**Past, Present, and Future of Prescription Drug Abuse**

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## Introduction

Substance use disorder (SUD) is a diagnosis for those consistently abusing illegal and or prescription substances. These can include illegal drugs such as fentanyl, cocaine, MDMA, but can also include prescription drugs such as opioids, benzodiazepines, stimulants, antidepressants, and more. Non-illegal drugs such as marijuana, alcohol, and nicotine can also be abused (Johns Hopkins Medicine, n.d.). Substance use, especially with prescription drugs are detrimental to the quality of life faced by their addiction. Chronic use of substance abuse affects a person's behavior, their brain function, and can face withdrawal symptoms leading to drug seeking

behaviors which can include violent behaviors (Mayo Clinic, n.d.). Benzodiazepines are the active ingredient for many prescription medications for having an effect for calming the nervous system (Green facts, n.d.). Opioids are commonly used for pain management (Cleveland Clinic, 2022). Other prescription drugs abused are Central Nervous System (CNS) depressants for anxiety and sleep disorders and stimulants to treat attention-deficit hyperactivity disorder. The most commonly abused CNS depressants are benzodiazepines such as alprazolam and lorazepam which are used to treat anxiety and panic attacks (National Center for Drug Abuse Statistics (NCDAS), n.d.-b). From the 2021 National Survey on Drug Use and Health it was reported that 3.9 million people reported abusing benzodiazepines and 4.9 million people reported abusing prescription sedatives (National Institute on Drug Abuse, 2023). The most abused stimulants are Adderall® and Ritalin®. These drugs are primarily abused by teenagers and young adults. The National Institute on Drug Abuse (NIDA) reported 3.7 million people reported abusing stimulants in 2021 (National Institute on Drug Abuse, 2023). Stimulant abuse has decreased. NCDAS reported in 2019 that 4.9 million people abused stimulants and 51% were over the age of 26 years old, 40.8% ages 18-25 years old, and 8.8% 12-17 years old (National Center for Drug Abuse Statistics (NCDAS), n.d.-b).

In 2021, the overdose mortality rate exceeded 106,000 people. These substances include illegal drugs and prescription medications. Comparatively in 1999, the mortality rate was under 20,000 people annually (NIDA, 2023). In 2020, substance abuse statistics were released. The Drug Abuse Statistics reports, a report under the National Center for Drug Abuse Statistics (NCDAS) found that 37.309 million people over the age of 12 reported that they used drugs illegally. This includes illegal drugs, drugs illegal due to their age, and prescription drugs. While the report does not define substance use disorder diagnosis for these people, it is still a

significant percentage of the population being active drug users. Following this, the study also found that 50 percent of the population 12 and older has used illegal drugs at minimum once in their lifetime. Furthermore, drug overdoses since 2000 are at 700,000 people, and the cost from the federal government for drug management was at a staggering $35 billion (2020).

Outside of federal funding, there were significant laws and regulations made over the past two decades to help manage drug control under the Substance Abuse and Mental Health Services Administration (SAMHSA). These laws include the "Affordable Care Act, Americans with Disabilities Act, Consolidated Appropriations Act, Comprehensive Addiction and Recovery Act, Garrett Lee Smith Memorial Act, Mental Health parity and Addiction Equity Act, Sober Truth on Preventing (STOP) Underage Drinking Act, SUPPORT Act, and Tribal Law and Order Act" (SAMHSA, 2023). Federal regulations include "Charitable Choice, Emergency Response, Federal Workplace Drug Testing, Opioid Drug Treatment, Patient Record Confidentiality, Protection and Advocacy for Individuals with mental Illness Program, and Synar Amendment and Tobacco Regulation for Substance Use Prevention, Treatment, and Recovery Services Block Grants" (2023). There are many ways in which people abuse drugs for a variety of reasons. While legislation provides support to those already affected, there is still a necessity to further prevent the abuse and dependencies from drugs.

