

A Solution to Controlled Substance Abuse: Community Partnerships

A Senior Honors Thesis

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Abstract

Controlled substance abuse is a serious societal issue, particularly at the level of the actual addiction itself. Opioid analgesics are painkillers that are nationally recognized as a major cause of death by overdose. A number of policies and regulations have been put in place to curb addiction, without much success. One potential solution is to strengthen community partnerships between pharmacies, clinics, physicians and other medical care providers such that communication is improved and red flags can be addressed more quickly. These partnerships have more potential than individual parties because information is gathered from multiple different areas of the issue. Using information from multiple aspects of the issue, a solution can be created to reduce addiction at multiple points. Partnerships may be able to help prevent double filling of prescriptions, doctor shopping, and over-prescribing reducing the amount of drugs on the street. By reducing the amount of drugs available on the streets, lower amounts of addiction will occur and hopefully prevent it.

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I. Introduction

Controlled substance abuse, mainly of opioid analgesics, has been a major issue throughout the United States and over the past 20 years, its prevalence has increased over threefold (Ling et al. 2). In 2013, it was estimated that 1.9 million people in the United States met the criteria for abuse and addiction of opioids set by the Diagnostic and Statistical Manual for Mental Disorders (DSM-IV) (Compton et al. 5). The abuse and misuse of these prescription opioids is an epidemic to which many people have lost their lives. According to the Centers for Disease Control (CDC), from 1999 to 2014, more than 165,000 people in the United States have died from prescription opioid overdose. In 2014 alone, over 14,000 people in the United States died from overdoses ("Prescription Opioid Overdose Data." 1). These senseless deaths could have easily been prevented. The number of deaths is one of the chief reasons why this problem needs to be addressed.

Use of prescription opioids can lead to heroin use. Heroin is classified as an opioid. Opioid analgesics schedule II drugs while heroin is considered a schedule I drug. Drug schedules for controlled substances range from I to V as seen in Table 1. Schedule I drugs currently have no accepted medical use in the United States, schedule II drugs have a medical use but have an extremely high potential for abuse ("Drug Classifications, Schedule I, II, III, IV, V" 1). Even though opioid analgesics and heroin are in different schedules, they produce the same euphoric effect. Prescription opioid abuse can lead to heroin abuse if the person no longer has access to the medication. Heroin is a cheaper and more available street drug to use. In Figure 1 you can see a correlation of prescription opioid use and heroin use. Looking at Q2, 2011 to Q3, 2011, you can see how the use of the prescription opioids decreases and the use of heroin increases. In general, on the figure, if you see prescription opioids increasing, you see heroin decrease and

vice versa (Volkow 1). This figure indicates prescription opioid addicts may switch to using heroin if they can no longer acquire prescription opioids.

The opioid epidemic is only growing and a solution is needed to combat addiction to opioid medications and stop it from killing people. One potential solution to combating opioid abuse is to strengthen community partnerships between pharmacies, clinics, physicians and other medical care providers such that communication is improved and red flags for patient abuse can be addressed more quickly. These partnerships have more potential than individual parties because knowledge from multiple aspects. Using information from multiple aspects of the issue, a solution can be created to reduce addiction at multiple points. One way others have tried to strengthen the partnership between healthcare professionals is to use a prescription drug-monitoring program (PDMP). PDMPs have been implemented by some states but have not been successful in aiding the resolution to this problem due to a variety of reasons such as poor data collection and poor usage. **I propose a nationwide PDMP needs to be developed and utilized rather than at the level of the states which will be discussed herein.**

Schedule	Description	Example
I	Currently no accepted medical use in the United States	Heroin Cocaine Ecstasy
II	High potential for abuse that may lead to severe physical dependence	Oxycodone Methadone Morphine
III	Lower potential for abuse than previous schedules. May lead to moderate or low physical dependence	Tylenol with Codeine Suboxone Ketamine
IV	Low potential for abuse compared to schedule III	Xanax Valium Ativan
V	Extremely low potential for abuse. Primarily preparations containing low amounts of narcotics	Robitussin AC

Table 1. Drug schedules with descriptions and examples for each schedule (“Drug Classifications, Schedule I, II, III, IV, V” 1).

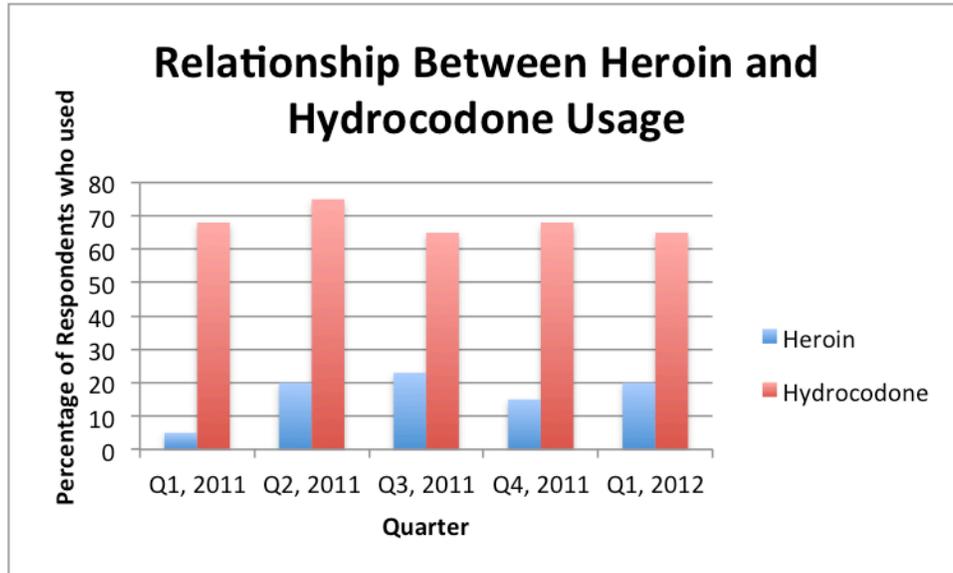


Figure 1. Percentage of drugs used by people to get high within 30 days of the survey. Figure was taken from the National Institute of Drug Abuse (Adapted from Volkow 1).

