PDMPS and Data Surveillance; Addressing the Prescription Opiod Crisis In America

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INTRODUCTION

Everyone has heard of the "opioid epidemic." We all know that it is a problem in America, but until a person has seen its effect firsthand, the true burden may remain hidden to the average citizen. However, victims of addiction and healthcare providers within the US hold a different perspective on the issue. I am an emergency medical technician. This field of employment floats in the middle of brackish waters between policy, socioeconomic inequality, and their impact on the American public's health. When societal health crises arise, we are the front line of defense. Through my work in the emergency medical services, I have learned what the "opioid epidemic" actually looks like. I have carried a blue-lipped woman out of a bar and helped medics administer naloxone, only for her to remain unresponsive. Naloxone, otherwise known as Narcan, is an antagonistic drug used to reverse the effects of an opioid overdose (Harm Reduction Coalition *Understanding Naloxone*, n.d.). Unfortunately, it has a select range of efficacy, and we had no idea what kinds of drugs she had taken or how much of them.

For everyone else on scene, this was not a new sight. Overdoses, especially those due to opioids, were so common to emergency responders that their frequency could be tracked on a calendar. We all knew what time of month we would see more overdoses, and to where we were likely to get dispatched. Another common piece of knowledge amongst those working in EMS was that most of the patients we treated for overdose had first gotten addicted to prescription

pain medication. The woman I saw that night was one of many who had likely fallen victim to the public health crisis that has risen due to prescription opioids.

The opioid crisis cannot be considered an epidemic anymore, as it is so commonly referred to. An epidemic is characterized by a sudden increase in the proportion of individuals with a disease above what is normally expected in that population (CDC *Principles of Epidemiology*, 2012). Initially, when prescription drug abuse first became a problem and the rates of opioid addiction and abuse skyrocketed, it was an appropriate term for the situation. The recurrent introduction of new, stronger illicit drugs creating their own wave of public health dangers could arguably be considered epidemics in their own right. Prescription drug abuse as a whole, however, is a crisis that has lasted decades. While it is being combated by legislative and clinical programs, the problem still persists. Thus, labelling it as an epidemic is a misnomer. I would argue that the term "hyperendemic," as defined by a persistently high rate of disease within a population (CDC *Principles of Epidemiology*, 2012), would be a more appropriate term. After the initial spike in opioid use and abuse in the late-nineties through the mid-two thousands, there has been a chronic, high sustained rate of prescription opioid abuse within communities nationwide, far surpassing the status of "epidemic."

Despite the fact that they have the undoubted ability to cause great harm, opioids are a necessary tool in the medicine kit of modern society. So how do we decide who deserves to use opioids, and what constitutes drug abuse? The largest challenge in addressing this question lies in the purpose for which these drugs were created; to help soothe physical pain, which is inherently subjective by nature. Pain is an individual experience, and it can be extremely difficult to measure pain externally (Coghill, 2010). It is therefore problematic to try and sort levels of

pain into discrete categories for which prescription could be regulated definitively. However, hard data is available on the amount of opioids being prescribed, and their relative strength. All opioid prescriptions are compared to a standard, being Milligrams of Morphine Equivalents (MME) (CDC *Opioid Overdose*, 2018). In this paper, I will discuss the history and current state of the prescription opioid crisis in America, the methods being used to combat it, and how public health data can be an essential weapon in that fight.

HISTORY AND CURRENT STATE OF THE AMERICAN OPIOID CRISIS

The use of opioids in America is not a phenomenon that suddenly appeared in the last few decades. Rather, it was the rapid increase in the use and abuse of these drugs that created the public health crisis that this paper discusses. Within the US, drugs like opioids and cocaine went unregulated into the 1900's and were used for a myriad of ailments, ranging from diarrhea to toothache and beyond. In 1914, the Harrison Narcotics Tax Act was passed in response to an increase in street heroin and morphine abuse (Jones, 2018). This law imposed restrictions upon the manufacture, distribution, and use of opioids, and first outlawed addiction as illegal (Vadivelu, 2018). Physicians and their patients became wary of using opiates to treat pain. This new attitude lead to the stigmatization of opiate users as criminal, and those with unexplained pain as malingerers. Eventually, the "opiophobia" developed within the United States lead to under treatment of pain by physicians through the latter half of the 20th century (Jones, 2018). Since then, the pendulum of over and under-treating pain has swung back and forth with disastrous consequences (Vadivelu, 2018).

