THE OPIOID CRISIS, A COMPARISON: THE UNITED STATES, PORTUGAL, AND SPAIN

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ABSTRACT

The opioid crisis has negatively affected many people around the world, claiming many lives from overdoses, creating financial distress from loss of employment, and destroying family units. The opioid crisis has particularly taken a life toll in the United States, where over 63,000 deaths have been reported in 2016 (CDC). The crisis in the United States gained increased attention when it began to affect young, white, wealthy individuals. Portugal and Spain, two additional developed Western countries, with a high proportion of Caucasian populations, but with a national health care system were selected for comparison.

In response, all three countries have addressed their perspective crisis in subjective manners. Portugal has seen the best outcomes due to the steps they implemented to overcome their crisis, especially when compared to the United States and Spain. Portugal's success resulted from a multidisciplinary approach, including a change in its cultural perspective on individuals who misuse drugs. Spain, unlike the United States, has had stagnant numbers of drug misusers, and overdose deaths within their population. Although the statistics are not increasing, they have also not decreased, as seen in Portugal.

As an intervention and with further observation of Portugal's successful changes, specific examples can be implemented in the United States for improvement. Barriers will exist when including aspects of Portugal's model, but modifications can be applied to overcome them.

The opioid crisis has had tremendous public health implications due to the significant number of individuals suffering from substance use disorder, increasing mortality rates resulting from opioid overdoses, and the impact across geographic and socioeconomic populations.

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1.0 BACKGROUND ON THE OPIOID CRISIS

Opium is contained in the bulb of the opium poppy, and is a highly addictive substance. Opioids are derived from the opium and have the ability to provide pain relief (Quinones). Most of these drugs are prescribed as pain medications, and are widespread across the United States; however, not all opioids are legal prescription drugs, they can be illicit substances as well. For instance, heroin is also an opium derivative, whose use is however not accepted in medical practice due to its high addiction potential. People who became dependent on opioids turned to heroin, because it was less expensive and they could still get high (Quinones). Each of these drugs, with their highly addictive properties produce a sense of euphoria to the human body. The body builds up a tolerance and dependence for the drug, so increasing doses are required to obtain the same effect (Quinones). The addictive behaviors are extremely difficult to overcome, and often cause painful withdrawal symptoms, in which the individual feels all of the pain they were trying to conquer (Quinones).

Prescription opioid use is seen largely in the United States to treat pain. Before 1980s, the use of opioids was restricted to the treatment of cancer-related pain; however, in the 1980s, physicians began to use them to treat chronic pain (Quinones). In the mid-1990s, the United States began to consider pain as the fifth vital sign in addition to pulse, temperature, respiration rate, and blood pressure (Morone & Weiner). Although it was never officially made the fifth vital sign, because it is impossible to measure pain quantitatively, physicians started to prioritize

pain control, which lead to an increase in the use of prescription opioids. The mindset of pain being another vital sign likely drove physicians to view pain as a high priority that needed to be treated.

Simultaneously, there have been an increase in overdose deaths reported. The United States has witnessed the opioid crisis affecting multiple age groups and multiple ethnicities. Between 1999-2014, people aged 25-54 years old showed the highest overdose statistics. At the start of this time frame, men showed the highest rates, but as of 2014, the gender differences are becoming more equal. Non-Hispanic whites, American Indians, and Alaskan Natives are among the highest ethnicities effected (CDC). There are endless stories of physicians overprescribing and not holistically treating patients. Physicians across the U.S overprescribe pain medications, with very inconsistent practices. Pain medications are being prescribed at higher dosages, with more days supplies per person, in 2015, when compared to data in the late 1990s (CDC).

It took nearly 20 years for the addictive behaviors of opioids to gain significant attention in the U.S. Toward the end of the 2000-2010 period, individuals who were taking a specific narcotic, called Oxycontin, were commonly known to transition to heroin (Quinones). Three out of four individuals abused prescription opioids before using heroin (CDC). Once the crisis was recognized, the Food and Drug Administration (FDA) began to mandate drug companies to provide educational information to practitioners on the addictive qualities of their drugs. Additionally, as addiction became further recognized, many companies also began to create drugs that were supposed to be unable to crush for injection (Quinones). Changing the compound of these drugs was to help avoid the misuse of these drugs.

