



Telling the Story of Opioid Use in Wyoming

Rodney Wambeam, PhD
Senior Research Scientist

Lauren Gilbert, PhD, MPH
Assistant Research Scientist

Tess Kilwein, MA
Graduate Research Assistant

Wyoming Survey & Analysis Center
University of Wyoming
1000 E. University Avenue, Department 3592
Laramie, Wyoming 82071
307.766.2189 | wysac@uwyo.edu
www.uwyo.edu/wysac

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Contact: Erica Mathews

307.777.6463

erica.mathews@wyo.gov

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Executive Summary

The State Epidemiological and Outcomes Workgroup (SEOW) strives to provide public health stakeholders with data to inform decisions and policies. It is imperative to investigate the unique version of the opioid crisis that is happening in the state of Wyoming and respond with data-driven decisions, as well as targeted strategies and solutions for prevention and treatment. Historically opioids have been used as painkillers, but they also have great potential for misuse. Opioids are a class of drugs that include the illegal drug heroin, and legally available pain relievers by prescription such as oxycodone (OxyContin®), hydrocodone (Vicodin®), codeine, morphine, and many others.

Not all of the data presented in this report is specifically for prescription opioids. Some of the data, such as the hospital data, includes all opioids, both prescription and illicit. Some of the data represents Schedule II drugs, which the Drug Enforcement Administration (DEA) classifies as drugs that have an accepted medical use, but also have an elevated potential for abuse and addiction (e.g., oxycodone, diazepam). Data from the Wyoming surveys ask about “prescription drugs” more generally, which would include other prescriptions such as depressants (Valium®, Xanax®, etc.) and stimulants (Adderall® and Ritalin®, etc.).

Several opioid data sources, currently available in Wyoming, can assist with tracking opioid misuse and abuse across the state. Evaluators at the Wyoming Survey & Analysis Center (WYSAC) have presented the results of the data inventory throughout this report organized by opioid-related indicators, with key findings and general notes about the data source listed. Additionally, descriptive information about and external links to each data source are catalogued in the appendix. National data are presented here, as well as state and some local level data. When possible, the state data are compared to the national data.

The multiple indicators throughout this report address both consumption rates and related consequences of opioid use and abuse. Self-reported nonmedical use of prescription drugs stems from both national and state surveys administered to adults and youth. In addition, poisoning deaths and opioid drug-related poisonings provide further insight into the consequences that may result from opioid use and abuse. Finally, we also examine the amount of opioids dispensed/prescribed in the state through the Automation of Reports and Consolidated Orders System (ARCOS) data, the Wyoming Prescription Drug Monitoring

Purpose of this Report

The purpose of this report is to document opioid-related data sources and indicators that currently exist in Wyoming.

Program (PDMP) data, and recently released opioid prescribing data. However, it should be noted that these measures are not a direct correlate of opioid use or abuse, as there are legitimate medical uses for opioids.

According to data from the National Survey of Drug Use and Health (NSDUH), Wyoming is generally below the national average in prescription drug misuse among individuals ages 12 and up. In Wyoming, prescription drug misuse is most common among young adults ages 18-25, though rates are decreasing both among this age group and school-age students. Of young adults that report misusing prescription opioids, most deny use in the previous month. Among school-age children, some counties exceed the state average for prescription drug misuse among students in middle school (i.e., Campbell, Fremont, Natrona, Platte, and Washakie) and high school (i.e., Campbell, Carbon, Fremont, Goshen, Hot Springs, Park, Teton, Uinta, and Weston). Wyoming has a stabilizing rate of poisonings deaths due to opioids while the nation continues to increase. Carbon County reports the highest rate of opioid-related inpatient discharges. Though Wyoming is below the national average for prescription drug misuse, Wyoming generally exceeds the national average in opioid prescribing rates. Alternatively, Wyoming is below the national average in morphine milligram equivalent doses distributed per capita, though this gap is closing. Finally, two counties in Wyoming fill more prescriptions than people residing in that county (Uinta and Hot Springs), and one county prescribes more opioids than people in that county (Uinta). However, the Wyoming State Hospital, which provides quality active treatment for a variety of mental disorders, is located in Uinta County, which could explain the higher number of prescriptions fills. Schedule II prescription drug fills slightly decreased from 2014 to 2015.

Introduction

WYSAC at the University of Wyoming completed this project as part of a contractual agreement with the Wyoming Department of Health, Public Health Division (WDH-PHD). Given the gaps in Wyoming's knowledge of opioid use, WDH-PHD sought an overview of what quality data currently exist and what data Wyoming should collect to accurately evaluate the status of prescription drug use in the state.

WYSAC first inventoried what opioid-related data are currently being collected in the state of Wyoming and what data could potentially be utilized. Next, all current data sources were reviewed for validity and reliability, followed by a broad literature review around prescription drug abuse data sources in general and assessing other states' efforts to collect prescription drug abuse data. Throughout this process, data gaps were documented, and recommendations were made on what data gaps should be filled and how to fill them.

Finally, WYSAC and WDH-PHD agreed on two goals for the data gaps analysis: 1) Compiling existing data, and 2) Making the data more useful and available to stakeholders. Thus, WYSAC compiled the data into this single report with the aim of telling the story of prescription opioid use in the state of Wyoming.

Indicator Results

This report is organized by major indicators, with a description of the data and a summary of the key findings. Additional information regarding the data sources, including some of the limitations and links to further examine the data can be found in Appendix B. This report is meant to be a summary of available data. Not all of the data presented in this report are specifically for prescription opioids. Some of the data, such as the poisoning death rates, includes all opioids. Data from the Wyoming Prevention Needs Assessment (PNA) are about “prescription drugs” more generally, which would include other prescriptions such as depressants (Valium®, Xanax®, etc.) and stimulants (Adderall® and Ritalin®, etc.).

Past Year Nonmedical Use of Prescription Pain Relievers

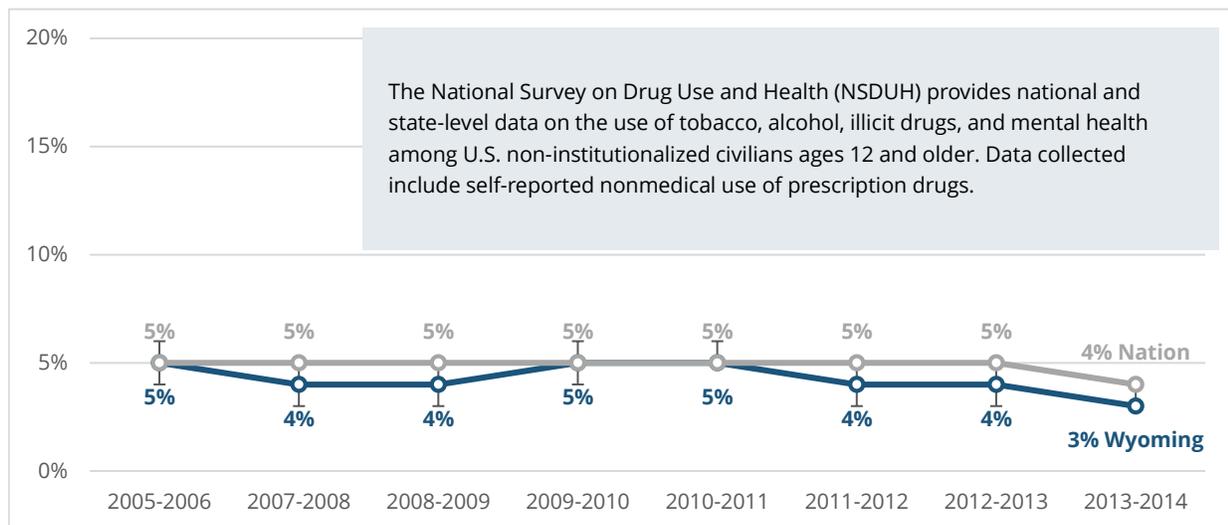
Nonmedical use of prescription-type drugs is defined as use of these drugs without a prescription or use that occurs simply for the experience or feeling the drug causes; use of over-the-counter (OTC) drugs and legitimate use of prescription-type drugs are not included. The National Survey on Drug Use and Health (NSDUH) uses a definition of prescription pain relievers that includes: hydrocodone products; oxycodone products; tramadol products; codeine products; morphine products; fentanyl products; buprenorphine products; oxymorphone products; meperidine products; hydromorphone products; and methadone products. Over-the-counter drugs are not included.