II. Regulations of Prescribing and Dispensing Opioids

Prescription opioid analgesics can be prescribed for pain treatment following surgery, chronic pain, and sometimes-even moderate pain. Unfortunately opioids are overprescribed. According to the CDC, in 2013, providers wrote almost a quarter of a billion prescriptions in the United States. This amount of prescriptions is enough for each American to have their own bottle of pills ("Prescription Opioids" 1). The abundance and availability of opiates outside of medical facilities is one of the reasons they are abused so often. Reducing the amount opioid analgesics are prescribed is essential to combating opioid abuse.

Federal regulations of prescribing and dispensing of controlled substances are mandatory everyone in the United States. However, each state can have its own set of regulations. The federal laws do tend to be less stringent than state laws and there are vast state-to-state differences.

Federal regulations must be met when writing a prescription for a controlled substance of any schedule. The prescription must be dated and signed on the date when it issued; it must include the patient's full name and address, the doctor's full name, address, and DEA number. A DEA number is an identification number assigned to healthcare workers allowing them to write prescriptions for controlled substances ("DEA Number" 1). In addition, the drug name, strength, dosage form, quantity, directions, and number of refills must appear on the prescription. Federal law states, there is no time limit in which a Schedule II prescription must be filled after being written and signed by the doctor and there is also no limit on the quantity being prescribed. The latter is often regulated by the states. No refills are permissible on Schedule II drugs. A pharmacist may take a verbal prescription from a physician in the event of an emergency and can dispense it provided the quantity prescribed is adequate to treat the patient during the emergency

situation. However, the pharmacist must receive an actual prescription within 7 days of the emergency period and if not, the pharmacist must notify the Drug Enforcement Administration (DEA) (Drug Enforcement Administration 19).

New York State (NYS) has its own set of regulations for prescribing and dispensing Schedule II controlled substances. According to NYS, every practitioner prescribing a Schedule II controlled substance must consult the prescription monitoring program registry in order to view the patient's controlled substance history (New York State Department of Health 2). However, there are loopholes to this law, which is part of the reason why the PDMP is not very successful. Pharmacists have access to this registry as well if they feel the need to check a patient's history. Compared to federal regulations, NYS requires more information on controlled substance prescriptions such as the patient's sex, age, the maximum daily dosage, as well as the quantity in numerical and written form. As stated above, some states put a limit on the quantity of pills per prescription and for NYS a 30-day supply for controlled substance prescriptions is the limit. A physician may write for a 90-day supply, however, the prescription must be documented with specific codes representing treatments for certain diseases. Under NYS law, a patient may not receive multiple prescriptions for controlled substances within 30 days of the first prescription until a patient has 7 days left of the original prescription. In contrast, Iowa, Utah, and New Jersey allow multiple prescriptions for schedule II controlled substances to be dispensed ("Prescription Drugs" 1). As stated above, federal guidelines allow verbal prescriptions in emergencies; but NYS limits the verbal prescription to a 5-day supply. In NYS, the pharmacist must still receive a written or electronic prescription within 72 hours of the verbal prescription (New York State Department of Health 3). When dispensing and selling a prescription, only some states require identification of the patient picking up the medication. For

the states that do require identification such as Maine, Oregon, and New York, the type of identification is different for each. Maine requires proper photo identification, Oregon requires “proper” identification, and New York requires “appropriate” identification (“Prescription Drugs” 1).

As you can see, NYS along with others has attempted to enact stricter regulations on opioids than the federal government in an effort to curb opioid addiction. However, each state can differ in regulations, indicating the federal regulations are the only stable and consistent regulations state to state.

III. Addiction

Addiction is defined as when someone who is dependent upon something, such as prescription painkillers, and they need it to function physically and mentally. The compulsion to use drugs involves the failure to resist cravings. People can become addicted to prescription opioids easily and not even know it until they try to stop taking the pills. One way to view addiction is a brain disease in which the brain becomes chemically dependent on the substance. It has been suggested when a brain is constantly bombarded it forms unusual adaptations and becomes dependent on that particular substance (Tommasello 3). Addiction to prescription painkillers not only affects the brain and nervous system, but also induces respiratory suppression, drug-drug interactions, and other risky behaviors including the use of other drugs and alcohol (Ling et al. 301).

Opioids have two clinically significant properties: physical dependence and tolerance. Tolerance refers to prolonged exposure to opioids that results in the requirement to raise the dose of a drug to achieve a constant analgesic effect. Physical dependence refers to the physiological response to abstinence or opioid reversal in a patient who has been taking opioids continuously

(Vallejo et al. 344). A response to an opioid depends on the presence and activity of a specific membrane receptor. Opioid receptors and related signaling pathways are being studied to gain a better understanding of the action of opioids on the body.

The brain, spinal cord, and peripheral sensory and autonomic nerves have guanine protein-coupled receptors (GPCRs) where opioids bind. The delta receptor, the mu receptor, and the kappa receptor are the three main subtypes of opioid receptors, but there may be more significant subtypes in existence. The mu opioid receptor has been identified as the central subtype responsible for supra-spinal and spinal pain relief. Opioids produce analgesic effects by stimulating pain perception. Endorphins, enkephalins, and dynorphins are endogenous opioid peptides found in the brain. These opioids inhibit pain results by hindering calcium entry in the presynaptic membrane, inhibiting neurotransmitter release, hyperpolarizing presynaptic cells by raising potassium outflow, preventing nociceptive afferent information from distributing to neighboring neurons, and monitoring nociceptive information at the limbic system. By doing so, the neurons are inhibited from firing action potentials to transmit pain signals to the brain (Vallejo et al. 344-345).