Between the 1970's and 90's, several publications in the likes of the *Annals of Internal Medicine* commented on the lack of adequate pain treatment for patients, with some citing unreliable sources that opioids used as pain therapy were non-addictive and at low risk for abuse. In 1986, the World Health Organization exposed the under-treatment of pain for cancer and surgery patients in their Cancer Pain Monograph, and sparked the use of opioids as a treatment for postoperative and cancer related pain. Soon after, opioids grew to be used for the treatment of all chronic pain, following the incorrect conflation of the origins of chronic malignant and chronic nonmalignant pain in a 1995 *Scientific American* article (Jones, 2018). Malignant pain, such as cancer, is associated with a specific pathology, while non-malignant pain may or may not have pathological origins and persists beyond the usual scope of disease or injury (Jackman & Mallet, 2008).

The opioid crisis as we know it today began in the mid-1990s, when doctors, who had been assured by companies like Purdue pharmaceuticals that products such as OxyContin were non-addictive, began prescribing opioids at a greater rate (NIDA, 2018). At the start of the 2000's, several federal agencies joined the movement to promote adequate pain management. The Joint Commission (JTC) published standards for pain management, while the Federation of State Medical Boards and the Drug Enforcement Agency promised to reduce oversight of physician prescription practices, subsequently promoting the use of opioids to treat pain. Due to the JTC's requirement for physicians to meet strict pain management standards, and the favorable review of opioids among patients, hospital systems began relying on opioids to treat pain over fear of diminished federal healthcare funding. Pharmaceutical companies exploited this culture change, paying physician consultants to laud over the perceived safety in using opioids as

pain therapy, while simultaneously labelling those who didn't prescribe them as inhumane (Jones, 2018).

In 2007, Purdue pharmaceuticals, the manufacturer of the opioid OxyContin, pled guilty to the federal charges of misbranding the addictive capacity of their product. By June 2018, fourteen states had filed a lawsuit against the company. Following the recognition of the opioid crisis by the government, some ground was regained in the battle to fight the ongoing opioid crisis with the adjustment of pain management standards, implementation of Prescription Drug Monitoring Programs, approval of opioid abuse and overdose drugs by the FDA, and a variety of other initiatives over the past several years. From 2006 to 2017, a 19% decline in overall opioid prescription was seen, along with a reduction of high dosage prescription practices from 11.5% to 5.0% While the exact endpoint of what can be considered high dosage may vary based on the individual and the disease, 90 MME per day or greater is generally considered to be over prescription (CDC *Annual Surveillance Report*, 2018).

Facts and Stats:

In 2017:

- Roughly one in six people filled at least one prescription for an opioid
- 166,941,732,435 MMEs were prescribed
- 17.4% of the population filled a prescription for at least one opioid.
- There were 58 prescriptions for every 100 Americans

In 2016:

- 4.3% of people 12 or older reported misuse of prescription pain relievers in 2016
- Opioid overdoses accounted for more than 42,000 deaths, more than any other year on record

(Source: CDC Annual Surveillance Report, 2019)

Despite the decrease in the total amount of opioid prescriptions, the death toll from overdoses have been on the rise over the past several years. This is likely due to the fact that

addiction to illicit drugs usually starts with prescription abuse first. For instance, 80% of heroin users first became addicted to prescription drugs (CDC *Annual Surveillance Report*, 2018). In 2016, a record number of opioid related overdose deaths occurred within the US. Although prescription drugs were not frequently used alone, two thirds of those deaths involved opioids, with prescription based drugs being the second most commonly used after synthetic opioids such as illicitly manufactured fentanyl (CDC *Annual Surveillance Report*, 2018). Roughly one in six people filled at least one prescription for an opioid in 2017, and the average daily amount per prescription was greater than 45.3 MME (CDC *Opioid Overdose*, 2018). For reference, daily dosages of 50 MMEs or greater doubles an individual's risk of overdose as compared to a lower prescription dosage of 20 MME or less (CDC *Guidelines for Prescribing*, 2018). It was reported that 21-29% of those prescribed opioids misuse them, with 8-12% developing a substance-use disorder. Areas with high opioid prescription practices followed the trends of being either smaller cities or large towns, more white, having more physicians per capita, more uninsured/ unemployed, and more chronic illness present in the population (e.g., diabetes, arthritis, and other disability) (NIDA, 2018).