KEY FINDINGS

- There is no statistical difference between past year self-reported nonmedical use of prescription pain relievers in Wyoming and the nation.
- Over time, Wyoming’s self-reported nonmedical prescription pain reliever use has varied from 3% to 5%, with 2013-2014 seeing the lowest reported use at 3%.
- Individuals ages 18 to 25 in Wyoming consistently endorse the highest rates of past year nonmedical prescription pain reliever use in comparison to other age groups.

Figure 1: Past year nonmedical use of prescription pain relievers in Wyoming is comparable to the national average

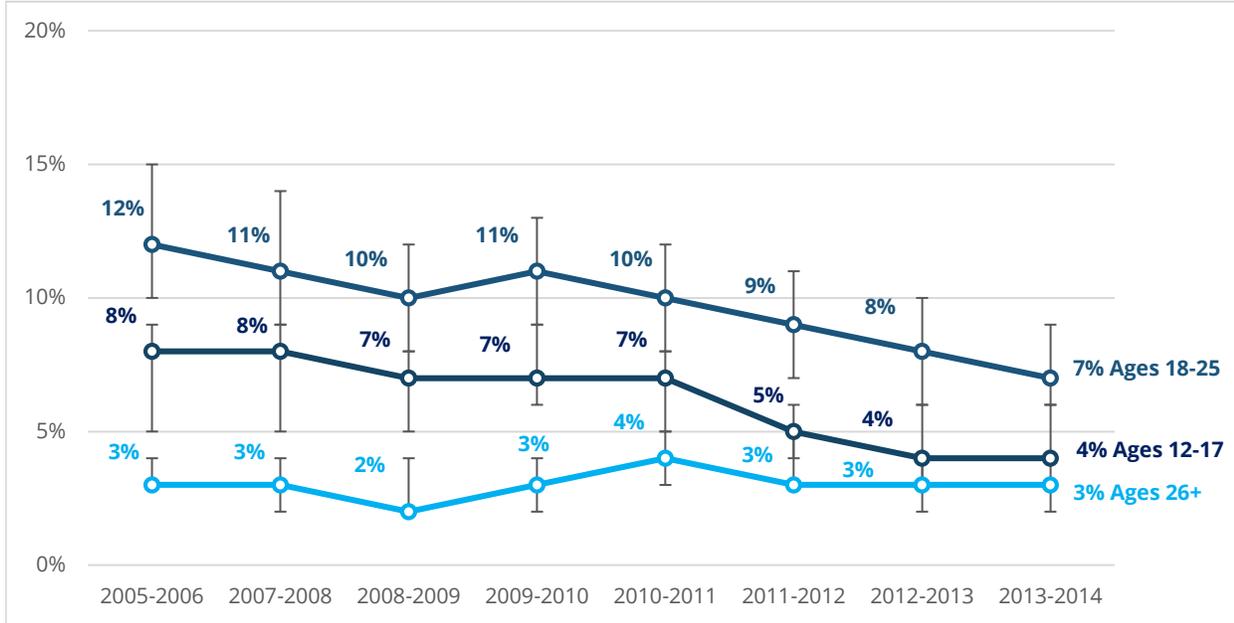
Self-reported prevalence of nonmedical use of prescription pain relievers in the past year among U.S. civilians ages 12 and older living in Wyoming and the U.S.



Source: NSDUH, 2005-2014; Error bars represent 95% confidence intervals

Figure 2: Past year nonmedical use of prescription pain relievers in Wyoming is most common among young adults

Self-reported prevalence of nonmedical use of prescription pain relievers in the past year among U.S. civilians ages 12 and older living in Wyoming, by age group.



Source: NSDUH, 2005-2014; Error bars represent 95% confidence intervals

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Past 30-Day Prescription Drug Misuse Among Wyoming Students

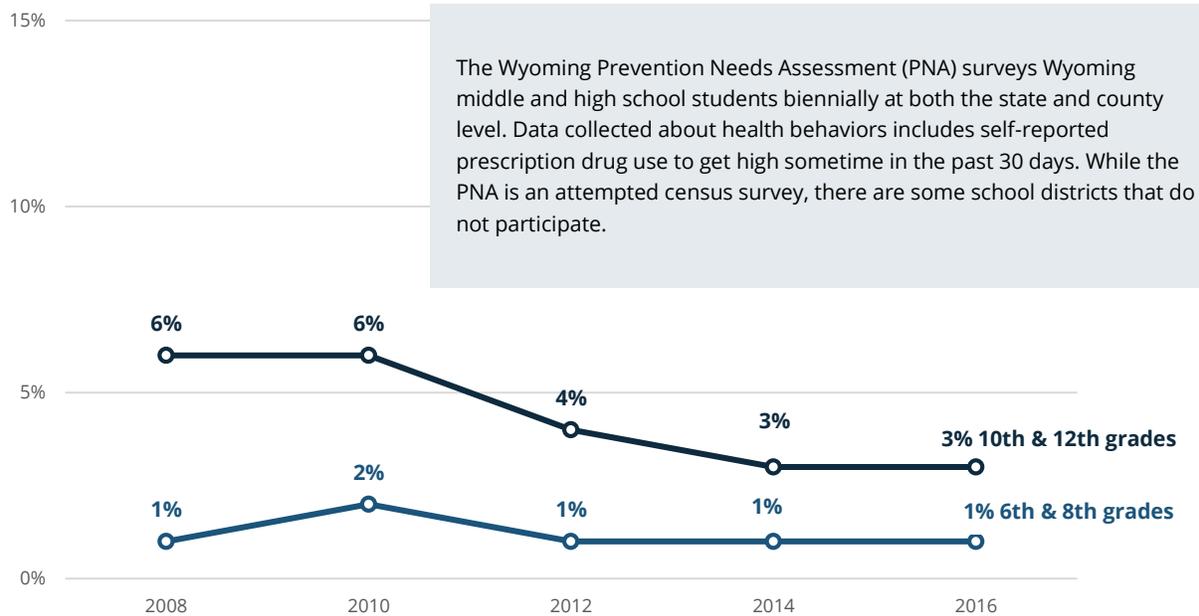
The Wyoming Prevention Needs Assessment (PNA) has several survey questions regarding prescription drugs, but none specific to prescription opioids. These questions ask students about their 30-day misuse (use of prescription drugs to get high).

KEY FINDINGS

- Past 30-day prescription drug misuse appears to be decreasing among 10th and 12th graders in the state of Wyoming.
- The prevalence of Wyoming students' prescription drug use to get high in the past 30-days appears to increase by grade level, with rates leveling off by 10th grade.
- In most years, past 30-day prescription drug use was more common among black and Native American students compared with white and Hispanic students.

Figure 3: Past 30-day prescription drug misuse is more common among Wyoming high school students than middle school students

The percentage of Wyoming middle school (6th and 8th graders) and high school students (10th and 12th graders) who report using a prescription medication to get high in the past 30-days on one or more occasion.

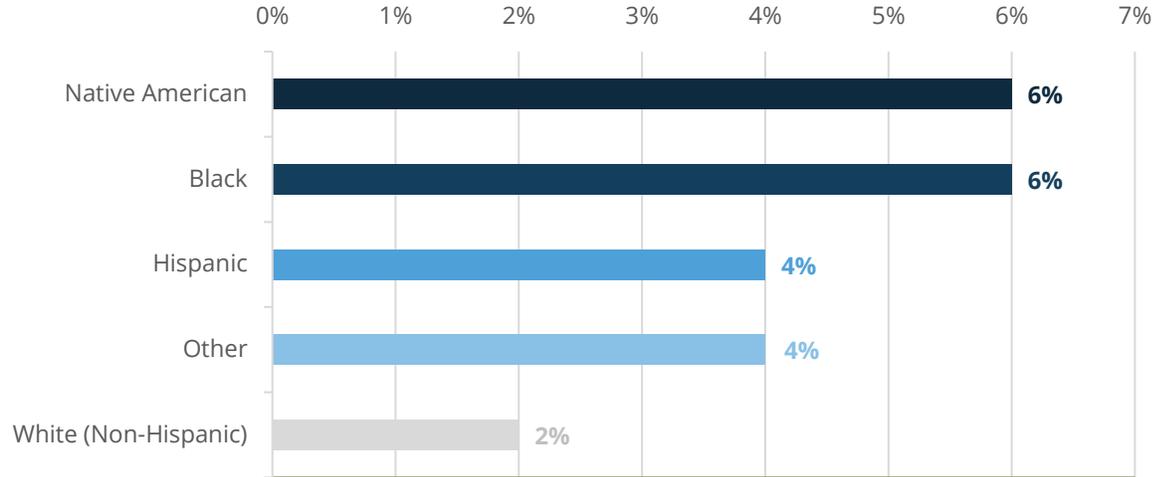


Source: PNA, 2008-2016

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Figure 4: Past 30-day prescription drug misuse varies by race/ethnicity

The percentage of Wyoming middle and high school students who report using a prescription medication to get high in the past 30-days on one or more occasion, broken down by race/ethnicity.

