicates one or two events in a category
Rates are per 100,000 population
Some deaths in which the drug was poorly specified or unspecified may involve opioid analgesics.
Opioid analgesics include natural and semi-synthetic opioid analgesics (for example, morphine, hydrocodone, and oxycodone) and synthetic opioid analgesics (for example, methadone and fentanyl).
Definitions used based on NCHS Data Brief, No. 81, December 2011, "Drug Poisoning Deaths in the United States, 1980-2008".
Source: Vital Statistics Program, Colorado Department of Public Health and Environment.

Additional state and county drug overdose death statistics can be found on the Vital Statistics Program website.

Heroin-Related Overdose Death Rates

Heroin-related overdose deaths have increased by 77 percent from 2013-2017. In total, there were 881 heroin overdose deaths in Colorado, which translates to a state rate of 3.2 deaths per 100,000 residents from 2013-2017. Montrose and Garfield counties had the lowest heroin related death rates at 1.4 deaths per 100,000 residents and Conejos County had the highest rate with 10.7 heroin related deaths per 100,000 (Map 3).

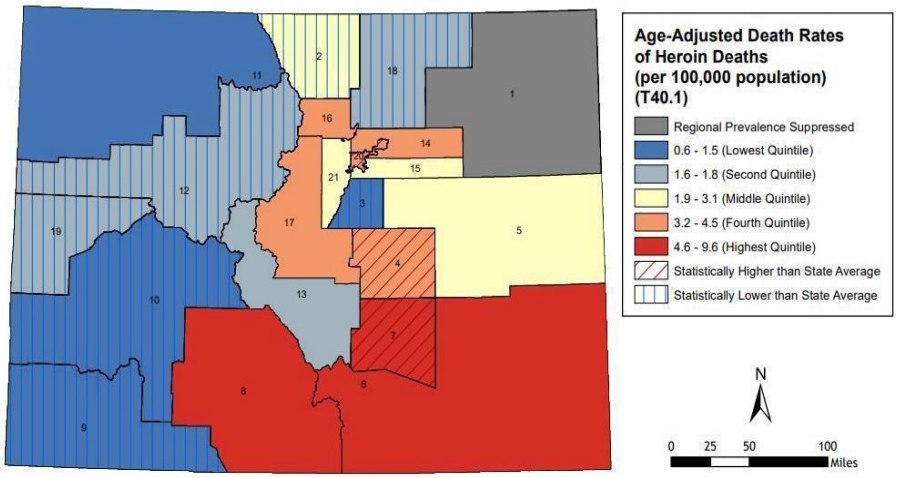
Map 3: Heroin-Related Age-Adjusted Overdose Death Rates by County, Colorado, 2013-2017



* Missing Indicates one or two events in category.
Rates are per 100,000 population
Some deaths in which the drug was poorly specified or unspecified may involve opioid analgesics.
Definitions used based on NCHS Data Brief, No. 81, December 2011, "Drug Poisoning Deaths in the United States, 1980-2008".
Heroin (T40.1)
Source: Vital Statistics Program, Colorado Department of Public Health and Environment.

Map 4 shows the heroin death rates by health statistics region. Between 2013 and 2017, Region 10 (Delta, Gunnison, Hinsdale, Montrose, Ouray and San Miguel Counties) had the lowest heroin-related deaths with 0.6 deaths per 100,000 residents; in total, seven regions had statistically lower rates compared to the state (Regions 2, 3, 9, 10, 12, 18 and 19). Region 4 (El Paso), Region 20 (Denver) and Region 7 (Pueblo County) all had significantly higher rates compared to the state, and Region 7 had the highest rate with 9.6 deaths per 100,000 residents (Map 4).

Map 4: Heroin-Related Age-Adjusted Overdose Death Rates by Health Statistics Region, Colorado, 2013-2017



* Missing Indicates one or two events in category.
Rates are per 100,000 population
Some deaths in which the drug was poorly specified or unspecified may involve opioid analgesics.
Definitions used based on NCHS Data Brief, No. 81, December 2011, "Drug Poisoning Deaths in the United States, 1980-2008".
Heroin (T40.1)
Source: Vital Statistics Program, Colorado Department of Public Health and Environment.