Comparatively, the United States has seen considerably higher overdose rates compared to other countries, though opioid misuse is being seen in Europe, among other places around the

world. Illicit drug overdoses are far from uniform among countries. Spain and Portugal, two developed, Western countries boarded by the Atlantic Ocean, both with National Health Care Systems and a population majority of Caucasian individuals, were selected to compare their interventions and outcomes. In 2016, the United States witnessed 13 deaths per 100,000, caused by overdoses (CDC). In 2015, Portugal reported 0.58 deaths per 100,000 (EMCDDA), and Spain witnessed 1.48 deaths per 100,000 in 2014 (EMCDDA).

Each of the three countries have taken their own steps to decrease the occurrences of overdose deaths, and to prevent children and teens from becoming addicted to opioids and illicit drugs. Portugal was able to change both policies and the stigma that surround drug use. They have seen a voluntary uptake of people seeking treatment programs of all forms, and there has been a decrease in the number of young people misusing drugs. Spain has been able to provide clean needle and syringe programs, safe injection spaces, and Naloxone dispensing for overdose cases.

2.0 DISCUSSION OF HEALTH SYSTEMS

The United States, Portugal, and Spain have different health care systems with minimal overlap between the system in the US and those of Portugal and Spain. The United States has a multi-payer system that includes both private and public governmentally funded payers. Both Spain and Portugal have nationally funded health care systems, which cover all citizens, and provides a universal reporting system for all medical services. Although the United States spends the most amount on health care per capita, these expenditures do not translate into improved outcomes, since life expectancy is lowest among the three countries and prevalence of chronic diseases is higher.

2.1 THE UNITED STATES

The United States is the only country of the three presented that does not provide universal health insurance for all citizens. In the American view, the closest thing to universal health care for the entire population was the enactment of the Patient Protection and Affordable Care Act, often referred to as the ACA, or Obamacare, because every citizen is required to have health insurance under the enactment. The United States continues to have private hospitals, unlike those in Europe where the hospitals are public under each country's National Health System. Private health insurance in the United States began in the 1940s as a result of World War II. Insurance was used as an incentive to attract possible employees into working for their companies (Emanual). Traditionally, providers and facilities are reimbursed on a fee-for-service

system. This financial misalignment between payers and providers lead to an exponential increase in health care costs over time. For instance, the Gross Domestic Product (GDP) in 1960 was 5%, and today is nearly 20% for health care costs (CMS).

Obamacare was implemented in 2010 under the Obama Administration, and is still in place today. The ACA included a variety of provisions. First, the ACA mandates health insurance coverage for all American citizens, through a state based exchange. If individuals chose not to gain coverage they are penalized with a fine. Under the ACA, insurance companies must offer coverage for individuals with preexisting health conditions. Dependents are able to stay on their parents' or guardians' insurance plan until the age of 26. Second, in a total of 33 states the coverage of Medicaid was expanded to cover all families making below 133% of the poverty line. Before the implementation of the ACA, households making an annual income of below 138% of the federal poverty line were eligible for coverage (Wehby and Lyu). Third, under the ACA, tax credits and subsidies are also offered for those who cannot afford insurance, but whose income is higher than the threshold to qualify for Medicaid coverage. The ACA also created a plan to close the Medicare Part D coverage gap phase over time. When Medicare Part D was enacted, there were four benefit phases in Stand-Alone Prescription Drug Plans, including an annual deductible, an initial coverage phase, a coverage gap, and catastrophic coverage. Under the coverage gap, patients were fully responsible for drug costs. The cycle resets at the beginning of the calendar year (Kaplan and Zhang). The plan under the ACA is to close that gap, so patients would no longer be responsible for 100% of the cost of their medications. By 2020, patients will be responsible for only 25% of the cost during the coverage gap (Bonakdar and Cunnigham).