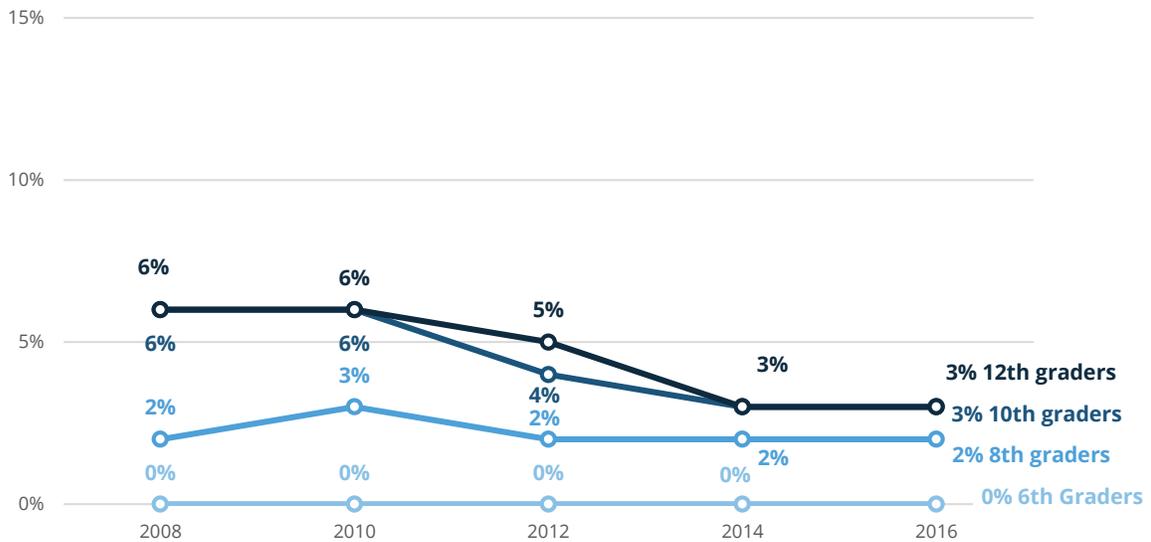


Source: PNA, 2008-2016

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Figure 5: Past 30-day prescription drug misuse peaks by 10th grade

The percentage of Wyoming middle and high school students who report using a prescription medication to get high in the past 30-days on one or more occasions, broken down by grade level.

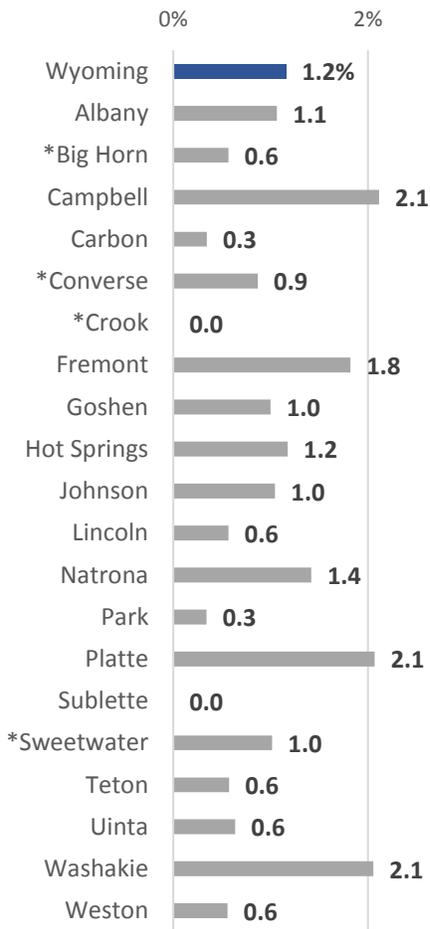


Source: PNA, 2008-2016

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Figure 7: Five counties exceed the state average in prescription medication misuse among middle school students

The percentage of Wyoming middle school students (6th and 8th graders) who report using a prescription medication to get high in the past 30-days on one or more occasions, broken down by county.

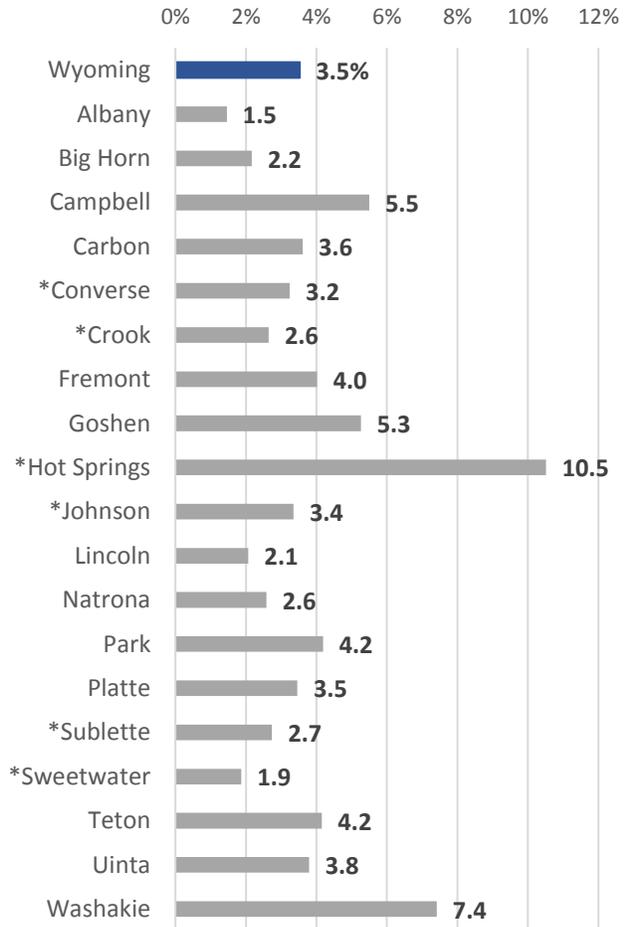


*Note: Big Horn (2012, 2014), Converse (2012, 2014), Crook (2014, 2016), and Sweetwater (2014, 2016) represent the average of two survey years. Laramie County is missing data from all years, therefore this county is excluded from presented estimates. Niobrara and Sheridan county grades 6 and 8 are missing for two of the three years; therefore, these counties are excluded from the presented estimates.

Source: PNA, 2012-2016

Figure 6: Nine counties exceed the state average in prescription medication misuse among high school students

The percentage of Wyoming high school students (10th and 12th graders) who report using a prescription medication to get high in the past 30-days on one or more occasions, broken down by county.



* Note: Converse (2012, 2014), Crook (2014, 2016), Hot Springs (2012, 2014), Johnson (2012, 2014), Sublette (2012, 2014), and Sweetwater (2014, 2016) represent the average of two survey years. Laramie County is missing data from all years; therefore, this county is excluded from the presented estimates. Niobrara, Sheridan and Weston county grades 10 and 12 are missing for two of the three years; therefore, these counties are excluded from the presented estimates.