Different interactions can occur between a receptor and opioids therefore opioid painkillers can be sorted into four different categories based on the nature of the receptor-opioid interaction: agonists, antagonists, agonist-antagonist, and partial agonists. An agonist will bind to the receptor and stimulate physiological activity with no limit to their analgesic effects. Antagonists can interfere with the actions of agonists if both are interacting with the same receptor. Agonists and antagonists have different effects depending on what receptor it binds to. Receptor type (mu, kappa, delta) can influence the type of effect an agonist or antagonist will have. A partial agonist has a low maximal response of opioids indicating there is a limit to the

analgesic effects (Vallejo et al. 345-346). Table 2 below shows the classifications of opioids into the four categories discussed (Vallejo et al. 347)

Agonist	Antagonist	Agonist/ Antagonist	Partial Agonists
Morphine Oxycodone Hydromorphone Methadone Fentanyl	Naloxone Naltrexone	Nalorphine Pentazocine Butorphanol	Buprenorphine Meptazinol

Table 2. Classification of opioids by mechanism of action in the body (adapted from Vallejo et al. 347)

One of the highly addictive effects of opioids is opioid-induced euphoria. The GABAergic neurons of the nucleus accumbens (NAcc) regulate opioid-induced euphoria within the central nervous system. Dopaminergic (DA) neurons within the ventral tegmental area (VTA) send out projections and integrations to the NAcc included in the prefrontal cortex, and amygdala when excitation occurs from opioids. These pathways innervate the mesolimbic/mesocortical pathways, which are dopaminergic pathways. Innervation of these pathways allows for the release of dopamine, resulting in the euphoric effect. 6-keto opioids (hydrocodone, oxycodone, and hydromorphone) are prominent for producing euphoric effects and have a higher likelihood, when compared to other opioids, of being abused (Vallejo et al. 344). The euphoric effects can be the reason individuals crave more and more of these drugs and eventually leads to addiction. Thus the biology behind opioid addiction is complicated and steps must be taken to improve communication between healthcare professionals and the community to help prevent these drugs from being used.

Individuals can become addicted to opioids through drug misuse or abuse. A patient may not know the dangers of what can happen when they take more medication than is prescribed and once they begin, they cannot stop. Drug abuse occurs when a patient is knowingly taking more than prescribed. In addition, genetic risk factors can facilitate drug addiction. For example, if a person's parent is an addict, that person is more likely to become an addict. Addiction following drug experimentation with heroin is very high, resulting in about 25 to 40% becoming addicts after the first exposure (Tommasello 3).

IV. Treatment

Treatment options for prescription opioid addicts include, but are not limited to, medications, rehabilitation, and outpatient and inpatient clinics. Medications such as methadone, buprenorphine, and buprenorphine/naloxone (Suboxone) are used in the treatment of opioid addiction. These are controlled substances used as ‘substitution’ or ‘maintenance’ medications in order to deter patients from using illegal opioids in hopes of reducing addiction-related behaviors (Ling et al. 304). It is important to prescribe just the right dose of these substitute medications because if the dosing is incorrect, the maintenance is not going to work and can potentially make the abuse worse. For instance, if the dose is too strong, the patient may become addicted to the maintenance medication itself. Methadone is the maintenance medication that has been used in the past to treat addiction, however, methadone is an agonist opioid. This means the methadone is still giving the euphoric high; therefore, it can have a high potential for abuse. Since methadone has a high potential for abuse, doctors are now prescribing suboxone (Turner et al. 24). Suboxone, a mixture of buprenorphine and naloxone, is an oral film medication that dissolves on the tongue. Referring to Figure 2, it can be seen the active drugs in suboxone consist of an antagonist and partial agonist. This film is being prescribed more due to the inclusion of naloxone hydrochloride, which acts as an opioid antagonist, meaning it can reverse the effects of opioids in the body (Turner et al. 24). Figure 2 below shows the increasing usage of suboxone over ten years starting around 125,000 treatments in 2003 to over 500,000 treatments in 2011 (Turner et al. 26).

In addition to maintenance medications being used for treatment of prescription opioid abuse, a medication called Narcan, naloxone hydrochloride, is used in emergency overdose situations. Narcan is used to treat an overdose but not maintenance. As stated above, naloxone

hydrochloride acts as an opioid antagonist meaning it reverses the effects of opioids. Narcan is used as an attempt to reverse the effects of the opioids when a person has overdosed. Looking at treatment visits alone, it can be seen there is an increasing number of addicts and it is only continuing to grow.

A consequence of addiction is that through constant exposure to a chemical, the brain becomes dependent upon it. Withdrawal symptoms can make it hard to treat addiction to opiates. In the early stages, symptoms include, but are not limited to, agitation, anxiety, muscle aches, insomnia, and sweating. Later stages can include abdominal cramping, diarrhea, dilated pupils, goosebumps, nausea, and vomiting (“Opiate and Opioid Withdrawal” 1). These symptoms can start within 12 hours of the last use of short-acting opiates and 30 hours for long-acting opiates (“Opiate Withdrawal Timelines, Symptoms and Treatment” 1). These symptoms can be incredibly difficult for addicts to handle and often require medical treatment. Addicts may feel they have no other choice than to continue using because they may not know about, or want to use, the resources offered to help combat their symptoms (“Opiate Withdrawal Timelines, Symptoms and Treatment” 1).