COMBATING THE PRESCRIPTION DRUG PROBLEM

As demonstrated by the previous section, the opioid crisis is widespread, prevalent public health issue within the United States, and one that the government has been attempting to resolve since the mid-2000s. The US government has taken a multidisciplinary approach to combating opioid addiction in America, with multiple federal branches investing in research, addiction intervention, and community support. The National Institute of Health (NIH) and the US

Department of Health and Human Services (HHS) have ongoing goals directed at addressing the opioid crisis. The NIH supports research into new medications for treating opioid use disorders, and the HHS aims to improve access to treatment and recovery services, provide support for future research on pain and addiction, and to work on "better public health surveillance." Both institutions provide support for researching alternative methods to manage chronic pain, and the research and use of overdose-reversing drugs (NIDA, 2018). Another government strategy to combat the opioid crisis shows particular promise in reducing opioid prescription rates are Prescription Drug Monitoring Programs (PMPD or PMPs).

> "*PMPs are state-wide, electronic databases that help health practitioners and public safety officials reduce misuse and abuse of prescription drugs by collecting, analyzing and distributing data on practitioner and patient prescription habits*" (Pardo, 2017).

PDMPs track the prescriptions of controlled substances by physicians, the medications associated with each patient, and the pharmacies at which prescriptions are filled. In 2018, the SUPPORT for Patients and Communities Act was passed to further address the opioid crisis. The law involves bolstering PDMPs, strengthening prescription guidelines, mandating reporting to FDC about how those guidelines are working, and providing community support such as altering addiction-recovery facilities, drug drop off boxes, and ensuring health insurance coverage for specific at-risk populations (Garvin, 2018). The SUPPORT bill also calls for enforcement of continuing education for healthcare providers, who report insufficient training in pain management (NIDA, 2018).

More restrictive prescription practices, such as PDMPs, correlate with a decrease in opioid related drug deaths, according to the CDC. However, there are specific areas in which the practice of implementing and enforcing PDMPs were shown to be ineffective in changing opioid prescription habits. As of 2016, PDMPs and other restrictive practices were not shown to decrease or significantly impact addiction among disabled Medicare recipients. This population represents a high ratio of overall prescription drug related deaths, with approximately one in four overdoses in 2008 having been from this community (Meara, 2017). Restrictive policies may also make it more difficult for those living with chronic pain to get appropriate pain relief when other strategies don't work (Atkinson, 2014).

Opioid prescription regulations are not nationally standardized, as PDMPs and their associated laws are regulated on a state basis, and can therefore vary across the country. With exceptions made for chronic pain, palliative care, and cancer patients, most of the laws in place relate to limiting supply from five to fourteen days for acute pain. Some states set up regulations with regards to dosage, created suggestions for prescription policy, or authorized other entities to put prescription regulatory policies in place, such as the department of health, boards of medicine, etc. (NCSL, 2018). However, there are challenges to the use and effectiveness of PDMPs. The logistics of creating a comprehensive database for this information have proven to be difficult. The state-by-state basis of legislature for PDMPs mean that while every state except Missouri has one, the degree to which they must be utilized or updated can vary. Only 33 out of the 50 states in the US had set up any form of opioid prescription guidelines by October 2018 (NCSL, 2018), with the majority of the legislature being recommendations for voluntary guidelines (CDC Guidelines, 2019). Inter-state collaboration can also be a challenge, as a lack of

communication and coordination between PDMPs can make creating a comprehensive database difficult.

USING PUBLIC HEALTH DATA

Current and accurate data is essential in order for the government to make an informed decision regarding public health legislation and programs. One method of data collection involves the monitoring of emergency medical services, and their interactions with drug overdoses. For example, the Enhanced State Opioid Overdose Surveillance (ESOOS) program is supported by the CDC and has three primary goals; increase timeliness of reports for fatal overdoses, non-fatal overdoses, and support stakeholders. Fatal overdoses can be reported by toxicology reports and autopsies postmortem. Non-fatal overdoses data, however, is much less definitive. The only source of data is emergency room visits and emergency medical services transports and refusals. ESOOS tracked changes in suspected drug overdoses in thirty-seven participating states over two years. ESOOS emergency department data can also analyze the rate of overdose by drug type, however these trends tend to vary by geographic location. If reported and analyzed in a timely manner, emergency department data could act as an early warning sign of increased overdose risk for the surrounding area, and a link to further treatment for victims of addiction (Scholl, Liu, & Vivolo-Kantor, 2019).