Source: PNA, 2012-2016

Past 30-Day Misuse of Prescription Drugs Among Wyoming Young Adults

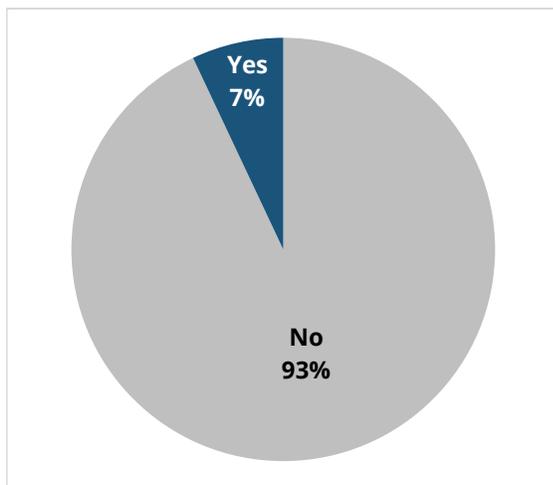
The Wyoming Survey of Young Adults obtains data on substance abuse and other health-related behaviors, awareness, and attitudes among Wyoming residents aged 18 to 29 years, including 30-day misuse (use of prescription drugs to get high). This survey was first conducted by WYSAC in 2016, and will be repeated in 2018.

KEY FINDINGS

- Seven percent of young adults report any lifetime misuse of prescription drugs.
- These findings are consistent with NSDUH data in 2013-2014 (7% lifetime prescription drug misuse among 18-25 year olds).
- Most of those reporting lifetime misuse had not used prescription drugs in the past month.
- Prescription drug misusers are using at a small monthly frequency (no more than 3 days per month).

Figure 8: Majority of young adults deny lifetime misuse of prescription drugs

Percent of lifetime prescription drug misuse among Wyoming young adults ages 18-29.

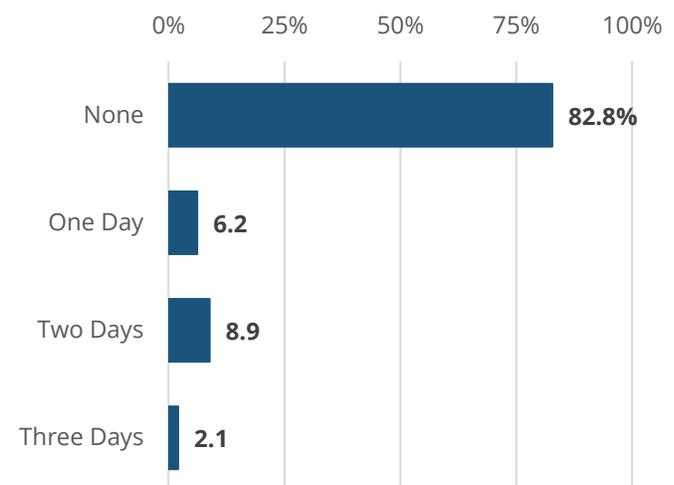


Source: Wyoming Survey of Young Adults, 2016.

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Figure 9: Of those who have misused a prescription, nearly all have not misused in the past month

Past 30-day frequency of prescription drug misuse among lifetime users.



Source: Wyoming Survey of Young Adults, 2016.

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Poisoning Deaths Due to Opioids

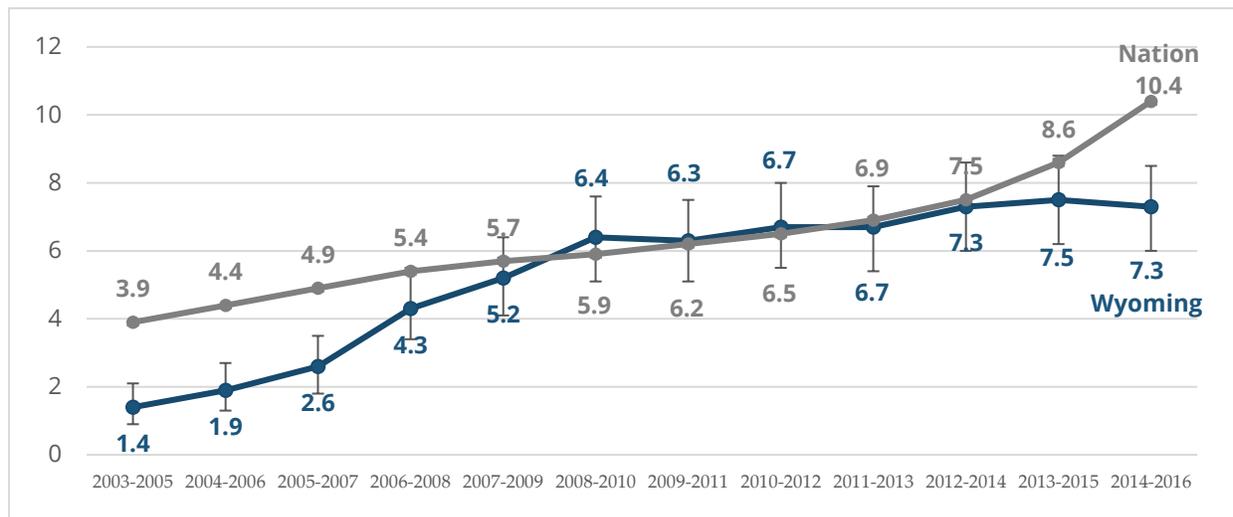
The Centers for Disease Control and Prevention (CDC) Wonder is a public health database that includes mortality data from U.S. death certificates. This allows for an examination of opioid-related poisoning deaths using the multiple cause of death data. Opioid-related poisoning deaths are identified using ICD-10 codes for poisoning deaths with contributing causes due to all opioid poisoning, both illicit and prescription, and both accidental (unintentional) and intentional poisonings. This includes opium, heroin, other opioids, methadone, and other synthetic narcotics.

KEY FINDINGS

- Wyoming has a stabilizing rate of poisonings deaths due to opioids while the nation continues to increase.
- The rate of poisoning deaths due to opioids in Wyoming and nationally have steadily been increasing over time, with a recent increase in the national rate.

Figure 10: Rates of poisoning deaths due to illicit and prescription opioids are stabilizing in Wyoming

Age-adjusted death rates per 100,000 population for opioid poisonings. Aggregate of ICD-10 Codes: Underlying Causes: X40 X41 X42 X43 X44 X60 X61 X62 X63 X64 X85 Y10 Y11 Y12 Y13 Y14; Contributing Causes: T40.0, T40.1, T40.2, T40.3, and T40.4



Note: In order to stabilize data, rates were trended across years.

Source: CDC Wonder, 2003-2016; Error bars represent 95% confidence intervals.

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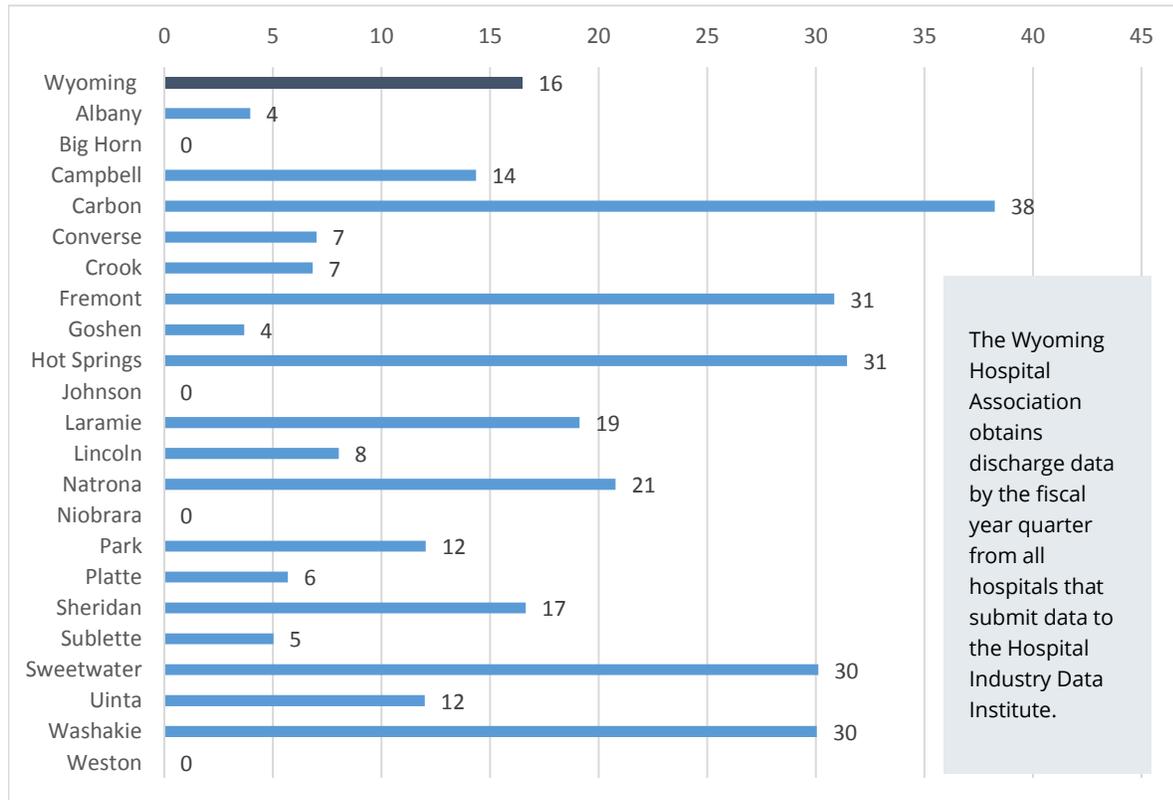
Wyoming Prescription Opioid Related Hospitalizations