Private insurance works through premiums, deductibles, and copayments. Premiums are the initial payments from the consumer to the insurance company, also known as the payer. Deductibles are charged to the consumer at the beginning on the calendar year, and is a certain amount of money that one must pay before their insurance coverage begins. The amount spent towards the annual deductible resets every year, and is dependent on the specific health plan. Copayments are predetermined costs for a service or medication that the patient is responsible for paying out-of-pocket. They are paid by the consumer at the time of a healthcare intervention, like a physician visit or the cost of their prescription (Emanuel). The positive outlooks of the ACA include an increase in the number of covered citizens, and the switch from volume based to value based reimbursement payments for physicians. Prior to the ACA, physicians were paid on a fee-for-service system, which incentivized the overuse of health services and decreased the efficiency of the healthcare system. The ACA however created the implementation of several provider payment models based on value, where providers are paid based on the clinical outcomes and costs incurred by the population they serve. Some of the potential negative impacts of the ACA an increase in premiums (Pariser). Additionally, at implementation, because more people have insurance, more people began visiting physicians, increasing their workload (Pariser).

Under the ACA, there are four publicly funded insurance options for those qualify: Medicaid, Medicare, dual Medicare/Medicaid eligibility, and Children's Health Insurance Program, called CHIP. The U.S Government provides a single payer system for active military personnel, and veterans. Medicaid is the insurance coverage for poor individuals or families which may include, pregnant women at or below 133% of the poverty line, or disabled individuals. Families covered under Medicaid make a combined income of less than 133% of the

poverty line (Racine, et. al.). Dual membership eligibility between Medicaid and Medicare are from patients who are no longer working due to age, or disabled individuals, both of which fall below a percentage of the federal poverty line (Emanuel).

CHIP, implemented in 1997, covers children of families who need financial assistance paying for health insurance, but whose income is above the eligibility threshold for Medicaid (Emmanuel). Families who earn up to 200% of the federal poverty level qualify for their children to be covered. Children who have any other insurance coverage are ineligible for CHIP coverage (Racine, et. al). The program was originally implemented for 10 years, and funded through grants. In 2007, CHIP was renewed under the ACA, to be funded through a match between states and federal government.

Lastly, veterans in the United States are covered under the government, and receive a majority of their care at the Veterans Health Administration (VHA). VA insurance is quite similar to that of a national health system, but as previously stated, only covers active military personnel and veterans. This system hires their own providers, which give medical care to the consumers. The VA is an integrated system, since acts as the provider and payer for the covered population. Of the 22 million U.S veterans, only 8.9 receive health benefits from the VHA. The other portion of the veteran population uses private health insurance, or programs like Medicaid, because they either have not enrolled in the VA system, or they are ineligible (Chokshi & Sommers).

The table below summarizes each the three federally funded programs and who is eligible:

Table 1: Three Main Governmentally Funded Programs

Program	Covered Individuals	Cost	Federal or State Implementation
Medicare	• Individuals 65 years + • Disabled, low income individuals of all ages • Renal Disease Patients • Medicare + Medicaid Dual Eligibility	• $672.1 billion in 2016 (CMS, 2016) • 3.6% of GDP (KFF, 2015)	• Federal
Medicaid	• Low income individuals and families • Low income pregnant women • Disabled individuals	• $565.5 billion (CMS, 2016) • 3.0% of GDP (KFF, 2015)	• State
CHIP	• Children with no insurance coverage from families that make excess income to be Medicaid eligible • Children from families earning up to 200% of the federal poverty level	• Federal Share: $14.4 billion • State Share: $1.1 billion (KFF, 2016) • 0.1% of GDP (KFF, 2015)	• State
Veterans Affairs	• Veterans who served in active military, navy, air force, current or former Reserves servicemen or National Guard officers called to active duty • Covers those with a service related disability, low income or low net worth veterans, or other circumstances, as applicable • Does not cover dishonorable discharges	• FY 2015: $61 billion (Tax Policy Center, 2015)	• Federal

2.2 PORTUGAL

Portugal's system is inspired by the Beveridge national health service model (Lopez-Casasnovas, Maynou, & Saez). Their health care system is much like the National Health System in the United Kingdom, called the Portuguese Servico Nacioal de Saúde, or SNS (NHS choices), and began in the late 1970s. All citizens are covered under public insurance plans. Then citizens can opt into purchasing private insurance, which is usually used for services with long waitlists in the SNS, including specialist care (Cabral).