**Background**

The abuse of prescription drugs can be the result of not finishing a medication, not following prescriber instructions, mixing with other medications or alcohol, or the purpose of getting high. This public health concern is not limited to a specific demographic but depending on the type of prescription being misused can be specific to geography, socioeconomics, age, gender, and poverty level. Over the years federal, state, and local governments have focused on

the abuse of prescription opioids for the treatment of chronic pain but other medications such as Central Nervous System (CNS) depressants and stimulants are also abused. The National Institute on Drug Abuse (NIDA) reported that in 2021, 14.3 million people abused prescription drugs (National Institute on Drug Abuse (NIDA), 2023). Of those 14.3 million people, 8.7 million abused prescription opioids (NIDA, 2023). Due to the significant abuse of prescription opioids compared to CNS depressants and stimulants, most research has focused on prescription opioids. Research has found that the area with the highest dispensing rates in the US is in the south. Alabama has the highest dispensing rate reported in 2020 by the Centers for Disease Control and Prevention (CDC). The CDC reported that 80.4 prescriptions were dispensed per 100 people in Alabama, compared to Hawaii that had the lowest dispensing rate of 27.3 prescriptions per 100 people (Centers for Disease Control and Prevention (CDC), 2021). The state of Alabama has such a high dispensing rate compared to the nation, that 97.5% of the state population could have written one prescription for opioids in 2019 (NCDAS, n.d.-a). Refer to Table 1 for the five states in each region of the US with the highest dispensing rates reported by the CDC and the percentage of prescriptions written for the state population reported by the National Center for Drug Abuse Statistics (NCDAS).

**Table 1**

*Regional Prescription Rates from the CDC and NCDAS*

| | CDC 2020 | | CDC 2019 | | NCDAS 2019 | |
|---|---|---|---|---|---|---|
| Region | State | Per 100 People | State | Per100 People | State | % Rx Written |
| Northeast | Delaware | 45.2 | Delaware | 51.6 | Delaware | 60.6 |
| | Pennsylvania | 43 | Pennsylvania | 47 | Pennsylvania | 49 |
| | Maine | 40.3 | Maine | 44.1 | Maine | 48 |
| | Maryland | 39.5 | Maryland | 42.3 | New Hampshire | 46 |
| | Connecticut | 37 | Connecticut | 40.5 | Maryland | 45 |
| Midwest | Kansas | 59.8 | Kansas | 63.7 | Indiana | 65.8 |
| | Indiana | 56.9 | Indiana | 60.4 | Kansas | 64.3 |
| | Missouri | 54.4 | Missouri | 58.3 | Missouri | 63.4 |
| | Michigan | 54.4 | Michigan | 58 | Michigan | 62.7 |
| | Nebraska | 48 | Ohio | 50.8 | Ohio | 53.3 |
| West | Idaho | 49.9 | Idaho | 53.4 | Oregon | 57.3 |
| | Utah | 48.4 | Utah | 51.4 | Utah | 57.1 |
| | Nevada | 47.4 | Wyoming | 49.7 | Wyoming | 57.1 |
| | Wyoming | 46.7 | Nevada | 49.4 | Nevada | 55.5 |
| | Montana | 46.1 | Oregon | 49.1 | Montana | 54 |
| South | Alabama | 80.4 | Alabama | 85.8 | Alabama | 97.5 |
| | Arkansas | 75.8 | Arkansas | 80.9 | Arkansas | 93 |
| | Tennessee | 68.5 | Tennessee | 74.6 | Tennessee | 81.8 |
| | Louisiana | 68.3 | Louisiana | 74.6 | Kentucky | 79.5 |
| | Kentucky | 68.2 | Kentucky | 72.3 | Louisiana | 79.4 |

*Note*. (Centers for Disease Control and Prevention, 2021) and (National Center for Drug Abuse Statistics (NCDAS), n.d.)

Research has shown that prescription opioid abuse has been higher in rural areas compared to urban areas. In 2017, 14 of 15 counties in the US with the highest opioid prescribed rates were designated rural counties (García, 2019). However, in 2019 the CDC implemented reporting changes for prescription drugs. This required prescriptions to be reported by the physician rather than the pharmacist. Due to this change nationally, there was a shift that resulted in dispensing rates increasing in urban areas and decreasing in rural areas (Hudnall et al., 2022). Research has also shown that prescribed opioid use was higher among those below the poverty threshold. Data from the 2019 National Health Interview Survey (NHIS), found that 27%

respondents that had an opioid prescription for chronic pain, had an income level below 100% federal poverty level (FPL) (Dahlhamer et al., 2021). Compared to 25.9% respondents whose incomes were 100% to less than 200% FPL and 19.4% whose income was 200% or greater than the FPL (Dahlhamer et al., 2021). There was also a correlation between those below the FPL having a higher risk of prescription misuse of CNS depressants such as benzodiazepines and antidepressants while also using prescription opioids (Bernhardt & King, 2022).