The Wyoming Hospital Association obtains discharge data from all hospitals that submit data to the Hospital Industry Data Institute. Inpatient hospital discharges among Wyoming residents from Wyoming hospitals involving prescription opioids are presented here. The county data is the county of residence of the patient for the discharge, not the county of the facility. The unit of analysis is the hospital discharge (i.e., the hospital inpatient stay), not a person or patient. This means that a person who is admitted to the hospital multiple times in one year is counted each time as a separate "discharge" from the hospital.

Figure 11: There is variability in prescription opioid-related inpatient discharges across the state of Wyoming

The rate per 100,000 of prescription opioid-related inpatient discharges from Wyoming hospitals 2014-2015, excluding urgent care facilities. The county data presented here is the county of residence of the patient for the discharge, not the county of the facility.

Aggregate of ICD9 Codes: 965.00, 965.02, 965.09, E850.1, and E850.2.



Note: Teton County is not presented because of inconsistent data reporting.

Source: Wyoming Hospital Association, 2014-2015

KEY FINDINGS

- Carbon County experienced the highest rate of inpatient visits due to opioids.
- Four counties in Wyoming (i.e., Big Horn, Crook, Johnson, Niobrara, and Weston) had no opioid-related inpatient hospital discharges.
- Teton County is not presented because of inconsistent data reporting.

Naloxone Use by EMS

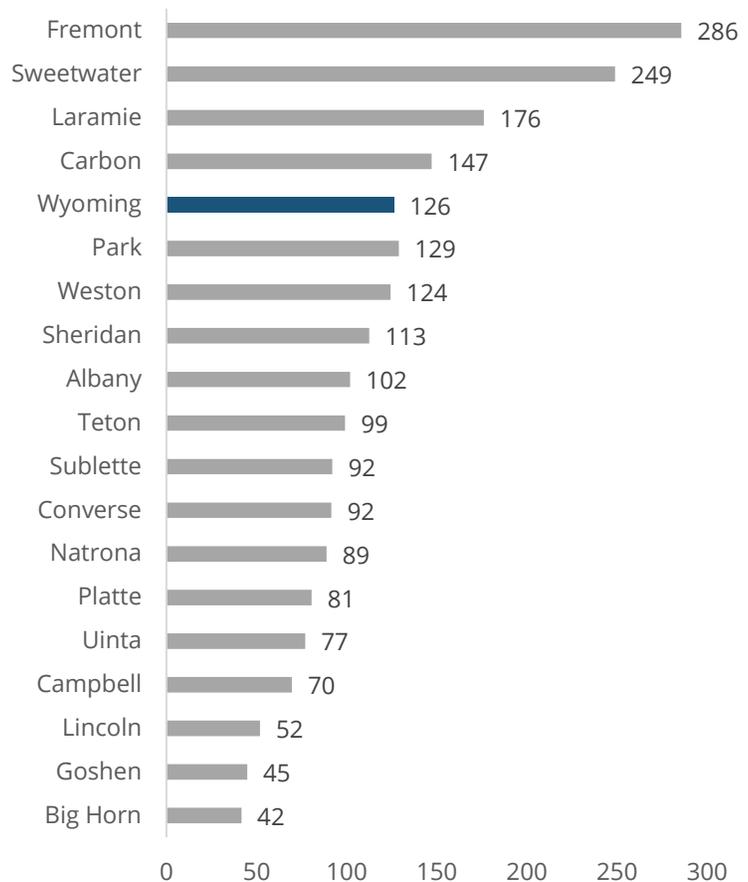
The Wyoming Ambulance Trip Reporting System (WATRS) is available to all Wyoming emergency medical services (EMS) agencies at no charge. It is an electronic medical records system for transporting, non-transporting and air ambulances used for prehospital care. The use of naloxone, which is an opioid overdose reversal agent, is highlighted here. The rates of naloxone administration are based on county of the incident. This data comes from the period between January 1, 2016 and June 30, 2017. The primary impression is the EMS provider's impression of the patient's primary problem or most significant condition that led to the patient's treatment.

KEY FINDINGS

- Wyoming EMS reported administering naloxone on 737 of 92,537 ambulance trips (approximately 878 doses).
- Naloxone was administered at the highest rate in Fremont County, 286 times per 100,000 of county population.
- WATRS records indicate that naloxone was administered in 18 of Wyoming's 23 counties.
- When the primary impression was specifically opioid related, naloxone was administered in fewer than one-quarter of trips. However, not all opioid related primary impressions necessitate the use of naloxone.
- The two most common primary impressions where naloxone was administered were altered mental status, unspecified, and cardiac arrest, cause unspecified. Therefore, primary impressions are not the best predictors of naloxone use.

Figure 12: Naloxone administration rate by county of incident per 100,000 of county population from January 2016 through June 2017

Naloxone is administered at the highest rate in Fremont County.



Note: There is no record of naloxone being used by EMS in Crook, Hot Springs, Johnson, Niobrara, or Washakie counties.

Source: WATRS, 2016-2017

Opioids Delivered to Wyoming Pharmacies

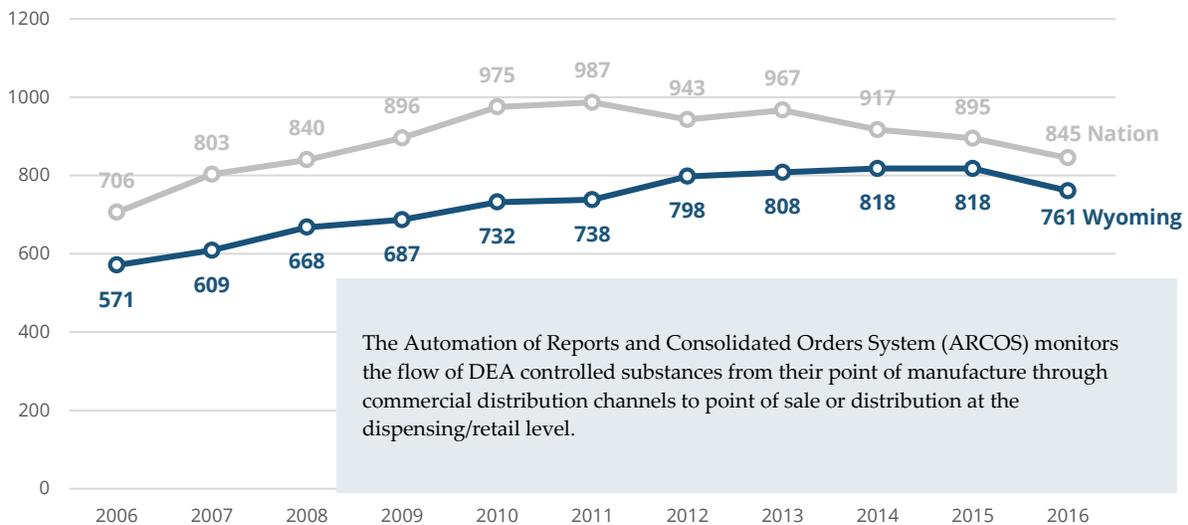
The Automation of Reports and Consolidated Orders System (ARCOS) monitors the flow of Drug Enforcement Administration (DEA) controlled substances from their point of manufacture through commercial distribution channels to point of sale or distribution at the dispensing/retail level (hospitals, retail pharmacies, practitioners, mid-level practitioners, and teaching institutions). ARCOS registrants report quarterly for an annual report that includes information on morphine milligram equivalent (MME) distributions of opioid Schedule II drugs. Schedule II drugs, substances, or chemicals are defined by the DEA as drugs with a high potential for abuse, with use potentially leading to severe psychological or physical dependence. The cumulative amount of opioid medication distributed at the retail level in per capita morphine milligram equivalents (MME) is presented below.