There are a variety of resources for people to reach out for help. These may include doctors, pharmacists, nurses, clinics, and friends. Not only is there help to treat addiction and withdrawal, there is help on an emotional level as well. Support groups exist for people battling addiction in which people can go and talk with other recovering addicts for help (“Opiate and Opioid Withdrawal” 1). If there were more widespread knowledge regarding treatment options, more addicts may reach out for help. By increasing the number of community partnerships that exist between rehabilitation and treatment clinics, other healthcare professionals, and community leaders an increase of patient awareness and access to the availability of treatment may occur.

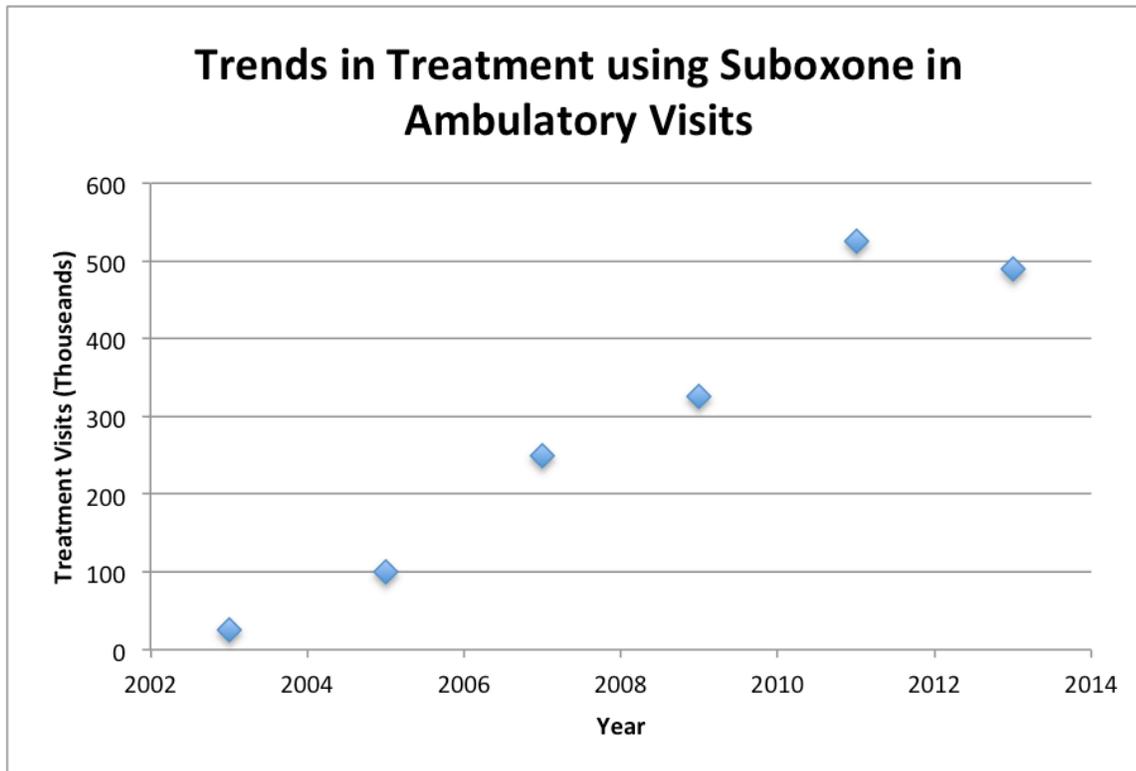


Figure 2. Trends in ambulatory treatment visits using buprenorphine products for opioid dependency, 1997-2013. (Adapted from Turner et al. 26).

V. How people acquire controlled substances

The availability of opioid analgesics is contributing to opioid abuse. Drug dealers are the main source of access to opioids, from which 70 to 80% of users acquire their opioids. Dealers acquire prescription analgesics using an array of drug diversion tactics (Rigg et al. 144), which can be defined as illegally feeding controlled pharmaceuticals from legal sources into an illicit marketplace (Inciardi et al. 171). Studies have been conducted using qualitative interviews in order to gain more empirical data. One study that was conducted in several South Florida areas used a sample of 50 people in order to learn more about different drug diversion types. This study discovered six predominant mechanisms of drug diversion; including pain clinic shopping, the buying scripts, sponsorship, and using a 'connect' (Rigg et al. 148). However, all of these ultimately lead back to the pharmacy. Another study was conducted in Miami, Florida in which a total of 17 focus groups were studied from a variety of different drug-using populations. This study concluded that while certain drug diversion tactics are used most often, there are other street based markets also being used to purchase illicit drugs (Inciardi et al. 171). In order to produce a solution, it is important to understand how the substances are reaching the streets from all aspects, which can better prevent dealers getting their hands on the drugs.