For additional information related to heroin, refer to the 2018 Heroin in Colorado Report.

The Colorado State Board of Pharmacy at The Department of Regulatory Agencies (DORA) oversees the operation of the Colorado Prescription Drug Monitoring Program (PDMP). The PDMP is a secure database that collects prescription information on Schedule II-V controlled substances dispensed by Colorado pharmacies. The PDMP compiles information on patients, prescribers, pharmacies and the medications dispensed. Prescribers and pharmacists registered with the Drug Enforcement Administration (DEA) and the PDMP can access prescription information to make informed decisions when writing or filling prescriptions to ensure appropriate prescribing and dispensing practices.[4] For example, prescribers and pharmacists can check the PDMP before prescribing to see what substances their patient receives and avoid prescribing new medications that may have dangerous interactions with existing medications. Prescribers can also check the PDMP to make sure that their patient is not receiving multiple prescriptions from multiple prescribers and pharmacies. In Colorado, prescribers are not required to use the PDMP except when considering prescribing a refill to an opioid naïve patient for acute pain (SB18-022).

System Features

In 2014, Colorado legislators passed a bill that aligned Colorado's PDMP with best practice strategies.[6,7] The bill included:

Mandatory Registration: Every Colorado pharmacist and licensed prescriber who registered with the DEA to prescribe controlled substances is required by law to register with the PDMP.

Push Notices: DORA uses the PDMP to send educational "push notices" (also known as unsolicited reports) to prescribers and dispensers to flag overlapping prescriptions dispensed to patients from multiple prescribers and pharmacies. This allows prescribers to determine if those multiple prescriptions are appropriate for the individual patient. Information in the notices helps providers deliver optimal care for their patients.

Delegates: Prescribers can assign up to three delegates from their health care team to access the PDMP on the prescriber's behalf. This helps manage workflow and saves the prescriber time.

Data Uploads: Pharmacies must upload prescription data on a daily basis no later than the pharmacy's next regular business day for every controlled substance dispensed. This ensures that the data is accurate and up-to-date.

System Updates

In 2017, Colorado enhanced the PDMP to make prescription data more accurate, relevant and functional. The enhancements included:

PDMP User Interface: Improvements were made to the user interface on the PDMP website to make it more user-friendly and ensure that prescription information is more accurate, timely and accessible.

Prescriber Reports: As of August 2017, providers are required to add their specialty as part of registering for the PDMP, which allows them to receive quarterly reports summarizing their own prescribing history and aggregated prescribing history of the other prescribers within the same specialty. These reports raise awareness among prescribers about their own prescribing habits and promote responsible prescribing. Information in the reports helps providers deliver optimal care for their patients.

Integration Capabilities: CDPHE and DORA are evaluating multiple ways to integrate the PDMP into existing health care systems and workflows by combining the PDMP with other clinical data and systems, such as electronic health records and health information exchanges. This will allow the prescribers to more easily access PDMP data in conjunction with a patient's chart.

Interconnect: This feature allows PDMPs from participating states to exchange prescription data across state lines to authorized requestors while enforcing each state's data sharing rules. As a result, prescribers can know the total number of controlled substances dispensed to each patient and play a more informed role in the health and safety of their patients.

Colorado Healthcare Providers

The PDMP is available to the following Colorado licensed individuals: pharmacists, physicians, physician assistants, advanced practice nurses, dentists, podiatrists, optometrists and veterinarians. Table 1 shows the number and type of providers who have accessed and requested a patient's controlled substance information.