KEY FINDINGS

- Wyoming is consistently below the national average in distributed morphine milligram equivalent doses per capita.
- The gap between the Wyoming and national average appears to be closing as Wyoming continues to be steadily increasing as the national rate is stabilizing.

Figure 13: Distributed morphine milligram equivalent doses per capita in Wyoming is consistently below the national average, with gap closing

The cumulative amount of opioid medication distributed at the retail level in per capita morphine milligram equivalents.



Source: ARCOS, 2006-2016

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Wyoming Opioid Prescribing Rate

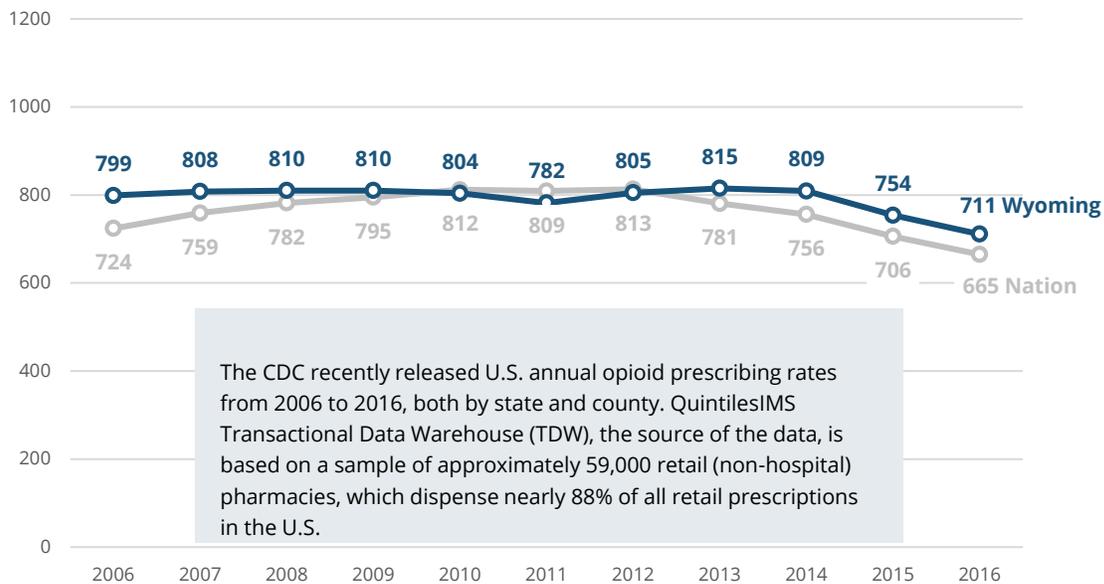
The CDC recently released U.S. prescribing rate maps, showing annual opioid prescribing rates from 2006 to 2016, both by state and county. For the calculation of prescribing rates, numerators are the total number of opioid prescriptions dispensed in a given year, state, or county, as appropriate. Annual resident population denominator estimates were obtained from the Population Estimates Program, U.S. Census Bureau. QuintilesIMS Transactional Data Warehouse (TDW), the source of this data, is based on a sample of approximately 59,000 retail (non-hospital) pharmacies, which dispense nearly 88% of all retail prescriptions in the U.S. Opioid prescriptions, including buprenorphine, codeine, fentanyl, hydrocodone, hydromorphone, methadone, morphine, oxycodone, oxymorphone, propoxyphene, tapentadol, and tramadol were identified using the National Drug Code.

KEY FINDINGS

- Wyoming’s opioid prescribing rate is generally slightly above the national average.
- Uinta County prescribes more opioids than the population in that county. However, the Wyoming State Hospital, which provides quality active treatment for a variety of mental disorders, is located in Uinta County.

Figure 14: Wyoming’s opioid prescribing rate is generally above the national average

Retail opioid prescriptions dispensed per 1,000 persons in the state of Wyoming and the U.S.

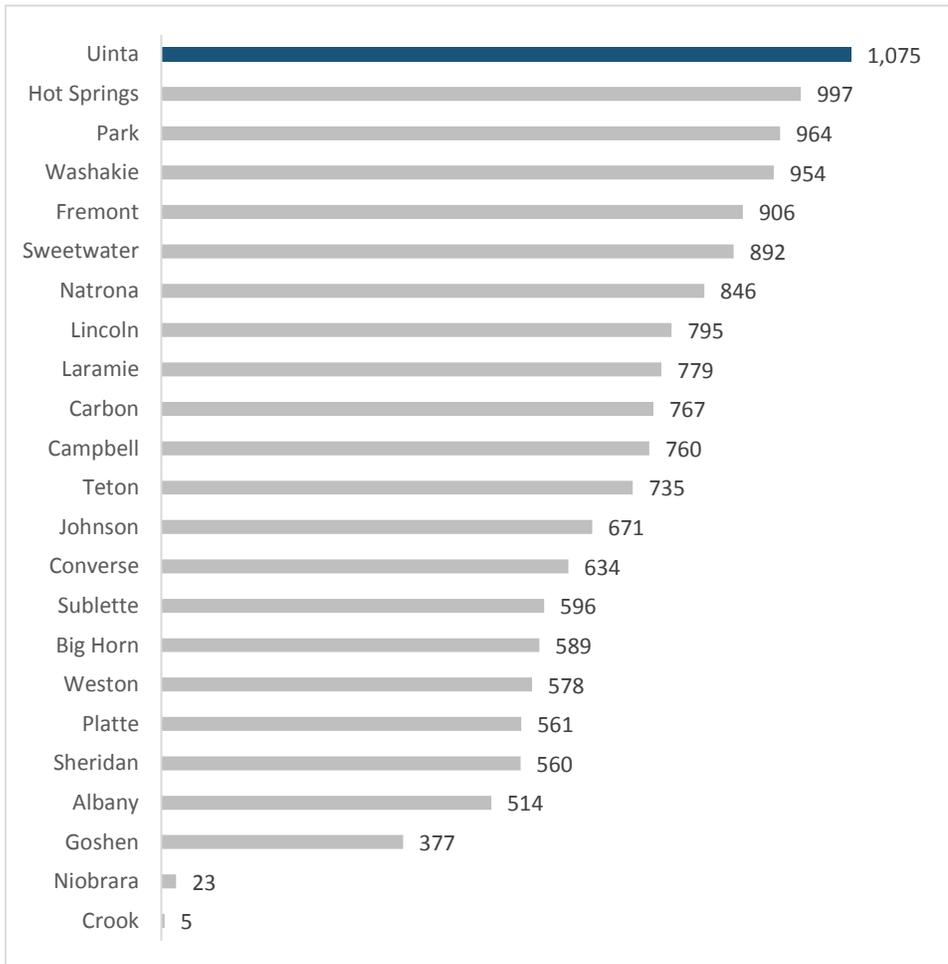


Source: QuintilesIMS Transactional Data Warehouse (TDW) 2006–2016
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- Some counties in Wyoming (i.e., Crook and Niobrara) prescribe relatively no opioids to the people in that county.