Private and public health care are still options in Portugal's system today. Competition between private and public health care does exist. Multidisciplinary teams, called Family Health Units (USF) were created (Oliveira). Under the reform, the SNS is funded through a combination of the National Health Service, taxes, and government funding (Oliveira). There are three major medical access points: primary care facilities, and two forms of family health units (USF) which are multidisciplinary groups who provide primary care for patients (Oliveira).

2.3 SPAIN

In Spain's 1978 Constitution, it was determined that health care is a basic right for all citizens. All citizens have "equal access to preventive, curative, and rehabilitative services" (Borkan, Eaton, Novillo-Ortiz, Cotre, Jadad). Spain, with its universal health care system, spends about half as much of its GDP on healthcare, compared to the United States, with under 10% and encroaching 20%, respectively (Borkan, Eaton, Novillo-Ortiz, Cotre, Jadad). Spain utilized

primary care teams to promote prevention and overall health (Borkan, Eaton, Novillo-Ortiz, Cotre, Jadad,).

The Universal Health Care funding is provided through mandatory taxation. All citizens are covered under the public system. Primary care options offer disease prevention, health promotion, preventative care, and education to stay healthy (Borkan, Eaton, Novillo-Ortiz, Cotre, Jadad). Spain's healthcare system is set up and managed by region, which are administrative divisions compared to the states within the United States, but with less autonomy and legislative power. In addition to the national health system, Spaniards are able to purchase private insurance as a supplemental option (Borkan, Eaton, Novillo-Ortiz, Cotre, Jadad). Primary Care Physicians are able to refer patients to all specialists if necessary. Under the national health system, patients are not allowed to make appointments with specialists without a PCP referral. Individuals with private insurance are able to see these specialists quicker because they are able to surpass the wait time (Rocha, et.al.).

Similar to the United States, primary Care Physicians are able to provide detection and diagnosis, treatment, and counseling on Mental Health. If they are unable to find a solution, the patient is referred to a specialist. Private insurance allows a patient to skip the waiting period under publically funded insurance to see specialists (Rocha, et. al.).

3.0 AN ANALYSIS OF THE OPIOID CRISIS

3.1 THE UNITED STATES

One of the causes of the opioid epidemic in the U.S is the overprescribing of pain medications. The overprescribing of opioids originally exposes a high proportion of individuals to opioids, which are highly addictive substances, often leading to addiction, and eventually the need to switch to cheaper, and easier to obtain street drugs, like heroin. Overdose deaths have reached a serious toll, even beginning in the early 2000s, "The rate increased on average by 10% per year from 1999 to 2006, by 3% per year from 2006 to 2014, and by 18% per year from 2014 to 2016" overdose death rates increased by over 30% (CDC). Honor R. Gil Kerlikowske states in the transcript from the Hearing Before the Subcommittee on Crime and Terrorism of the Committee on the Judiciary United States Senate, in May of 2011:

> Prescription drug abuse is the fastest-growing drug problem in the United States. It is categorized as a public health epidemic by the Centers for Disease Control and Prevention. The number of individuals who for the first-time consumed prescription drugs for non-medical purpose was similar to the number of first-time marijuana users. We have also seen a fourfold increase in addiction treatment admissions for individuals primarily abusing prescription painkillers from 1997 to 2007 (U.S Congress).

Honor Sherrod Brown states, "Education about the threat of prescription drugs is more difficult because these legal drugs have an important medical purpose, are prescribed by physicians, and come from pharmacies. Teens are too often unaware of the dangers of misuse and abuse" (U.S Congress).