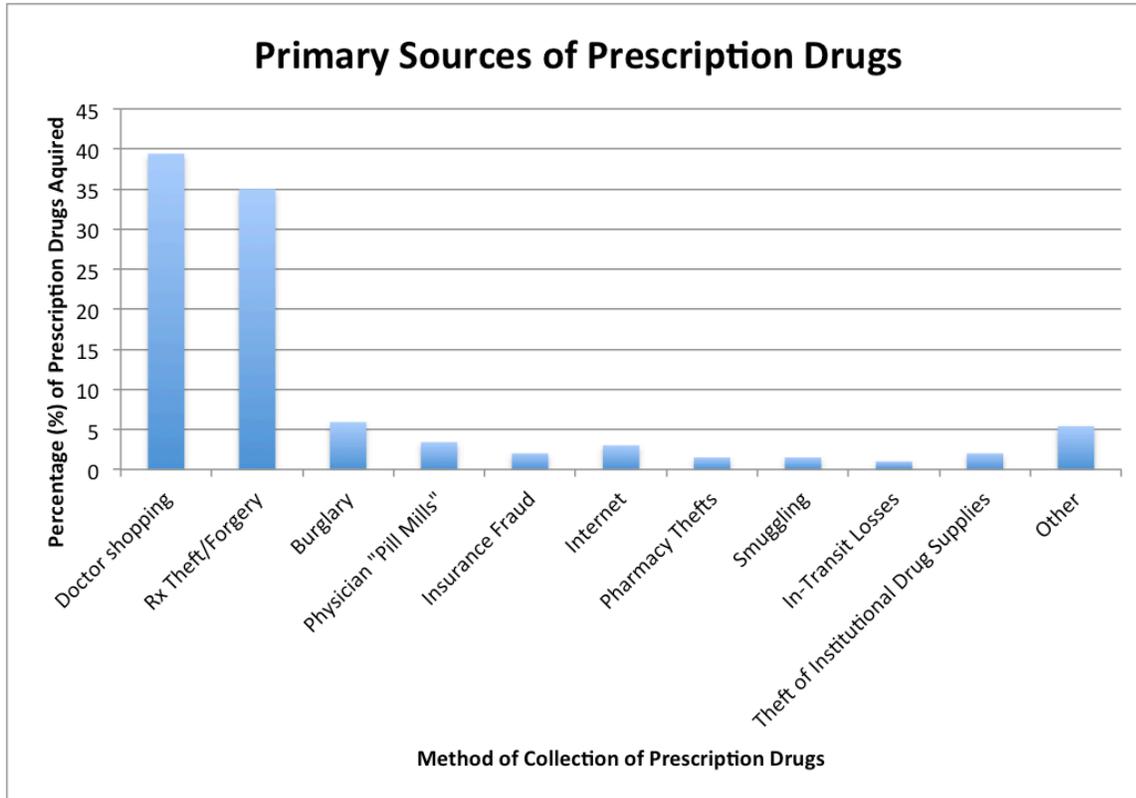


Figure 3. Results of investigation into the primary sources of prescription drug diversion (Adapted from Inciardi et al. 173)

Figure 3 shows the general results of the study focused in Miami but the research focuses more on the drug diversion tactics of insurance fraud and theft of drugs. Many people do not think about Medicaid and Medicare fraud as being a well used method. Several study participants in Miami indicated one of the major ways to obtain pills was through a “pill broker”, or someone who uses Medicaid fraud to obtain a supply of pills. The dealer sends an older man into a physician’s office to complain of pain, the doctor gets reimbursement from Medicaid for every patient he sees. As a result, if the doctor helps out the dealer, the dealer will send more patients his way. The dealer pays the patients for the pills and then sells them to users (Inciardi et al. 174). Unethical doctors, who participate in this, add to the issue by prescribing more opioids aiding in the distribution. Focusing on just preventing doctor shopping does not help solve the issue of crooked physicians, which is why we need to understand other forms of drug diversion. We must propose a solution that covers all kinds of sources. Partnerships between law enforcement and health care professionals could help prevent the widespread availability of opioid analgesics. In addition, a nationwide PDMP could prevent doctor shopping by tracking all opioid prescriptions (Shepherd 110).

Pain clinic shopping was found to be the most widely used tactic of obtaining prescription opioids. In order to obtain multiple prescriptions for the opioids, dealers would visit several pain management clinics complaining of chronic pain and show a doctored MRI in order to get the medications. One of the people interviewed stated, “if you go in and say your pain is a 10 they will give you 240 Oxy’s or if you say 5, 6, or 7 you will get 160 Oxy’s.” The doctors don’t do any tests or even examine the patient, they just prescribe (Rigg et al. 149). This is a vital moment where pharmacists could help stop the constant flow of pills from clinics. People who get multiple prescriptions from pain clinics need to use multiple pharmacies in order to avoid

detection. If a PDMP reported all controlled substance prescriptions and was actually utilized by all pharmacies, they would be able to catch these people and refuse to fill these various pain clinic scripts. This ultimately would reduce the omnipresence of opioids and diminish the amount of addiction (Shepherd 87).

Another way dealers obtain opioids is buying prescriptions from people in their communities willing to sell. One tactic used by drug dealers is to seek out individuals who are desperate enough to sell their prescriptions for quick cash (Rigg et al. 152). Another tactic used by drug dealers is sponsorship, which is when dealers pay for someone else's trip to a pain clinic in return for a portion of the medication prescribed (Rigg et al. 150). This method allowed dealers to increase their stock of medication because they could sponsor various people to go to different pain clinics but if they went themselves, the prolonged waiting times would limit the amount of visits they could make. A 'connect' could often be used by dealers to obtain prescription opioids. The word 'connect' is used to describe an individual who has steady access to prescription drugs by working in a healthcare setting (Rigg et al. 152). Using this technique, the 'connect' would provide the dealer with prescription pads or prescription medications stolen from the facility they were employed with.

Dealers commonly use these various methods in order to obtain prescription medications, however, they all have one thing in common: the medication is coming out of the pharmacy. This indicates solutions to the opioid crisis need to include pharmacists because they are dispensing the medications. Findings from this study have created support in the crafting of Florida's proposed prescription drug monitoring program (PDMP) (Rigg et al. 155). This data should not only support a PDMP for Florida, but should support one for the entire United States as one possible solution to this epidemic.

VI. Doctors Views of Opioid Abuse

Doctors play an essential role in opioid addiction because they are the ones prescribing opioids. Doctors need to be the first round of defense in preventing and combating addiction to opioids. The public tends not to know much about physician's attitudes and policies towards prescription opioid abuse or they have incorrect assumptions. In order to understand physician's beliefs on opioid abuse, two studies were conducted in which surveys were sent out to physicians, which asked a variety of questions surrounding opioid abuse and addiction (Kennedy-Hendricks et al.), (Hagemeier et al.).