However, not all overdose patients wind up in the emergency room. The emergency medical services (EMS) of the participating states provided count data for suspected overdoses, which were grouped into three categories; suspected use of any drug type, opioids, or heroin. EMS data is stored in and standardized by the National Emergency Medical Services

Information System (NEMSIS), and the variables used to identify overdoses in patient care reports were the chief complaint, narratives, provider impression, medication administered, and response to the administered medication. The results of both the EMS and emergency department data were similar, in that males were at higher risk than females, and the age group of twenty five to thirty four were at higher risk than other ages (Scholl, Liu, & Vivolo-Kantor, 2019).

EMS data in particular presents challenges for analysis. Changing NEMSIS data standards and the varying transition of each state to new patient care report standards can cause issues with reporting. Data accessibility as dictated by the law can differ from state to state, with the data fields of reports being available in some locations, and the timeliness of submission also varying. Underreporting is also a major issue, with complications with vendor cooperation, lack of air ambulance data, and the possibility of changing availability of NEMSIS data. Additionally, EMS data tends to be less inclusive of polydrug use than emergency department data or autopsies (Scholl, Liu, & Vivolo-Kantor, 2019).

Programs like ESOOS are reactive in nature. In order to know which groups are at risk, there must first be a significant amount of overdoses within that population. Alternatively, PDMPs provide an opportunity for a more proactive and predictive analysis, in the hopes that action can be taken before overdoses occur. Despite the challenges that PDMPs bring, they provide a large, if imperfect, database with which to synthesize evidence-based strategies and health policies to treat addiction disorders. For example, Peter Kreiner, PhD, used indicators of patient risk for opioid abuse (e.g., overlapping opioid prescriptions, prescriptions greater than 90 MMEs per day, and both opioid and benzodiazepine prescription) to analyze and predict the probability of overdose. Kreiner utilized PDMP data from three states in a longitudinal-trajectory

group analysis for a ninety day period. This type of model is used to model data over time for a large population is assumed to be composed of several distinct groups (Columbia, n.d.). Kreiner separated the data into four groups of whose risk of overdose either stayed consistently high, consistently low, or changed over time and modeled them against each risk indicator in the three states. The results showed that the number of deaths associated with each group varied by type of risk indicator, but that having multiple risk indicators increased the risk of overdose death monotonically. Kreiner suggested that prescriber tools and PDMPs should trigger an additional alternative for multiple high risk factors within a specific time window, and that group trajectory analysis could be further used to fine tune efforts to predict overdose in high risk patients (Kreiner, 2019).

Another way to utilize PDMP data is to track the habits of prescribers, pharmacies, and patients. This data can be useful in finding fraudulent practitioners or areas of high prescription practices that may be in need of intervention. Jaya Tripathi and colleagues used machine learning to develop a method by which they could calculate the areas where there was a high amount of fraudulent prescription activity. They trained their program by using confirmed fraud cases, as determined by humans, for a specific location. PDMP data from Indiana and Kentucky were used to find vulnerable populations. The machine learning tool then analyzed and clustered data using geospatial maps to visualize the overlap of pharmacological groups and identify the zip codes of hotspots. Essentially, the machine created heat maps of high risk prescription activity. This data can then be overlaid with other demographic information associated with those zip codes. It is also possible to use the program to create non geographic maps. Data mapping was used as a tool to find "popular" doctors with doctor shoppers by analyzing the connections between patients and prescribers. This allowed the computer to figure out how many doctors share patients. Low

entropy—or more highly connected—doctors, as determined by the algorithm, were found to be correlated with doctors who had been previously been indicted (Tripathi, 2019).

PMDP data is also useful is in optimizing the collaboration between medical professionals and law enforcement. PDMPs can be utilized to look into cases of overdose and become evidence of over-prescription. In order to translate this information in a courtroom, medical experts provide context and explain justifiable prescriptions or cases of negligence. In this process, medical records, and their integrity, become extremely important. "Red flags" that can be indicative of fraudulent activity include an opioid Morphine Equivalent Dosing (MED) of greater than 250 mg/day, early refills of medication, use of multiple doctors, multiple overlapping prescriptions in controlled substances, and driving long distances to fill a prescription. PDMP data is essential in the evaluation process, as high or frequent doses of opiates act as a jumping off point before further research into possible fraudulent cases of prescription. There are no red flags that can absolutely confirm abuse of opiates, because medical care, and especially pain management, is highly individualized to each patient and the previously listed situations can be completely rational in context. For example, while a thirty year old with no previous medical history could be considered suspect for receiving a high MME dosage per day, a recent incident of trauma, such as a motor vehicle accident, could make that prescription more reasonable (Munzing, 2019).