CNS depressants are used to treat anxiety and sleep disorders. The most addictive CNS depressants are benzodiazepines and barbiturates, and the least addictive are non-benzodiazepines (NIDA, 2023). The most abused benzodiazepines are lorazepam to treat acute anxiety and alprazolam to treat anxiety and panic disorders (NCDAS, n.d.-b). This drug class is typically abused due to the prescriptions being used for a condition other than that for which it was prescribed. Those who abuse these drugs have used tranquilizers and depressants for the purpose of relieving tension, dealing with emotions, and to experiment with (NCDAS, n.d.-b). There is minimal information regarding specific regions with elevated levels of use, demographics, or socioeconomic levels specific to abuse of CNS depressants, but it has been found that those who have abused prescription opioids have a history of benzodiazepine and antidepressant abuse (Bernhardt & King, 2022).

Teenagers and young adults commonly abuse stimulants. Among high school students, stimulants are second to opioids for prescription abuse, but young adults (18-25 years old) are more likely to abuse stimulants than opioids (NCDAS, n.d.-b). Stimulants are prescribed for treating attention deficit hyperactivity disorder and the two most common drugs prescribed are Adderall® and Ritalin® (NCDAS, n.d.-b). The primary reason stimulants were abused was for the purpose of concentrating and study aids. Other reasons for prescription abuse were the

purpose of getting high, weight loss, experimental use, and to alter the effects of another drug (NCDAS, n.d.-b).

**Problem**

The major problems associated with substance use disorder is addiction, over-prescription, and mental health issues. Addiction has several concomitant consequences for those facing their effects. Outside of the addictive behavioral changes such as drug seeking behavior and changes in personality, there are devastating health effects as well. These include increased stroke risk, mental health disorders, and increased risk of cancer, heart, and lung diseases. Furthermore, there are also associations of increased risks of infection diseases such as hepatitis and HIV/AIDS (NIDA, 2022). The influences of over prescription influence can include increased risk of polypharmacy. Polypharmacy is a term used to describe a patient using several drugs at a time for multiple conditions. This can increase risk of new treatments and introduce new drug interactions (Comitz law, 2022). Another problem with substance use disorder is that there is limited information available for prescription drugs outside of prescription opioids that highly detail the impacts of that abuse. These include limited information on dispense rates, age

specific use, cost of control, and more statistics. As these statistics are limited, there is still a need for having more data detailing the substantial impacts of multiple substance use disorders outside of prescription opioids. Understanding that medications prescribed to people can be essential to their quality of life and for function throughout the day is an important consideration to be aware of. Having medications that work for patients but can also be managed appropriately will be an essential part of the conversations for the decreasing withdrawal symptoms and identifying addiction behaviors, one of the largest pain points of prescription drug abuse.

**Solution**

Since prescription opioid use for chronic pain peaked in 2012, state and federal governments have taken steps to reduce prescription use. The U.S. Department of Health and Human Services (HHS) has provided funding for prescription abuse and substance abuse to the CDC and the Substance Abuse and Mental Health Services Administration (SAMHSA). The CDC provides local and state governments surveillance data and evidence-based strategies to establish prescription opioid prescribing practices and abuse/addiction treatment services (CDC, 2023). The SAMHSA provides grants for mental health and substance abuse and evidence-based data for policymakers and clinicians (Substance Abuse and Mental Health Services Administration (SAMHSA), n.d.). In 2022 SAMHSA announced that $1.6 billion would be invested in communities for addiction and overdose (U.S. Department of Health and Human Services (HHS), 2022a). And in November 2023, SAMHSA announced that $74.4 million in grants was available for the overdose crisis and mental health challenges related to substance abuse (HHS), 2023).

Another step federal agencies have taken to reduce opioid prescription use was to release guidelines and update policies that align with the HHS' Overdose Prevention Strategy. The CDC

has updated their guidelines from 2016 on prescribing opioids for pain. The 2022 guidelines are evidence-based and include non-opioid prescription options, non-invasive nonpharmacological options, dosing options for prescribing opioids, managing withdrawal, and prescribing opioids with benzodiazepines (Dowell et al., 2022). Medicare amended their 2023 fee schedules regarding management and treatment for chronic pain, reimbursement for telehealth, holistic pain management, and will cover mobile Opioid Treatment Programs (HHS, 2022b). For those who are on Medicare, reimbursement for telehealth and mobile Opioid Treatment programs allow those who are in medically underserved areas to receive treatment that would otherwise not be available in rural areas.