The first study was conducted in 2014 and consisted of 1010 participating primary care physicians answering various questions regarding opioids on a 5-point Likert scale (strongly disagree to strongly agree). In addition to asking questions about opioids, the physicians were also asked to answer questions regarding their own medical careers, such as medical school information, prescribing patterns, practice setting, and state that they practiced in. It was found that 72 % of respondents felt prescription opioid abuse was an extremely serious problem facing the United States. If doctors do not see this as a major issue, they are not going to put the effort in to help make it stop. Using Table 3, we can understand some of doctor's beliefs regarding the major causes of opioid addiction. Out of the entire sample, 85% of physicians agreed it is too easy for people to obtain multiple prescriptions for opioids from multiple different doctors. This observation supports the theory of people using "doctor shopping" as a main source for these drugs. Table 2 also shows 90 % of the doctors surveyed agreed some people do not really understand how easy it is to become addicted to prescription painkillers (Kennedy-Hendricks et al. 65). This doctor perception can show how uneducated people really are when it comes to taking these medications and how dangerous it can be to take these painkillers.

Causes	All Respondents	Lower Volume Prescribers	Higher Volume Prescribers
People do not understand how easy it is to become addicted to prescription pain medication	89.6 %	90.2 %	87.4 %
It is too easy to get multiple pain medication prescriptions from different doctors	84.9 %	87.1 %	77.0 %

Table 3. Shows tabulated data of physicians responses to different causes of opioid addiction (Adapted from Kennedy-Hendricks et al. 65).

The survey asks doctors about how best to support interventions into this epidemic. The results are tabulated in Table 4. The most popular ideas from physicians were having identification verification requirements at pharmacy pick up (96%), having prescription drug monitoring programs in all states (92%), requiring medical schools as well as residency programs provide adequate training on addiction detection and treatment (91%) and lastly adequate training in medical school and residency on how to treat chronic pain correctly (90%) (Kennedy-Hendricks et al. 67). Physicians do understand the problems surrounding opioid abuse as well as their role in solving the issue. If we can get doctors on board for increasing community partnerships and utilization of a nationwide PDMP solving the opioid epidemic is more likely to occur.

The second study from 2012 surveyed prescribers as well as pharmacists. This study focused more on recognizing addiction and successful treatment. When asked if individuals receiving opioid painkillers could be recognized as abusers of the drug, only 17% of prescribers agreed they could recognize abusers whereas 41% of pharmacists agreed they could recognize abusers. In addition, when asked if individuals receiving these medications had a legitimate medical necessity for painkillers, prescribers responded say 85% of patients did whereas pharmacists stated only 64% of patients had a medical necessity for the opioids. These numbers indicate a colossal disconnect in communication between healthcare professionals. These types of community partnerships are essential in creating a solution that will actually work to curb opioid abuse and addiction. Respondents to this survey, both pharmacists and prescribers, strongly agreed (80-90%) an increase in communication of the prescriber-pharmacist-patient triad would be beneficial. One reason why pharmacists perceive more patients as abusers is they do not have as close of a relationship with the patients because they just come to get their

medication and leave. Because of that, pharmacists may have a more objective view when it comes to identifying addicts (Hagemeier et al. 787). Results of this study also support the use of a prescription drug-monitoring program to close the communication gap between healthcare professionals. However, the current PDMPs do not currently collect and communicate certain data that may be useful in the estimation of abuse. Revamping the PDMPs in all states with a higher focus on the partnerships between health care professionals would help prevent abusers from receiving prescription painkillers.

Policies	All Respondents	Lower Volume Prescribers	Higher Volume Prescribers
Requiring pharmacies to verify patient identification before giving out prescription pain medication	96.3 %	96.6 %	95.5 %
Creating a prescription drug monitoring program (PDMP) for all states	91.6 %	92.3 %	89.2 %
Requiring medical schools and residency programs to provide adequate training on how to detect and treat addiction to prescription pain medication	91.4 %	92.0 %	89.2 %
Requiring medical schools and residency programs to provide adequate training on how to treat chronic pain	90.2 %	90.1 %	90.5 %

Table 4. Tabulated data showing physician’s support on proposed solutions to combat prescription opioid abuse (Adapted from Kennedy-Hendricks et al. 67).

In addition to these two studies, Anna Lembke, M.D., published a paper in the New England Journal of Medicine in October of 2012 highlighting why she believes there are so many opioids being prescribed, especially to known abusers. Around 60% of opioids that are abused come from doctor's prescriptions and the reasons doctors prescribe so many are not well known to the public. Dr. Lembke states, in many instances, prescribers are aware of the patient abusing opioids but still prescribe anyway. Changes in the medical society's attitude of pain treatment, societal views towards suffering, and monetary deterrents for treating addiction are some explanations attributed to this problem (Lembke 1580). A physician is supposed to be someone who patients can trust to help get better, not feed an addiction.

Over the past 100 years, views of how to treat pain have changed drastically. It used to be argued pain was an important part of the healing process and many doctors spoke out against the use of pain remedies (Lembke 1580). However, in society today, health care providers have been urged to trust a patient's subjective experience and expression of pain as precedence over other considerations during treatment. Physicians are beginning to feel pressured into prescribing due to patient satisfaction surveys, which can affect a physician's reimbursement and job security. If a doctor says "no" to prescribing opioids they are likely to receive bad feedback and not receive as many patients (Lembke 1580). If a doctor does not have enough patients, there is no way for he or she to keep a practice open. This pressure can cause doctors to just write the prescription whether or not they believe the patient is abusing drugs. In addition to the pressure to prescribe from patient satisfaction, doctors are also feeling the pressure to prescribe due to the belief untreated pain can cause psychic scars which leads to a form of post-traumatic stress disorder (PTSD). Doctors who decide not to prescribe opioids for pain may be seen as withholding care and causing additional trauma and no doctor wants that guilt on their shoulders. Patients are

keenly aware of these pressures and use them to their advantage to gain more and more opioids. If a doctor refuses to prescribe, a patient may sue for withholding medical care and inflicting more harm (Lembke 1580). For physicians, prescribing opioids seems to be a double-edged sword. They either prescribe and feed someone's addiction or refuse to prescribe and have adverse affects on their professional careers.