Figure 15: One county in Wyoming prescribes more opioids than people in the county

Retail opioid prescriptions dispensed in pharmacies by county per 1,000 persons, 2014-2016



Source: QuintilesIMS Transactional Data Warehouse (TDW) 2014-2016

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Wyoming Schedule II Prescription Drug Fills

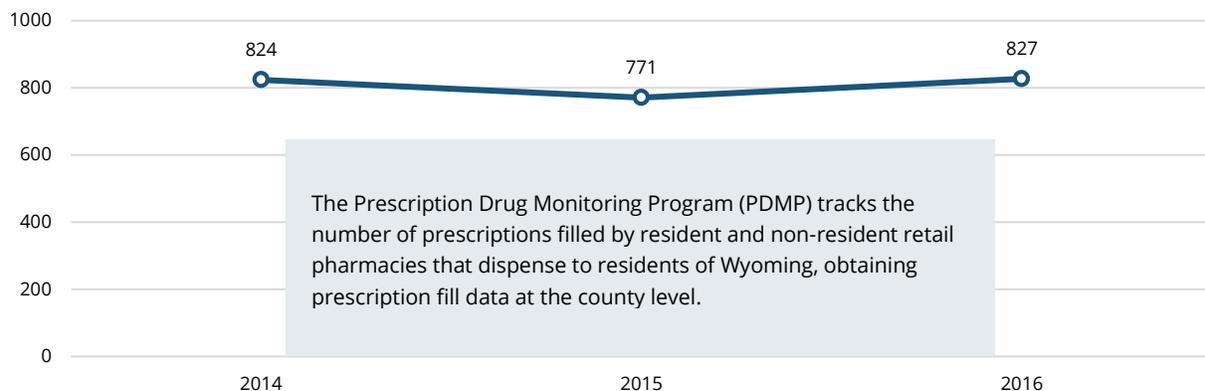
In Wyoming, the Prescription Drug Monitoring Program (PDMP) tracks the number of prescriptions filled by resident and non-resident retail pharmacies that dispense to residents of Wyoming, obtaining prescription fill data at the county level. A non-resident pharmacy is a pharmacy located in a state other than Wyoming that ships prescription drugs to patients in Wyoming. Below are the Schedule II prescription fills by county of patient residence. The Drug Enforcement Administration (DEA) classifies Schedule II drugs as those that have an accepted medical use, but also have an elevated potential for abuse and addiction (e.g., oxycodone, diazepam). Due to changes in methodology, PDMP data prior to 2014 is not comparable.

KEY FINDINGS

- The number of Schedule II fills is fairly stable over the past 3 years, with a slight increase in 2016.
- The number of prescription fills is not the equivalent of the number of pills. Current provider guidelines include reducing the number of pills for each prescription. Therefore, although the number of prescription fills has slightly increased, there may be a reduction in the number of pills being distributed in each fill.
- Two counties in Wyoming (i.e., Uinta and Hot Springs) fill more Schedule II prescriptions than the population in that county. However, the Wyoming State Hospital, which provides quality active treatment for a variety of mental disorders, is located in Uinta County.

Figure 16: Schedule II prescription drug fills in Wyoming reduced from 2014 to 2015

The rate of Schedule II prescription drug (i.e., those that have an accepted medical use, but also have an elevated potential for abuse and addiction) fills in Wyoming per 1,000 persons.

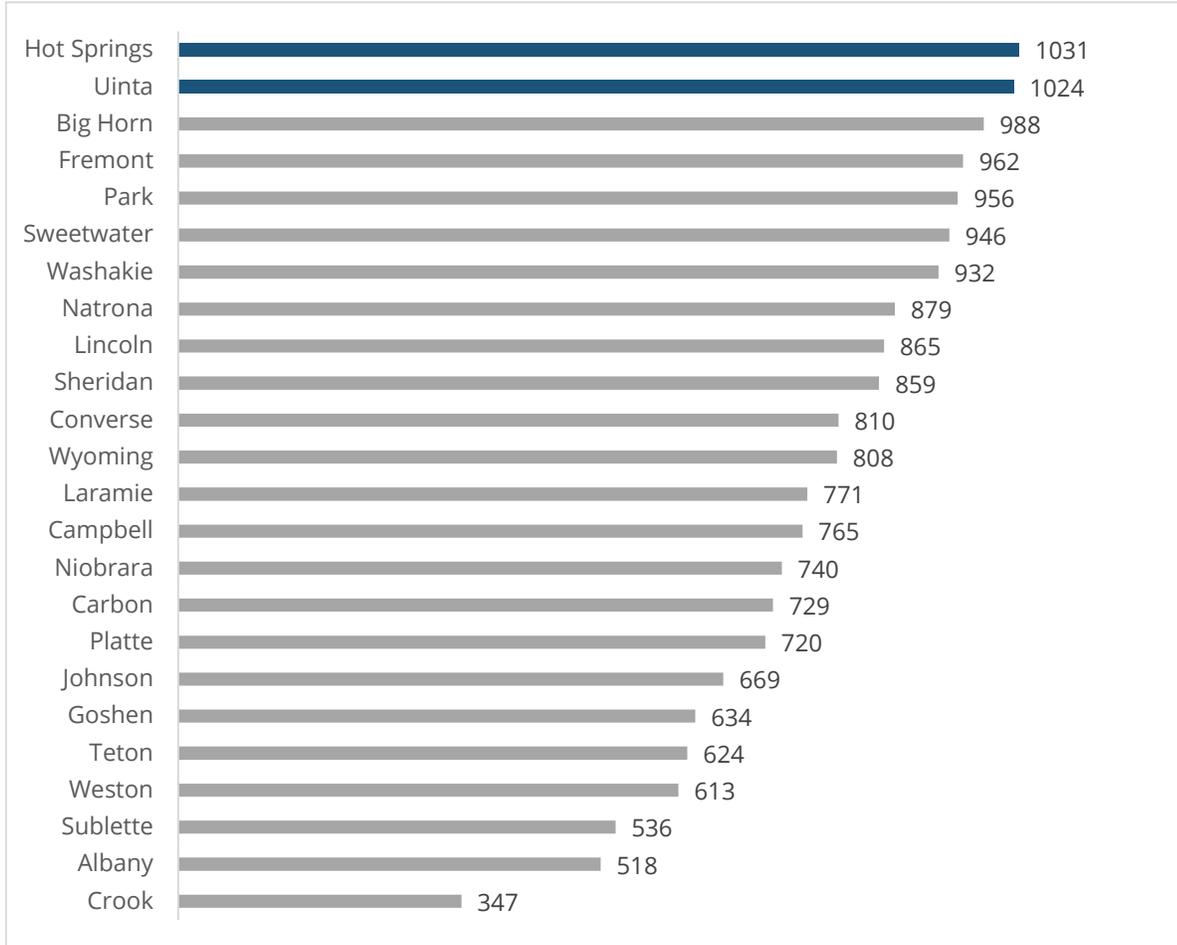


Note: Due to changes in methodology, PDMP data prior to 2014 is not comparable.

Source: PDMP, 2014-2016

Figure 17: Two counties in Wyoming fill more Schedule II prescription drugs than people in the county

The Schedule II prescription drug fills per 1,000 persons in Wyoming by county of residence.



Source: Prescription Drug Monitoring Program (PDMP) 2014-2016

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Conclusion

Wyoming has multiple data available regarding opioid use in Wyoming. Some of these are opioid specific while others are more generalized regarding prescription drugs and prescription drug misuse. Wyoming appears to be experiencing the same increases in opioid-related problems as the nation, with slight decreases in the use of prescription drugs to get high and stabilization in opioid-related poisoning death rates. As Wyoming moves forward in the prevention of the misuse of illicit and licit opioids, it is important to continue tracking the data presented here through the SEOW collaboration.

Appendix A – Key Terms

Table 1: Key terms related to prescription drug use

Prescription drug use has many related terms and definitions that need to be identified and clarified.