Table 1: The Number of Users and Patient Searches by Provider Type, Colorado, 2017-2018

Provider Type	Number of Prescriptions Dispensed 8/17-8/18	Number of Opioid Prescriptions Dispensed 8/17-8/18	Number of Registered PDMP Users 8/17-8/18	Number of Patient Searches 8/17-8/18
Dentist (DDS, DMD)	341,518	307,414	2,598	19,278
Medical Resident	17,475	10,418	440	11,866
Midwife with Prescriptive Authority	5,603	2,167	143	281
Nurse Practitioner	1,042,465	436,613	2,361	275,539
Optometrist	308	269	438	48
Pharmacist	4	2	5,074	919,388
Pharmacist's Delegate	-	-	97	54,743
Physician (MD, DO)	4,622,787	1,952,139	10,129	564,736
Physician Assistant (PA)	994,991	512,154	1,925	180,231
Podiatrist (DPM)	20,274	18,782	109	1,096
Prescriber Delegate	13,737	4,244	755	513,143
Veterinarian (DVM)	40,240	13,245	1,416	710

Source: Colorado Prescription Drug Monitoring Program, Department of Regulatory Agencies

Although health care providers are the main users of the PDMP, other entities can also obtain information from the PDMP. Regulatory boards and law enforcement officers engaged in an active, authorized investigation with a valid court order or subpoena may request to access the data for individuals under investigation. Individual patients can also submit a request to receive a copy of their own information (Table 2).

Table 2: Number of Searches by Search Type, Colorado, 8/2017-6/2018

Search Type	Number of Searches
Investigative	1,385
Self-look-up	4,362

Source: Colorado Prescription Drug Monitoring Program, Department of Regulatory Agencies

Dispensed Prescriptions

The data in this section represent all controlled substance prescriptions dispensed to Colorado residents. Table 3 describes the general characteristics of these controlled substances.

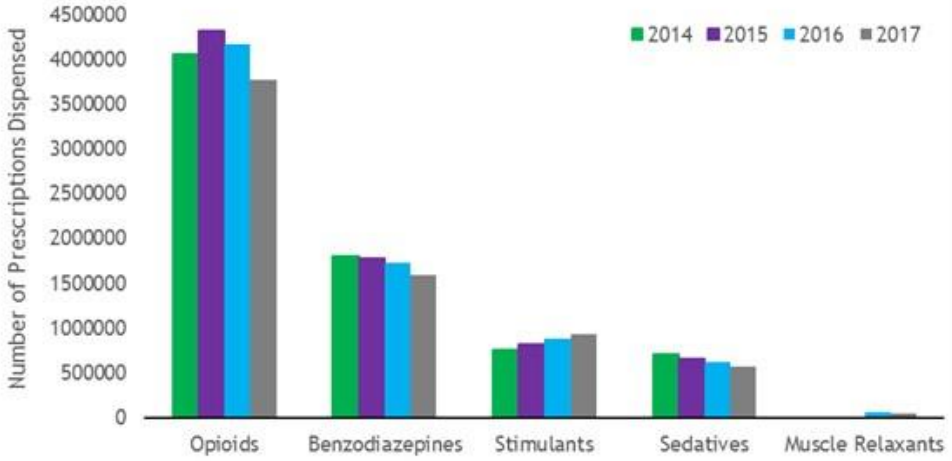
Table 3: Characteristics of Controlled Substance Prescriptions Dispensed, Colorado 2014-2017

Characteristics	2014	2015	2016	2017
Number of Prescriptions Dispensed	8,499,973	8,739,789	8,554,976	8,053,171
Number of Unique Patients	1,614,277	1,642,929	1,606,599	1,550,864
Number of Unique Prescribers	39,226	38,750	46,177	45,564
Number of Unique Pharmacies	1,128	1,028	1,229	1,298

In 2014 NPI was used to identify unique prescribers and pharmacies as DEA numbers were not available until 2015
Data Source: Colorado Prescription Drug Monitoring Program, Colorado Department of Regulatory Agencies
Analysis by: Colorado Department of Public Health and Environment, 2018

This report categorizes controlled substances into five main classes: opioids (i.e. oxycodone), benzodiazepines (i.e. alprazolam), stimulants (i.e. amphetamine), sedatives (i.e. zolpidem) and muscle relaxants (i.e. carisoprodol). Figure 4 illustrates the amount of Schedule II-V controlled substances dispensed to Colorado residents from 2014- 2017. Although the number of prescriptions has decreased, opioids continue to represent 47 percent of prescriptions dispensed.