Dr. Lembke also points out the sad but true fact that treating pain pays, while treating for addiction does not. Treating addiction takes extensive education and effective counseling which both take time. Physicians are often evaluated on how many patients they are seeing and not the time spent with patients (Lembke 1581). Prescribers will not take the time to effectively educate and counsel a patient about addiction until they are sufficiently compensated for the time it takes. It is much faster to diagnose pain and write a prescription than it is to diagnose and treat addiction (Lembke 1581). A physician should not have to worry about how many patients they seeing; they should be worrying about whether or not they are effectively treating their patients. Doctors should not be evaluated on quantity; they should be evaluated on quality.

Some short-term changes Dr. Lembke offers are mandating all physicians to complete continuing education courses on addiction and not just pain treatment and having access to PDMP's and by law having to access the database before writing the prescriptions (Lembke 1581). Furthermore, if the government and health care professionals worked together to come up with better laws and mandates regarding prescribing, a solution may arise. To add to the suggested mandate of sending doctors to an addiction education course, doctors should no longer be evaluated or paid for prescribing opioids; they should be evaluated on treating addiction and paid for that. In doing so, one of the major pressures of prescribing will be eliminated hopefully encouraging prescribers to diagnose addiction and treat it.

Doctors may be the most influential people to help prevent and stop opioid addiction because they are at the start of the cycle. Solutions to the opioid epidemic should start with doctors and expand outward through partnerships with other healthcare professionals as well as the community. In creating these partnerships, communication will increase throughout the community and red flags of addiction can be caught sooner and taken care of.

VII. Pharmacists Views of Opioid Abuse

Pharmacists play a critical role in the fight along with physicians being on the front line to battle the opioid crisis. Pharmacists are the second healthcare professionals patients see when receiving the opioid analgesics. Often more times than not, patients see pharmacists more frequently than physicians. Pharmacists are the second line of defense in identifying addiction in patients, which indicates they should play a large role in finding a solution to the opioid epidemic.

A study done in 2012 compared prescriber and pharmacist's opinions on prescription opioid abuse. This study gave an insight to the differences between pharmacist interactions and prescriber interactions with patients. Participants in this study were asked what percentage of prescriptions written for opioid analgesics were prescribed to abusers, pharmacists responded 41% and prescribers only 17%. This indicates pharmacist interactions with patients are different than with the prescriber (Hagemeier et al. 785). If pharmacists are responding saying almost half of the prescribed opioids are for abusers, they are clearly experiencing differences in patients a physician may not see. This can indicate abusers are putting on a show for prescribers in order to get the prescription, but once they have the prescription they do not care enough to put on a show for the pharmacist. Furthermore, when asked if individuals receiving opioid painkillers had a medical necessity for the drug, pharmacists responded saying 64% were legitimate reasons

whereas prescribers responded with 85% were legitimate reasons (Hagemeyer et al. 785). This again may indicate there are differences in observed behavior as well as interactions with patients between pharmacists and doctors.

The study from 2012 is indicative of a sizeable communication gap between pharmacists and prescribers, which can be detrimental to producing a successful solution to opioid abuse. Closing this gap should be the first step in solving the issue at hand. Pharmacists have been attempting to communicate more with providers by calling on questionable prescriptions or calling to verify the legitimate medical reason, however, it has been challenging due to a few reasons. Two core challenges to this are the time it would take to improve the communication as well as physicians being worried whether or not pharmacists are qualified enough to intervene in medical decisions. Providers have stated they are uncomfortable when a pharmacist is questioning their medical decisions and treatments due to concerns of pharmacists not having the capability to accurately question prescriptions (Hoppe et al. 1997). However, many of these concerns are unwarranted because pharmacists are in school for 6 to 8 years with numerous instances of hands-on experience dealing with patient care decisions (Hoppe et al. 1997). Reassuring providers of the extent of a pharmacist's education may help alleviate those concerns. Time is limited and workload is high so more communication between a provider and a pharmacist is a burden to many. Time is the reason many providers do not check PDMPs if there is one available (Hoppe et al. 1997). However, even though time is limited, it should not be a burden for a provider to verify prescriptions with a pharmacist or provide a diagnosis or rationale for prescriptions that are deemed unusual or unsafe. Improving the communication would benefit and improve patient safety, which should be the ultimate concern of both doctors and pharmacists.

Utilizing both pharmacists and physicians needs to be the focus of a solution to the opioid crisis. Both of these health care areas have direct contact with the patients in different settings in order to make inferences regarding the patient as an addict or not. In order to make more accurate inferences, enhanced communication is vital. In addition, using the knowledge of both physicians and pharmacists, gives better odds at identifying and treating addiction.

VIII. Strides Being Made to Fix the Issue

The opioid crisis has been a critical societal issue for many years and there have been various attempts to help curb this disaster, however, these efforts have not been successful. Steps have been made at both the federal and state level.

For instance, Former President Obama had visited West Virginia in October of 2015 to hear local concerns regarding the opioid abuse epidemic. He was stunned when he heard the statistics presented by the CDC, which indicated more people are dying from drug overdoses than from car accidents. As a result of this meeting, the White House ordered federal agencies to ensure employees who are involved in the prescribing of controlled substances complete training related to the appropriate use of the drugs within 18 months. The training had to include the best practices for the proper and effective prescribing of pain medications, the connection of substance abuse with controlled substances, safe discarding of controlled substances, and the prospective misuse of controlled substances (Traynor 1). This is a brilliant idea because a big part of this epidemic is people are just simply uneducated when it comes to these types of drugs.