Term	Definition	Source
Intoxication	A condition that follows the administration or consumption of a psychoactive substance causing disturbances in the level of consciousness, cognition, perception, judgement, affect or behavior, or other psychophysiological functions and responses.	WHO
Poisoning	According to the WHO, poisoning is “a state of major disturbance of consciousness level, vital functions and behavior following the administration in excessive dosage (deliberately or accidentally) of a psychoactive substance. In the field of toxicology, the term poisoning is used more broadly to denote a state resulting from the administration of excessive amounts of any pharmacological agent, psychoactive or not.” See also: overdose; intoxication.	WHO
Misuse	SAMHSA defines prescription misuse as “intentional or unintentional use of medication without a prescription, in a way other than prescribed”.	SAMHSA
Nonmedical Use of Prescription Drugs	Nonmedical use of prescription-type drugs is defined as use of these drugs without a prescription or use that occurs simply for the experience or feeling the drug causes; use of over-the-counter (OTC) drugs and legitimate use of prescription-type drugs are not included.	SAMHSA
Prescription Drug Abuse	The use of a medication without a prescription, in a way other than as prescribed, or for the experience or feelings elicited.	NIDA
Overdose	The use of any drug in such an amount that acute adverse physical or mental effects are produced. Deliberate overdose is a common means of suicide and attempted suicide. In absolute numbers, overdoses of licit drugs are usually more common than those of illicit drugs. Overdose may produce transient or lasting effects, or death. The lethal dose of a particular drug varies with the individual and with circumstances.	WHO
Substance Use Disorders	Substance use disorders are defined as mild, moderate, or severe to indicate the level of severity, which is determined by the number of diagnostic criteria met by an individual. Substance use disorders occur when the recurrent use of alcohol and/or drugs causes clinically and functionally significant impairment, such as health problems, disability, and failure to meet major responsibilities at work, school, or home. According to the DSM-5, a diagnosis of substance use disorder is based on evidence of impaired control, social impairment, risky use, and pharmacological criteria.	NIDA

WYOMING SURVEY & ANALYSIS CENTER

Appendix B – Data Sources

NSDUH, 2005-2014

The National Survey on Drug Use and Health (NSDUH) provides national and state-level data on the use of tobacco, alcohol, illicit drugs, and mental health among U.S. non-institutionalized civilians ages 12 and older. Data collected include self-reported nonmedical use of prescription drugs. <https://www.samhsa.gov/data/population-data-nsduh/reports?tab=38>

NOTES

- Nearly 70,000 randomly selected individuals are interviewed for the NSDUH and the estimates derived are nationally representative.
- Limitations of the NSDUH include sampling, recall, and social desirability response biases.
- Data from the NSDUH are weighted to representative of the state and not available at the local level.

PNA, 2008-2014

The Wyoming Prevention Needs Assessment (PNA) surveys Wyoming middle and high school students biennially at both the state and county level. The survey was an attempted census survey of all 6th, 8th, 10th, and 12th grade students enrolled in Wyoming public schools. Data collected about health behaviors includes self-reported prescription drug use to get high sometime in the past 30 days. <https://wysac.uwyo.edu/wysac/projects/wyoming-prevention-needs-assessment-survey/>

NOTES

- Core questions of the PNA have demonstrated adequate reliability.
- Nine school districts did not participate in the survey this year. They include Big Horn County School District #1, Converse County School District #1, Fremont County School District #24, Laramie County School District #1, Laramie County School District #2, Park County School District #16, Sheridan County School District #2, Sublette County School District #9, and Uinta County School District #6. This has resulted in a school district response rate of 81%. Additionally, Niobrara County School District #1 had too few participants to generate a county-level report.
- Lack of representation of non-white middle and high school students in Wyoming may affect differences by race/ethnicity.

Wyoming Survey of Young Adults

The Wyoming Survey of Young Adults obtains data on substance abuse and other health-related behaviors, awareness, and attitudes among Wyoming residents aged 18 to 29 years, including 30-day use of prescription drugs.

NOTES

- The survey was first conducted only in 2016, limiting trend data.
- The survey will be repeated in 2018.

CDC Wonder, 2013-2015

The Centers for Disease Control and Prevention (CDC) Wonder obtains public health data, including mortality data from U.S. death certificates, at the county level. This allows for an examination of poisoning deaths due to all opioid poisonings. <https://wonder.cdc.gov/>

NOTES

- As with any analysis based on death certificate data, there is undoubtedly some misclassification of cause of death. In addition, the diagnoses listed on the death certificate are sometimes miscoded ([CDC](#)).
- The opioid related overdose death rates may be underestimated as some overdoses are likely missing information about the specific drug or include non-specific language about the drug. These data have been reported to be missing more frequently in states with a decentralized coroner system (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4547584/>)
- "Death investigation practice and reporting, including substances tested for and the circumstances under which the tests are performed, may vary by jurisdiction, decedent, and over time" (https://www.cdc.gov/nchs/data/nvsr/nvsr65/nvsr65_10.pdf).

Wyoming Hospital Association, 2014-2015

The Wyoming Hospital Association obtains discharge data by the fiscal year quarter from all hospitals that submit data to the Hospital Industry Data Institute, including poisoning diagnoses due to noxious substances. <http://www.wyohospitals.com/>

NOTES

- The healthcare industry, nationwide, transitioned from using ICD9 codes to ICD10 codes on October 1, 2015. FY2016 data are therefore not comparable to previous years and are not presented.
- Hospital discharge data are claims data, and only includes information on what the

hospital is charging the payer. They thus lack sensitivity for medical conditions with no effect on reimbursement and information on the severity of the medical condition.

- All hospitals (excluding urgent care facilities) submit data to the Hospital Industry Data Institute (HIDI).

WATRS (Wyoming Ambulance Trip Reporting System)

The Wyoming Ambulance Trip Reporting System (WATRS) is available to all Wyoming EMS Agencies at no charge. It is an electronic medical records system for transporting, non-transporting and air ambulances used for prehospital care. The use of naloxone (opioid overdose reversal agent) is highlighted here. This data comes the period between January 1, 2016 and June 30, 2016. <https://health.wyo.gov/publichealth/ems/watrs/>

NOTES

- WATRS was fully implemented in 2016, so the data available are currently limited. This prevents trending the data over time.
- However, the system is now in place and used by the majority of EMS throughout the state.
- As part of the Prevent Prescription Drug/Opioid Overdose-Related Deaths (PDO) grant from the Substance Abuse Mental Health Services Administration (SAMHSA), WYSAC evaluators conducted a mixed methods study to learn about Wyoming EMS practices and attitudes around the administration of naloxone. This report is forthcoming.

ARCOS, 2006-2015

The Automation of Reports and Consolidated Orders System (ARCOS) monitors the flow of DEA controlled substances from their point of manufacture through commercial distribution channels to point of sale or distribution at the dispensing/retail level (hospitals, retail pharmacies, practitioners, mid-level practitioners, and teaching institutions). ARCOS registrants report quarterly for an annual report that includes information on morphine milligram equivalent distributions of opioid schedule 2 drugs.

<https://www.deadiversion.usdoj.gov/arcos/>

CDC U.S. Prescribing Rate Maps

The CDC recently released U.S. prescribing rate maps, showing annual opioid prescribing rates from 2006 to 2016, both by state and county. The maps are interactive, equipped with the ability to zoom in and out and hover over a county or state for the prescribing rate. QuintilesIMS Transactional Data Warehouse (TDW), the source of the data, is based on a sample of approximately 59,000 retail (non-hospital) pharmacies, which dispense nearly 88% of all retail prescriptions in the U.S. Opioid prescriptions, including buprenorphine, codeine, fentanyl,

hydrocodone, hydromorphone, methadone, morphine, oxycodone, oxymorphone, propoxyphene, tapentadol, and tramadol were identified using the National Drug Code.
<https://www.cdc.gov/drugoverdose/maps/rxrate-maps.html>

NOTES

- Rates are classified by the Jenks natural breaks classification method into 4 groups using the eleven year range of data to determine the class breaks.
- This is from a sample of approximately 59,000 retail (non-hospital) pharmacies, which dispense nearly 88% of all retail prescriptions in the U.S.

PDMP, 2014-2016

The Wyoming State Board of Pharmacy established a Prescription Drug Monitoring Program (PDMP) in July 2004, as authorized in W.S. 35-7-1060. The Board collects Schedule II-IV controlled substance prescription information from all resident and non-resident retail pharmacies that dispense to residents of Wyoming. A Non-Resident Pharmacy is a pharmacy located in a state other than Wyoming that ships prescription drugs to patients in Wyoming. The WORx (Wyoming Online Prescription Database) was created to provide a 24/7 seamless point-of-care access system so practitioners and pharmacists help identify, deter or prevent drug abuse. Due to changes in methodology, PDMP data prior to 2014 is not comparable.
<http://pharmacyboard.state.wy.us/pdmp.aspx>

NOTES

- Reporting to the PDMP is not mandatory but there is a high rate of participation (i.e., ~95% of pharmacies in the state of Wyoming report every day).
- Data are not broken down by specific drugs.