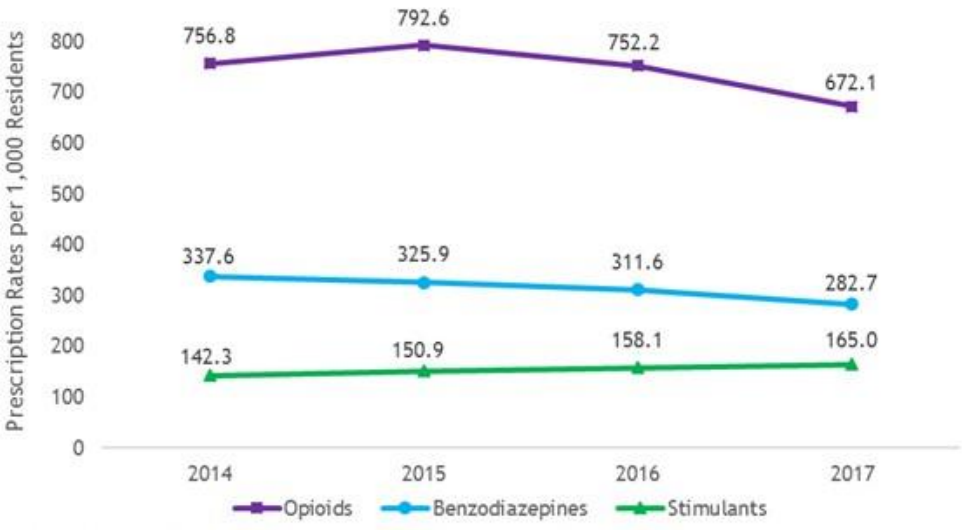
Figure 4: Amount of Controlled Substances Dispensed to Residents, by Drug Class, Colorado, 2014-2017



Excludes buprenorphine medications commonly used to treat opioid use disorder
Muscle relaxants were not included as a major drug class until 2016.
Data Source: Colorado Prescription Drug Monitoring Program, Colorado Department of Regulatory Agencies
Analysis by: Colorado Department of Public Health and Environment

Opioids, benzodiazepines, and stimulants are the most prescribed drug classes dispensed to Colorado residents. Figure 5 shows prescription rates for the three most prescribed drug classes by year. From 2014 to 2017, opioid prescriptions decreased 11.2 percent, benzodiazepines decreased 16.3 percent and stimulants increased 15.9 percent. Variation in prescription rates by drug class is clear but there is also variation in prescription rates by patient demographics. Opioid prescription rates by patient gender and age group are available on the Consortium for Prescription Drug Abuse and Prevention (Consortium) data dashboard.

Figure 5: Prescription Rates for Select Drug Classes, Colorado, 2014-2017



Excludes buprenorphine medications commonly used to treat opioid use disorder
Data Source: Colorado Prescription Drug Monitoring Program, Colorado Department of Regulatory Agencies
Analysis by: Colorado Department of Public Health and Environment

Opioids are powerful medications primarily used to treat pain. To provide meaningful guidance to prescribers and dispensers, the Colorado Dental Board, Medical Board, State Board of Nursing and the Nurse-Physician Advisory Task Force for Colorado Healthcare created the 2014 Policy for Prescribing and Dispensing Opioids. In March 2018, all six of Colorado's prescribing and dispensing boards (Dental, Medical, Nursing, Optometry, Podiatry, Pharmacy) adopted a revised Guidelines for Prescribing and Dispensing Opioids. To learn more about the revision process or the changes made to the new version, visit the Opioid Guidelines website.

This section describes population level prescribing and dispensing data of **opioid prescriptions** dispensed to Colorado residents based on PDMP data. The data in Table 4 represent all opioid prescriptions dispensed to Colorado residents from 2014-2017.