Many states began using prescription drug monitoring programs, also known as PDMPs, mandates the provider to record the prescribed drugs, and the pharmacies to record what they

have dispensed to each patient; the issue is that all regulations are not the same across states. The implementation of PDMPs have reduced the instances of doctor shopping, due to reporting. The use of PDMPs have also reduced the likelihood of fake or tampered prescriptions (CDC). In 49 states prescribers and pharmacists are able to access PDMPs. Currently, PDMPS offer interstate sharing of prescription/dispensing data in real time, Health Information Exchange (HIE) incorporation, included in Standard of Care, unsolicited reports, standardization, and an increase in the authorized users of the program (Brandies University).

Law enforcement officials are able to access PDMPs in 47 states, while providers offering substance abuse treatment have access in only 12 states (SAMHSA). Substance abuse treatment providers should have access to PDMPs to review the medications that their patients have been on. These can act as medical history tools, and can likely help with an understanding of where a patient's addiction has begun. Arguably, it is equally important for substance abuse providers to have this access over law enforcement.

PDMPs are great intrastate systems that have provided a reactionary measure on the opioid crisis. 70% of the states that use PDMPs implemented them between 2000-2010 as a reactive measure to the opioid crisis. These systems need to have synergy across the nation.

The Centers for Disease Control has provided recommendations regarding PDMPs. For optimal use, prescribers should check the system before prescribing a controlled substance, pharmacists should record the prescription at the time of dispense, health departments should utilize data within the system to recognize hot spot areas, and regular updates should be incorporated to allow the system to be easy to use. Additionally, PDMP data can be used to prevent future addiction cases in patients. The system can allow coroners to complete accurate toxicology testing. Other positive aspects to the system include increasing education, creating

prevention programs, and promote safe prescribing. If PDMPs were used as a national system, surveillance programs can be implemented across states, and the most comprehensive models can be utilized (CDC).

Despite the need to change and improve PDMPs, especially across state borders, they have made an impact on the opioid crisis. In the beginning of the crisis, opioids prescribed for pain by physicians were largely responsible for addiction, because of their potency. By 2015, illicit substances, like heroin, were equally as responsible for the opioid crisis, as prescribed medications were. This transition shows the changes in prescribing practices, and likely the implementation and utilization of systems like PDMPs (CDC).

The 2011 Obama administration constructed a four-prong plan to combat the astonishing numbers of misuse of drugs. This plan includes provider and patient education upon prescribing, PDMPs for every state, guidelines for medication discarding, and law enforcement improvement (NIH).

Good Samaritan laws exist within each state to protect individuals against legal trouble for helping another person who is experiencing an overdose. These laws vary from state to state; Regarding possession of an illicit substance, individuals who seek medical or legal services are protected against arrest in 18 states, charges in 25 states, prosecution in 35 states, and affirmative defense in 2 states (Law Atlas). Good Samaritan Laws are vitally important in this epidemic, because they can assist in preventing fatal overdoses. A person would likely be more inclined to call emergency services about an overdose if they know they it will not result in getting in legal trouble.

3.2 PORTUGAL

Portugal is at the forefront of overcoming the opioid crisis through the success of legal changes, with a success rate showing they have among the lowest death rates caused by drug overdoses in Europe (Cabral). In 2015, Portugal's overdose death rate was 5.8 deaths per million, while a majority of European countries had an average rate of 20.3 deaths per million (EMCDDA). In addition, in 2001, Portugal made the policy move to decriminalize obtaining, using, and having small quantities psychoactive drugs in one's possession (Laqueur). Continually, Portugal decriminalized civil acts pertaining to use, obtainment, and possession of psychoactive drugs (Laqueur). Prior to the move toward decriminalization, there was legislature calling for disease treatment instead of punishment (Laqueur), in turn, positively effecting the stigma surrounding drug use. Drug misusers are not seen as criminals any longer. The stigma has changed by shifting the connection of drug use and criminal acts, to drug use and a disease that can be addressed through treatment. Outcomes were positive, in that more people sought treatment and less people were dying from an overdose (NHS). There were nearly 27,000 patients who sought outpatient treatment facilities and about 4,600 who utilized inpatient treatment in 2015 (EMCDDA).