Some universal precautions for opioid prescribing including evaluating the need for opiates, assessing the risk, selecting the opioid, discussing this choice with the patient, monitoring progress closely, and documenting thoroughly. In addition, general adherence to the CDC prescriber guidelines and use of PMDPs can help healthcare practitioners maintain

appropriate prescription habits. It can be a fine line to walk in differentiating between addiction behavior and seeking pain relief, but if a physician follows their best judgement and does their due diligence, then a wrongful conviction is unlikely (Munzing, 2019).

AREAS TO IMPROVE

The United States has made tremendous effort in addressing the opioid crisis since the 2000s. However, there remains areas in which improvement is direly needed in legislation in order to make those interventions more effective. Legislation can be a large barrier to the success of public health programs. To draw back to the PDMP example, only thirty-seven states currently require that prescribers check the PDMP prior to writing a prescription, but these laws vary on the type of controlled substance that this rule applies to, and other nuanced differences in state-to-state mandates. States can also vary in the frequency with which dispensers must report, though almost all states do require it daily.

Legal definitions regarding illicit substances also lack clarity in most states, which can impact public health interventions such as harm reduction programs. The term "harm reduction" encompasses a variety of programs that aim to reduce the negative consequences associated with drug use. There is no universal formula for a harm reduction program, as they can be tailored to fit the communities that they serve (Harm Reduction Coalition *Principles of Harm Reduction*, n.d.). Half the states in the US have unclear definitions at to what counts as drug paraphernalia (Burris & Platt, 2019). The legal protection of its users is essential to the success of harm reduction initiatives like needle exchange programs. Another example of where vague legislation can cause problems are when an individual calls for medical assistance for an overdose. As of

June 2017, forty-one states had some form of Good Samaritan law to provide immunity for arrest, charge, or prosecution for the possession of certain controlled substances and paraphernalia in the case of overdose. However, the substances covered by those laws can vary state to state (NCSL *Drug Overdose Immunity and Good Samaritan Laws*).

Other areas legislation can create obstacles for public health intervention is in Medication-Assisted Treatments (MATs) with Methadone. States are allowed to regulate opioid treatment programs over the top of federal laws. Minimum time of dependence prior to admission, the minimum ratio of counselors to patients, and the frequency of drug testing and physical evaluation can range on a state to state basis. More restrictive MAT-methadone state laws are associated with a higher rate of overdose death. The rules for civil commitment, which is a path some people might take to try and force another individual into treatment, are not nationally standardized either. Thirty-eight states have a method for it, but there is no evidence that civil commitment is a good practice, as it can simply cause victims of addiction to wind up in jail rather than a treatment program. Taken together, the variation in laws from state to state require an objective reading of the local law to fully understand the legislation around accessing treatment and protecting those who call for help (Burris & Platt, 2019).

Legislative barriers are not the only part of the government response to the opioid crisis in which improvement is direly needed. Logistic issues, such as the software and interface of state PDMPs, present problems that can impact the field of addiction intervention upstream of harm reduction programs and legal definitions for prosecution of drug charges. The PDMP has evolved over time to become more conducive to prescriber and pharmacy needs. Currently, the PDMP 2.0 is the latest model of the database in use. PDMP 1.0 had user complaints of poor

integration and merging of data, lag time, user interface issues, no MME calculator for prescriptions, and in general taking a long time to work with. Forty-three states use the same software to keep this program running. So what's in the future for PDMPs, and how can they be improved? One avenue of progress could be "enhanced" PDMP profiles, which would allow for specialized decision making tools linked to the PDMP database to be used by prescribers in a clinical setting. For example, tools such as MME calculators and visual representation of previous prescriptions can help provide clarity to the information presented in PDMP patient profiles. Some challenges to implementing enhanced PDMP profiles include figuring out how best to display relevant data, and the financial cost and logistical barriers of making specialized risk indicators. In addition, studies done by Jaya Tripathi and colleagues found that PDMP enhancements are most useful in situations where clinicians are undecided on whether or not to prescribe. With this in mind, the question becomes not only how to create effective clinical decision making tools, but also how to make them so that healthcare providers will actually use them (Doyle, Leichtling, Tripathi, & Weiner, 2019).