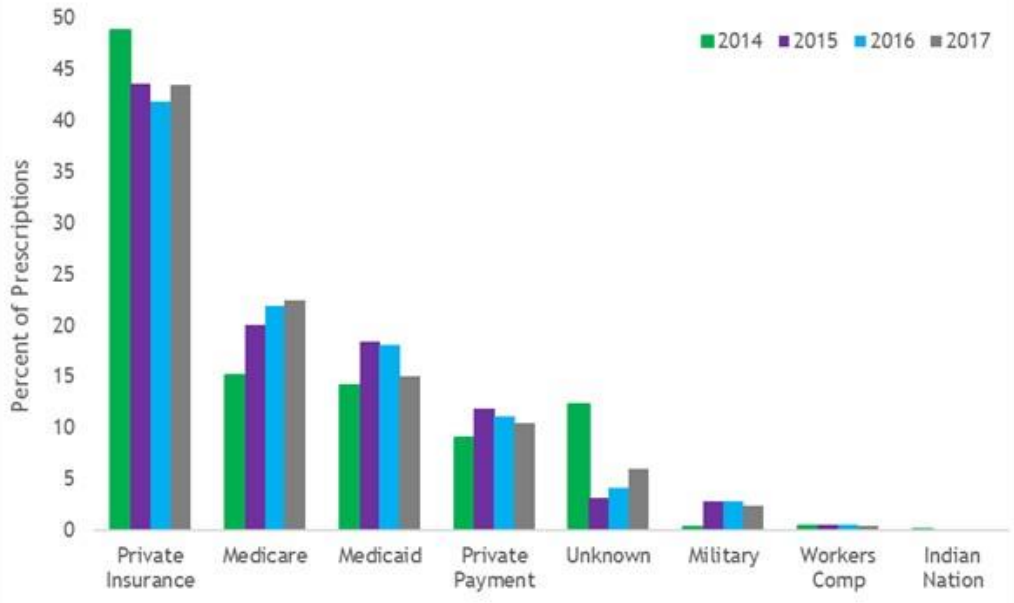
Table 4: Characteristics of Opioid Prescriptions Dispensed, Colorado, 2014-2017

Characteristics	2014	2015	2016	2017
Number of Prescriptions Dispensed	4,039,048	4,310,254	4,159,575	3,765,253
Number of Unique Patients	1,085,551	1,131,781	1,102,297	1,027,685
Number of Unique Prescribers	25,011	24,784	28,063	27,676
Number of Unique Pharmacies	941	839	1,039	1,097

Excludes buprenorphine drugs commonly used to treat opioid use disorder
In 2014 NPI was used to identify unique prescribers and pharmacies as DEA numbers were not available until 2015
Data Source: Colorado Prescription Drug Monitoring Program, Colorado Department of Regulatory Agencies Analysis
by: Colorado Department of Public Health and Environment, 2018

Figure 6 shows how Colorado residents paid for their opioid prescriptions. The top known payment methods for opioid prescriptions are private insurance, Medicare, Medicaid, and private pay.

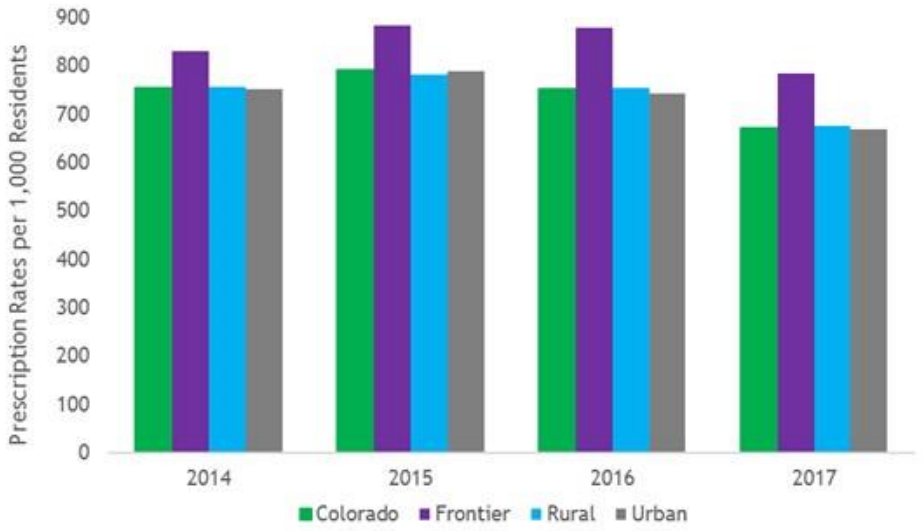
Figure 6: Opioid Prescriptions by Payment Type, Colorado, 2014-2017