The decriminalization eased the legal system by keeping people out of jail and transitioning them into treatment centers. Additionally, Portugal has reported national spending in both legal and health care industries related to drugs to decrease, by more than 15%, between the years of 2000-2010 (Goncalves and Nogueria da Silva). Portugal has become a model for other countries to observe, as well as strive to make similar changes.

Portugal has a Commissions for the Dissuasion of Drug Addiction, which exists in each district. The Commission is a Committee board that acts as an advisory board with the ability to

determine if someone who is caught with more than an allotted amount of a drug should be criminally charged, fined, or allow the individual to seek treatment. They essentially play the role of the court system. Under the Commissions, physicians are able to report patients that they may believe are using drugs (Laqueur).

Even before decriminalization, many individuals caught using drugs were not sentenced to prison (Laqueur). Regardless of the possibility of no prison sentence, "before decriminalization, addicts were afraid to seek treatment because they feared that would be denounced to the police and arrested, now they know they will be treated as patients with a problem and not stigmatized as criminals" (Laqueur). After the 2001 change, further strides occurred; most of the penalties for being caught did not include fines (Laqueur), and did not include prison time. Portugal saw the number of patients seeking treatment increased by almost 10,000 patients from 2001 to 2008, at just over 29,000 to 38,000 respectively (Laqueur). Portugal recognized that there was a significant drug use problem in their country, and further established that the best way to promote change was to change the culture. Positive outlooks and intelligent partnerships, complete with warm handoffs, or easy transition, between law enforcement and medical professionals promoted one of the best turn arounds seen in this epidemic. The culture change allowed individuals who use drugs to seek peer help. Encouraging behavior and outlooks among communities can plant the initial desire for help in overcoming misuse. Seeing individuals addicted to drugs can also discourage others from beginning recreational use.

Portugal offers Syringe and Needle Exchange Programs, which were originally implemented in response to the spread of HIV/AIDs. These programs are mainly implemented through mobile clinics, in hotspot areas throughout the country. The exchange program was

created in partnership with local pharmacies (Soares, et. al.). This intervention provided a positive impact for both the spread of HIV/AIDS, and drug use.

3.3 SPAIN

Spain, unlike the negative trend seen in the United States, and the positive trend seen in Portugal, has seen a stagnant trend with drug use. Spain has offered a middle ground in the comparison of the three countries. It has been reported that Spain has remained somewhat consistent in regards to drug usage among its population, as the trends proved to be stable over recent years.

Heroin use is the main substance reported, the trend of high heroin use has remained stable among users. Trends have decreased from 2010-2013, and then remained stable between the reporting years of 2013 and 2014 (EMCDDA). Heroin is responsible for a majority of negative health consequences from drug use. The average age of first use in Spain is 24 years old. The average age of first time treatment is 38 years old. Gender differences among heroin users are quite significant, 14% are female and 86% are male (EMCDDA). Smoking heroin is the most prevalent method of use at nearly 80%, which surpassed injection in popularity in the 1990s. There was an observed decline in use between 2000 to 2003. A trend increase was reported beginning in 2004, which again, continued to stay constant (Barrio, et. al.).

Spain has clearly identified the current drug use trends, where they are occurring, and with which drug they are occurring most often. Additionally, they have treatment options in place, and should be pushing for a more positive outcome, instead of staying the same. Furthermore, Spain

offers clean needle and syringe programs, safe injection sites, and Naloxone programs in the hotspot areas (EMCDDA).

3.4 LAWS TO COMBAT THE OPIOID CRISIS

The below analysis accounts for all 50 states, plus the District of Columbia. To combat the number of drug overdose deaths, many states decided to implement protective laws, including two addressed in this analysis: Good Samaritan Laws and Naloxone Access Laws. Often, these two laws are unknown or misunderstood by the population, though they were implemented to positively impact the crisis (SAMHSA). Several states have implemented both laws as a reaction to the crisis, in order to save the lives of individuals overdosing on drugs.