Although federal agencies have implemented evidence-based strategies, funding for communities, and aligned policies, is it enough? In the 2022 prescribing guidelines, the CDC recommended that physicians utilize the prescription drug monitoring program (PDMP) prior to prescribing an opioid. The purpose is to verify prescriptions the patient is currently taking and their risk of prescription abuse. (Dowell et al., 2022). In theory this can work to monitor and track a patient's medication history and to recognize if they are at risk of prescription abuse. In practice this is a state base program that is only mandatory in six states and currently only 49 states participate. The CDC has also encouraged naloxone to be provided to those who use prescription opioids and benzodiazepines (American Hospital Association, 2019). Until September 2023, this was only available by prescription but was being administered by medical and non-medical professionals. Due to proving this could be used by the public safely, the U.S. Food and Drug Administration (FDA) approved naloxone to be available as an over the counter (OTC) medication (Murdock, 2023). This OTC is only available as a nasal spray but is just as effective as the injectable prescription naloxone. What is missing is a way to prevent medications

from being misused. An important way to reduce prescription opioid misuse is to assist the public with their own prescription management. By being able to identify drug seeking behaviours, prevent early or late dosage times, and dosage strengths, drug addiction from prescription medication can be reduced. Having tools that aid in prescription management could be a new innovative solution to the prescription drug abuse cycle.

**ScripGuard**


*Note. Willett and Willett image*

Even with local, state, and federal governments working together to educate the public and provide resources for substance abuse, additional steps need to be taken to prevent prescription abuse. Willett Enterprises has developed a medical device that they believe will prevent prescription drug abuse. ScripGuard is a medical device that would replace traditional prescription bottles, able to hold a 30-day supply of medication and is small enough that it can fit in your pocket (Willett and Willett, 2023). The pharmacist would fill the dispenser, lock the device, and set the appropriate time interval for dispensing the medication (Willett and Willett,

2023). This prevents the user from exceeding the prescribed dose and with the visual display it allows the user to know when their next dose will be dispensed (Willett and Willett, 2023). This would be an aid for physicians and patients to prevent prescription drug abuse.

## Conclusion

The opioid epidemic was first initially believed to have started in the late 1990's in the United States. Since then, the opioid epidemic has been one of the key epidemics that has been researched, funded, and studied in the United States for more than two decades. There were many contributions to the identification and management of the epidemic, but there were also significant causes that led to the opioid epidemic to begin and remain uncontrolled until far too late where significant lives were already impacted or taken. A total of 255 million opioid prescriptions were dispensed in 2012, which was the peak of the epidemic (CDC, 2021). In 2020 the CDC reported 143 million opioid prescriptions were dispensed, which was the lowest in 15 years (CDC, 2021). This decline can be attributed to regulatory changes, funding for education, and evidence-based data for treating chronic pain prior to prescribing opioids. Although it appears that federal agencies are aligning their policies regarding prescription opioids, prescription abuse of CNS depressants and stimulants remains an issue. Supporting future initiatives for managing and preventing prescription drug abuse will be essential in reducing the devastating impacts to the quality of life and mortalities caused by prescription drug abuse.

## References


*Benzodiazepines: 1. Introduction*. (n.d.). Retrieved November 22, 2023, from https://www.greenfacts.org/en/benzodiazepines-xanax-valium/l-2/index.htm

Bernhardt, C., & King, C. (2022). Neighbourhood disadvantage and prescription drug misuse in low-income urban mothers. *Drug and Alcohol Dependence*, *231*, 109245. https://doi.org/10.1016/j.drugalcdep.2021.109245

Centers for Disease Control and Prevention. (2021, November 10). *U.S. Opioid Dispensing Rate Maps*. Drug Overdose. https://www.cdc.gov/drugoverdose/rxrate-maps/index.html

Centers for Disease Control and Prevention. (2023, May 16). *Drug Overdose*. Centers for Disease Control and Prevention. https://www.cdc.gov/drugoverdose/strategies/index.html

Dahlhamer, J., Connor, E., Bose, J., Lucas, J., & Zelaya, C. (2021). *Prescription Opioid Use Among Adults with Chronic Pain: United States, 2019* (162; National Health Statistics Report). U.S. Department of Health and Human Services. https://www.cdc.gov/nchs/products/index.htm

Dowell, D., Ragan, K., Jones, C., Baldwin, G., & Chou, R. (2022). CDC Clinical Practice Guideline for Prescribing Opioids for Pain—United States, 2022. *MMWR. Recommendations and Reports 2022*, *71*(3), 1–95. https://doi.org/10.15585/mmwr.rr7103a1