Excludes drugs commonly used to treat opioid use disorder
Private payment refers to prescriptions paid for with cash, credit cards, checks or pharmacy cards etc.
Data Source: Colorado Prescription Drug Monitoring Program, Colorado Department of Regulatory Agencies
Analysis by: Colorado Department of Public Health and Environment

Residents in urban and rural counties have a similar amount of prescriptions per person as the state. Although prescription rates in frontier counties have decreased over time, they remain higher than the state rate (Figure 7).

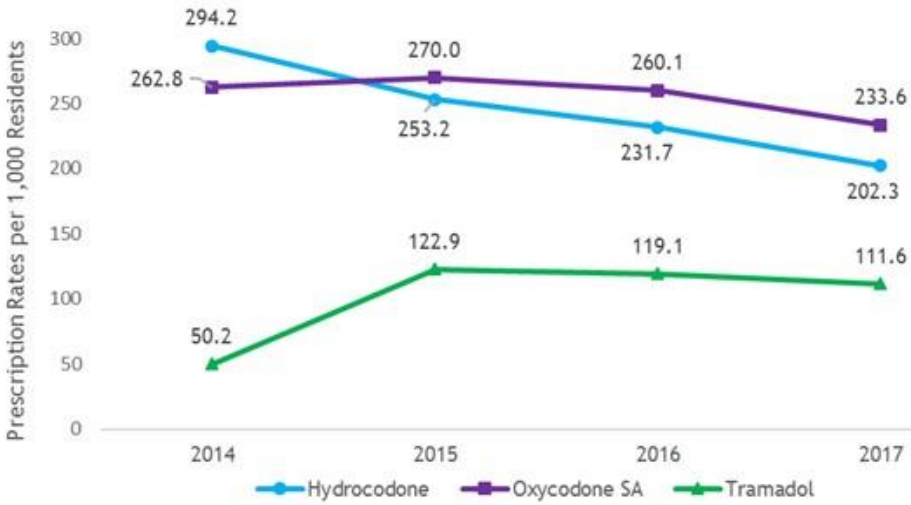
Figure 7: Opioid Prescription Rates by County Designation, Colorado, 2014-2017



Excludes drugs commonly used to treat opioid use disorder
Data Sources: Colorado Prescription Drug Monitoring Program, Colorado Department of Regulatory Agencies
Analysis by: Colorado Department of Public Health and Environment

There are 17 types of opioid drugs in the PDMP: buprenorphine, butorphanol, codeine, dihydrocodeine, fentanyl, hydrocodone, hydromorphone, levorphanol, meperidine, methadone, morphine, opium, oxycodone, oxymorphone, pentazocine, tapentadol and tramadol. In Colorado in 2017, opioids (oxycodone, hydrocodone, tramadol) represented the most prescribed drugs dispensed to Colorado residents. Figure 8 shows prescription rates for these most frequently prescribed opioids.

Figure 8: Prescription Rates for the Top Prescribed Opioids, Colorado, 2014-2017



Excludes buprenorphine medications commonly used to treat opioid use disorder
In August 2014 tramadol was rescheduled as a schedule IV controlled substace. Prior to that, tramadaol prescriptions were not captured by the PDMP.
Data source: Colorado Prescription Drug Monitoring Program, Colorado Department of Regulatory Agencies
Analysis by: Colorado Department of Public Health and Environment

According to the CDC, some risk factors for prescription drug misuse include high-dose prescribing, multiple provider episodes, long duration opioids, and overlapping opioid and benzodiazepine prescriptions.[5] Understanding these risk factors may help providers better assist their patients in pain management while also protecting their health and safety.