New York State (NYS) enacted a law on March 27, 2016 mandating the use of electronic prescribing by practitioners. Electronic prescribing means a practitioner sends an e-prescription to a pharmacy to be dispensed to a patient instead of the patient bringing a written prescription to the pharmacy. Controlled substance e-prescriptions require additional security features in order

to deter forged prescriptions. This law was enacted not only to help reduce the amount of errors due to poor handwriting on written prescriptions but also to reduce theft and forgery of written controlled substance prescriptions (Bureau of Narcotic Enforcement 1). This is a small step in reducing the amount of fake prescriptions brought in to pharmacies for prescription opioids. However, this is only mandatory in NYS, federal agencies encourage the use of electronic prescribing but do not require it. If this was made a nationwide law, it would help deter the use of fraudulent prescriptions and ultimately prevent dealers from getting their hands on so many of these pills.

One way states have tried to combat opioid abuse is by implementing PDMPs. Most states had developed some sort of PDMP beginning in the 1990s and 2000s. A PDMP has a few goals: supporting legitimate medical use of controlled substances; preventing drug diversion and abuse; allowing the identification of prescription drug addicts to allow for intervention and treatment; and education about drug abuse and addiction. However, many of these States' PDMPs have been unsuccessful due to poor data collection, deficient utilization of data, inadequate data sharing between states, and not allowing law enforcement access to the PDMP (Shepherd 87).

Poor data collection can cause a PDMP to be useless because if the data that is needed is not in the PDMP, healthcare professionals cannot benefit from its use. Many of the state PDMPs in use, do not require certain vital information that is needed to make it useful. For example, most state PDMPs in use do not require the method of payment for controlled substance prescriptions. When a customer pays cash for a prescription, the customer evades insurance companies monitoring the number of prescriptions. If a customer uses insurance, the insurance companies can detect potential abuse by the frequency of claims and inappropriate prescribing

(Shepherd 87). In addition, most PDMPs do not require the identification of the person picking up the prescription. Drug diversion could be detected if someone other than the individual the drug is prescribed to is continually picking up the dispensed medication (Shepherd 94). PDMPs currently do not gather any prescriber deaths or punitive actions against a prescriber. Because of this, pharmacies may dispense controlled substances from a prescriber that is banned from prescribing the medications by the DEA. Ultimately the pharmacy will receive this information but in the meantime, pharmacies are dispensing illegal prescriptions to patients. Many states argue collecting all this additional information increases workload and lengthens the process of prescribing, dispensing, and selling controlled substances, however, others agree the added workload is worth the work to help prevent addiction (Shepherd 106).

Many states do not legally require the utilization of the PDMP by prescribers and pharmacists. Most prescribers and pharmacists find it a hassle to have to consult the database for each prescription. If healthcare professionals are not being legally required to utilize the PDMP, what good is it? In addition, it can take up to a month for information to be available through a PDMP (Hildebran et al. 6) . This is an issue because if someone is actually looking for current data, it is not there (Shepherd 106).

State PDMPs do not have adequate information sharing between states. Some states do not have PDMPs leaving a huge gap in communication and allows drug addicts to take advantage. Drug addicts may procure opioid prescriptions from multiple states particularly neighboring states in order to evade detection (Hildebran et al. 6). Also, most state PDMPs are different which makes data sharing extremely difficult and time consuming (Shepherd 107). If there is lack of communication between states, this allows drug addicts to fill prescriptions in multiple states evading detection.

Lastly, most state PDMPs do not allow law enforcement to access the information. States exclude law enforcement because of the fear law enforcement will use it improperly (Shepherd 108). In addition, much of the information in a PDMP is personal healthcare information regarding patients, which is legally protected, meaning law enforcement agencies need warrants to access healthcare records. Prescribers may fear law enforcement agencies allowed access to PDMPs may invade an individuals privacy (Shepherd 108).

IX. Proposed Nationwide PDMP

After analyzing all the data, a nationwide PDMP should be enacted in order to fight controlled substance abuse. A nationwide PDMP would make it so each state is utilizing the same program resulting in no data sharing barriers. Some of the vital information including the patient's diagnosis, identification of individual picking up the medication, patient's method of payment, prescriber information, and pharmacy information should be included in a country wide PDMP. A PDMP would increase the community partnerships between healthcare professionals in order to detect rogue prescribers, rogue pharmacists, doctor shopping, pharmacy shopping, and drug diversion.

If a PDMP was federally mandated to be used by prescribers and pharmacists for each controlled substance the number of abusers and addicts would go down. This would allow red flags to be taken care of before the medications are dispensed and sold. In addition, there would be no communication gaps in which abusers could take advantage of to gain access to the medications.

Finally, if healthcare professionals were allowed to use the database to notify law enforcement agencies of potential crime, it would allow law enforcement to crackdown on illegal

activity (Shepherd 108). It would increase the partnership between law enforcement and healthcare professionals and allow more teamwork in combating the epidemic.

X. Conclusion

The current opioid analgesic abuse and addiction in the United States is an epidemic, which has had attempts to control, needs a nationwide solution in order to be successful. A variety of community partnerships need to be built and maintained between healthcare professionals, healthcare facilities, community leaders, emergency services, and law enforcement. These community partnerships would increase communication between parties in order to pool knowledge to prevent and control abuse and addiction.

A nationwide PDMP is a great start to building these partnerships by having a sole source of information surrounding individuals receiving prescription opioids. This will open communication channels between physicians and pharmacists as well as law enforcement to ultimately detect potential abuse.

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