Despite the sizeable amount of resources, research, and public health policy devoted to fighting the opioid crisis, there remains gaps in knowledge for this subject in addition to the previously mentioned areas where improvement is needed. Data on drug use can be under-reported, and estimates of accuracy for reporting rates vary (CDC *Annual Surveillance Report* 2018). The variability of EMS data reporting, along with the availability of naloxone over the counter, can impact the amount of overdoses reported. Empirical data such as statistics of ER admittance due to overdose also do not reflect the amount of people that abuse opioids but do not overdose. In addition, opioids are often used in conjunction with other drugs, or help to transition the individual to other illicit substances, so categorizing the effects of prescription medications

amongst a variety of other influences may be more difficult (Scholl, Liu, & Vivolo-Kantor, 2019). The lack of cross-state access to PDMP data and nationwide standards can also cause variability in the availability of drug prescribing data (Munzing, 2019).

REFLECTION

The prescribing habits of doctors for the treatment of pain has swung with the metronome of time, from under-acknowledgement by physicians to a flurry of opioid prescriptions for which there may be better alternative treatment. In recent years, patient satisfaction has taken a larger hold of the medical field than is warranted. While physicians ought to be treating patients appropriately, the expectation that a person's pain in all cases must be at zero on a scale to ten seems unrealistic to me. I believe that a culture change in the interactions between patient and practitioner is needed to decrease the amount of prescriptions written and appropriately manage pain with high safety standards. This would include an understanding between a patient and their healthcare provider that there may be compromises needed to holistically treat their pain amongst other ailments.

A change in culture is also needed in how we perceive addiction. One of the largest barriers to public health initiatives that aim to treat addiction in communities is the stigma against victims of addiction. The criminalization of addiction, which is defined as being both a physiological and psychological disorder, is possibly the largest hurdle to overcome for extremely beneficial public health programs such as harm reduction (Hazelton Betty Ford Foundation, n.d.). While there exists arguments that harm reduction programs such as needle exchange simply aid and abet users of intravenous drugs to continue using, the public health

benefit is undeniable. Needle exchange programs were not invented to stop drug use, but rather to keep a user alive until such a time where recovery is possible (Burris & Platt, 2019).

However, I believe that the long term solution to the opioid crisis is not in harm reduction, but rather preventative measures against opioid addiction, such as the use of PDMPs. PDMPs are vital sources of data that can be used in promoting evidence-driven health policy. In my time of researching the prescription opioid crisis in America, it has become evident to me that there is a need for greater collaboration and coordination between state and federal governments in order to make sure all prescriber, patient, and pharmacy habits are noted. Why then, I posit, is there not a greater push for a federal PDMP? It seems clear to me that the best way to create open communication between states is to have federal reign over prescription drug monitoring. I would argue that a national database would standardize PDMP data entry and frequency enforcement, not to mention expand the resources available for monitoring of the PDMP, which would assist in catching fraudulent prescribing activity. While data collection and analysis cannot solve the opioid crisis alone, it is the strongest crutch on which public health officials can rely when determining intervention methods and policy. Unfortunately, it is likely that current abusers of prescription opioids will turn to illicit substances when they are no longer able to obtain prescription medications. Knowing that prescription medications often act as precursors to the use of other drugs, the hope in PDMPs efficacy doesn't solely rely on its ability to reduce overdose now. Rather, it lies in the possible decrescendo to the terrifyingly long arc of the opioid crisis in America.

Furthermore, it is not enough simply to treat the symptoms of this public health crisis. A reduction in prescribing habits only reduces the amount of prescription medications at large. As

evidenced by the rise in overdose deaths despite the founding of PDMPs, and the spike in illicit fentanyl overdoses in 2018, the elimination of one product simply opens the market for another. In order to cure the American society of the plague of opioid abuse and overdose that has set upon it in the past three decades, the true cause must be rooted out and addressed. Like many public health issues, this lies in the social and economic determinants of health (Dasgupta, 2018).

I'll never know what happened to the blue-lipped woman. What she took, whether she responded to further treatment, if she had repeated overdoses, or if she manage to stop abusing drugs will remain a mystery. She was one of many victims of the opioid crisis, and fit the mold well, from what I could read; likely of low socioeconomic standing, and a polydrug abuser. My experience was one of thousands nationwide that occur every year. But I have hope that one day our normalization of overdose won't be so common.

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