Percent of Patients Receiving High Dosage Prescriptions

Morphine is the standard measure for managing pain and is therefore used as a reference for calculating opioid prescription doses. Higher dosages are associated with an increased risk of opioid use disorder and overdose. In 2016, the Center for Disease Control and Prevention's (CDC) prescribing guidelines recommended opioid dosages should not exceed 90 morphine milligram equivalents (MME) per day.[6,7,8] Assessing dosage can help to identify problematic prescribing practices and patients who may be at risk for substance use disorders.

Table 5: Estimated Doses for Commonly Prescribed Opioids

90 MME	60 mg oxycodone	90 mg hydrocodone	900 mg tramadol
	30 mg oxymorphone	22.5 mg hydromorphone	20 mg methadone

Rate of Multiple Provider Episodes (MPEs)

The use of multiple prescribers and pharmacies is associated with high-risk drug-related behaviors and adverse events such as opioid abuse and overdose. The number of prescribers and pharmacies a patient visits is often used as a proxy measure for "doctor shopping" which is when a patient receives opioid prescriptions from five or more prescribers and pharmacies in a six-month period.[5,6] The calculation for this measure has been updated and the data in Table 6 reflect the changes.

Percent of Patients Prescribed Long-Acting/Extended Release (LA/ER) Opioids who were Opioid-Naïve

Opioid naïve patients may be more vulnerable to adverse effects of LA/ER opioids such as slowed and difficulty breathing and overdose. Time-scheduled opioids are associated with greater total average daily dosages and increased risk for long-term use.[6] Previously, CDC defined opioid naïve patients as those who did not fill an opioid prescription in the previous 60 days. In March 2018, a revised definition referred to opioid naïve patients as those who did not fill an opioid prescription in the previous 45 days. The data in Table 6 are updated to reflect the changes.

Percent of Patient Prescription Days with Overlapping Prescriptions

Both benzodiazepines and opioids are central nervous system depressants that can compromise the respiratory system. Benzodiazepines enhance the effects of opioids so the concurrent use of benzodiazepines and opioids can increase the risk of adverse events such as drug interactions and overdose.[5,6] This indicator measures the duration of overlapping prescriptions. Longer duration of overlapping prescriptions may raise concerns about potential drug interactions and resulting side effects.

Table 6 includes the population-level indicators described. Data for these indicators were retrospectively updated for all the years to reflect the new definitions and allow for comparisons across all years of data.

Table 6: High Risk Prescribing Practices and Patient Behaviors, Colorado, 2014-2017

Indicators	2014	2015	2016	2017	2014-2017 % change
Patients receiving more than 90 MME (%)	10.3	8.9	8.7	8.2	20.5
Patients with MPE's (rate/100,000 residents)	170.1	124.0	93.6	68.0	60.0
Patients prescribed LA/ER opioids who were opioid-naïve (%)	18.2	17.6	15.8	15.1	17.3
Patient prescription days with overlapping opioid prescriptions (%)	22.3	21.5	21.4	20.5	7.8
Patient prescriptions days with overlapping opioid and benzodiazepine prescriptions (%)	12.1	11.6	11.2	9.9	18.0

Schedule II-IV Controlled Substances
Excludes Buprenorphine drugs commonly used for treatment
Annual percentages are based on average of quarterly percentages
Data Source: Vital Statistics Program, CDPHE and the Colorado Prescription Drug Monitoring Program, DORA
Data Analysis by: CDPHE, 2018

Conclusion

The misuse of prescription drugs is a multidimensional problem. The solution lies in a balanced approach where access to medications is preserved for those who will truly benefit from them to manage their pain, while also preventing dependence and addiction. However, while many people benefit from opioids for pain management, increased use of prescription pain relievers has led to increases in associated mortalities. In Colorado in 2017, opioid-related deaths represented 57 percent of total drug poisoning deaths. Mortality data in this report highlight the severity of the opioid overdose crisis and the continued need to monitor these trends and reduce opioid dependence, misuse, addiction and overdose.