*Drug addiction (substance use disorder)—Symptoms and causes*. (n.d.). Mayo Clinic. Retrieved November 21, 2023, from https://www.mayoclinic.org/diseases-conditions/drug-addiction/symptoms-causes/syc-20365112

García, M. C. (2019). Opioid Prescribing Rates in Nonmetropolitan and Metropolitan Counties Among Primary Care Providers Using an Electronic Health Record System—United States, 2014–2017. *MMWR. Morbidity and Mortality Weekly Report*, *68*. https://doi.org/10.15585/mmwr.mm6802a1

Hudnall, M., Parton, J., & Lewis, D. (2022). Shifting of opioid prescription rate reporting impacts both rural and urban counties. *International Journal of Drug Policy*, *104*. https://doi.org/10.1016/j.drugpo.2022.103686.

Law, C. (2022, September 15). *The Perils of Overprescribed Medications*. Comitz Law Firm. https://www.comitzlaw.com/2022/09/the-perils-of-overprescribed-medications/

*Laws and Regulations*. (2023, October 27). https://www.samhsa.gov/about-us/who-we-are/laws-regulations

Murdock, J. (2023, September 8). *OTC Narcan is here: FDA expands access to life-saving opioid overdose treatment*. GoodRx Health. https://www.goodrx.com/naloxone/get-fda-approved-narcan-over-the-counter

National Center for Drug Abuse Statistics (NCDAS). (n.d.-a). *Opioid Epidemic: Addiction Statistics*. National Center for Drug Abuse Statistics. https://drugabusestatistics.org/opioid-epidemic

National Center for Drug Abuse Statistics (NCDAS). (n.d.-b). *Prescription Drug Abuse Statistics*. Retrieved November 13, 2023, from https://drugabusestatistics.org/prescription-drug-abuse-statistics/

National Institute on Drug Abuse (NIDA) (2022, March 22). *Addiction and Health*. https://nida.nih.gov/publications/drugs-brains-behavior-science-addiction/addiction-health

National Institute on Drug Abuse (NIDA). (2023, June 30). *Drug Overdose Death Rates*. https://nida.nih.gov/research-topics/trends-statistics/overdose-death-rates

National Institute on Drug Abuse. (2023, June 12). *What classes of prescription drugs are commonly misused?* https://nida.nih.gov/publications/research-reports/misuse-prescription-drugs/overview

National Institute on Drug Abuse (NIDA). (2023, February 13). *What is the scope of prescription drug misuse in the United States?* https://nida.nih.gov/publications/research-reports/misuse-prescription-drugs/what-scope-prescription-drug-misuse

*Opioids: What They Are, Side Effects & Disorders*. (n.d.). Cleveland Clinic. Retrieved November 22, 2023, from https://my.clevelandclinic.org/health/drugs/21127-opioids

Substance Abuse and Mental Health Services Administration (SAMHSA). (n.d.). *Resource Center*. SAMHSA Substance Abuse and Mental Health Services Administration. Retrieved November 20, 2023, from https://www.samhsa.gov/resource-search/ebp

*Substance Use Disorder*. (2023, January 31). https://www.hopkinsmedicine.org/health/conditions-and-diseases/substance-abuse-chemical-dependency

U.S. Department of Health and Human Services (HHS). (2022a, September 23). *Biden-Harris Administration Awards More Than $1.6 Billion in Funds for Communities Addressing*

*Addiction and Overdose Crises*. SAMHSA Substance Abuse and Mental Health Services Administration. https://www.samhsa.gov/newsroom/press-announcements/20220923/biden-harris-administration-awards-funds-communities-addressing-addiction-overdose-crises

U.S. Department of Health and Human Services (HHS). (2022b, December 2). *FACT SHEET: One Year After Releasing its Groundbreaking Overdose Prevention Strategy, HHS Announces New Data Showing Nation Has Expanded its Ability to Treat Addiction and Save Lives*. U.S. Department of Health & Human Services. https://www.hhs.gov/about/news/2022/12/02/fact-sheet-hhs-announces-new-data-showing-nation-has-expanded-its-ability-treat-addiction-save-lives.html

U.S. Department of Health and Human Services (HHS). (2023, November 16). *Biden-Harris Administration Announces $74.4 Million in Funding Opportunities to Improve Behavioural Health*. SAMHSA Substance Abuse and Mental Health Services Administration. https://www.samhsa.gov/newsroom/press-announcements/20231116/biden-harris-administration-announces-funding-opportunities-to-improve-behavioral-health

Willett, B., & Willett, P. (2023, September). *ScripGuard Key Messaging*. Unpublished document