The PDMP is another critical tool in the fight to protect the health and safety of Coloradans. The information in the PDMP is useful in identifying prescribing practices and patient behaviors that can increase the risk of overdose. The data included in the PDMP can help organizations understand who is prescribing these medications, how many residents are filling prescriptions, what drugs are being dispensed and where. A balanced approach is needed to address prescription drug misuse to ensure patients have access to safe and effective pain management while reducing the number of people who misuse or overdose from prescription opioids.

Data Limitations

Data in this report should be interpreted with caution for several reasons. Overdose deaths are complex and variation in death investigation practices may impact the measurement of overdose death rates. For example, coroners may or may not perform an autopsy and order toxicology tests. In cases where tests are ordered, the substances tested for and the types of tests performed may vary by coroner, region, or decedent. These overdose deaths all have an underlying cause of death that is acute drug poisoning. However, deaths involving multiple drugs make it challenging and expensive to identify which of the various substances caused death. In addition, it can be difficult for CDPHE to confirm the data included on the death certificate or identify information gaps. Colorado does not have a central database repository of toxicology reports for unintentional overdose deaths. When no drugs are specified on the death certificate, CDPHE cannot determine whether the coroner did not test for drugs or whether test results were negative. The drug overdose rates involving a specific drug should be considered the minimum rate, as there may be additional deaths where the drug was involved but not specified on the death certificate. The interpretation of findings should take into account the increased specificity of the drugs listed on death certificates. Increases in overdose death rates may be due to improved reporting, actual increases in the data, or a combination of both.

Additionally, the accuracy of the indicators based on PDMP data is limited by the completeness and quality of the data when entered into the system. One limitation of using the PDMP for population-level analyses is that it does not include contextual information about the patient's diagnosis or the reason the provider prescribed the medication. For example, the PDMP does not collect information such as: provider specialty, the patient's medical condition, if a patient took dispensed medications as prescribed, or if patients have a substance use disorder. Additionally, this report references specific thresholds using absolute values for indicators of high risk prescribing practices and patient behaviors. Using absolute values without any supplemental contextual information can result in identifying patients at risk for substance use disorder or overdose. However, not all individuals who breach the threshold are at risk for substance use disorder or overdose and those below the threshold may still be at risk. Therefore, interpretations of these measures are limited due to the lack of contextual information regarding the prescriptions.

Lastly, many state and local public health agencies use hospital claims data for emergency department (ED) visits and hospitalizations to measure the trends in non-fatal overdoses and the impact they have on the community. These claims data are coded into a system called ICD-10-CM, which is a new system that is more detailed than the previous ICD-9-CM system. With the transition to ICD-10-CM, new standardized surveillance case definitions for overdose-related hospitalizations and ED visits are required. As a result, CDPHE staff, other public health agencies and national partners are collaborating to determine which diagnoses codes should be used to classify someone as experiencing a drug overdose-related event. Once those recommendations are finalized, CDPHE will apply those definitions to Colorado's discharge datasets and share updated ED and hospitalization trends using the new coding system. Until the new definitions are finalized, the most current morbidity data can be found on the Consortium data dashboard and are based on the ICD-9-CM definitions.

Resources

CDPHE Opioid Overdose Prevention Program
Violence and Injury Prevention-Mental Health Promotion Blog
CDPHE Medication Take Back Program Drug Overdose Death Statistics
CDC Opioid Prescribing Guidelines
CDC MME Conversion files
CDPHE Standing Orders website
PDMP website
Opioid and Other Substance Use Disorders Study Committee website
Colorado Consortium for Prescription Drug Abuse and Prevention
Prescription Drug Data Dashboard
Prescription Drug Misuse Prevention: Community Reference Guide
Heroin in Colorado Report
Take Meds Seriously
Rise Above Colorado
DORA Opioid Prescribing Guidelines
Naloxone Standing Orders

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