Good Samaritan laws protect individuals who assist others in medical and emergency situations, like a drug overdose. This means often means that the individual reporting the overdose will not be arrested, charged, or prosecuted, for calling in the emergency. Many states have conditional protections. 37 states in the U.S have implemented various Good Samaritan laws, pertaining to an overdose situation, 14 states are lacking these laws. Various states offer some or all of the following protections from arrest, charge, and/or prosecution pertaining to controlled substance possession, drug paraphernalia possession, probation or parole violations, and reporting an overdose becoming a mitigating factor in sentencing (PDAPS). Table 2 below provides detailed information on the ten states classified in the five highest and five lowest overdose death rates between 2000 and 2015.

Table 2: Good Samaritan Laws for States By Overdose Deaths Rates

Drug Overdose Death Rates 2005	Drug Overdose Death Rates 2016	Rate increase from 2005-2016	State	Good Samaritan Law	Protection from Controlled Substance	Protections from Drug Paraphernalia	Protections from probation or parole violations	Reporting an OD as mitigating factor in sentencing
9	11.2	2.2	CA	Yes	Arrest, Charge, Prosecution	Arrest, Charge, Prosecution	No	No
7.5	30.8	23.3	DE	Yes	Arrest, Charge, Prosecution	Arrest, Charge, Prosecution	Yes	No
9.1	11.1	2	KS	No	No Data	No Data	No Data	No Data
10.1	11.7	1.6	MT	No	No Data	No Data	No Data	No Data
5	6.4	1.4	NE	No	No Data	No Data	No Data	No Data
10.7	39	28.3	NH	Yes	Arrest, Prosecution	None	No	No
10.9	39.1	28.2	OH	Yes	Arrest, Charge, Prosecution	None	Yes	No
13.2	37.9	24.7	PA	Yes	Charge, Prosecution	Charge, Prosecution	Yes	No
13	14.5	1.5	WA	Yes	Charge, Prosecution	None	No	Yes
10.5	52	41.5	WV	Yes	Prosecution	None	Yes	Yes

Delaware, New Hampshire, Ohio, Pennsylvania, and West Virginia have the largest rate increases of overdose deaths between the years of 2005 and 2016; all of the rate increases fall between 23.3-41.5 per 100,000 of the total population (CDC). These five states all have some form of Good Samaritan laws set up, Table 3 details each state's Good Samaritan laws. Delaware and Ohio's laws protect against arrest, charge, and prosecution from possession of controlled substances. New Hampshire prevents the individual assisting from arrest and prosecution; Pennsylvania defends against charge and prosecution, and West Virginia only protects against prosecution. The Good Samaritan laws in New Hampshire, Ohio, and West Virginia all fail to

defend against drug paraphernalia possession. Pennsylvania protects against charge and prosecution. Lastly, Delaware has the most protective set up in place from drug paraphernalia, with arrest, charge, and prosecution. New Hampshire is the only state in the top five death rate increases that lacks protections from probation or parole violations. West Virginia is the only state in this group that allows reporting an overdose as a mitigating factor in sentencing (PDAPS). West Virginia, with the least amount of protections, should offer improvements for their citizens. I hypothesize that increase protections would offer a decrease in the amount of drug overdose deaths. One major barrier, as discussed, is the population's understanding of their protections. Increased protections will offer decreased preventable overdose deaths.

Table 3: Good Samaritan Laws

Good Samaritan Law		
California	Cal. Health & Safety Code § 11376.5	Medical assistance for controlled substances/paraphernalia possession, and related offenses for those experiencing an overdose, there are no exceptions to laws prohibiting sales, forcible administration, or liability for controlled substance use; Despite any other laws, it is not considered a crime to be under the influence, or have possession of a controlled substance, or drug paraphernalia if an individual calls emergency services, with good intentions, for another person who is experiencing an overdose, no other immunities from arrest or prosecution are allowed; Despites any other law, it is not a crime for a person, who is experiencing and overdose, to be under the influence of, or in possession of controlled substances if they need medical attention, and another person at the scene calls for help, no other protections are permitted; This section does not affect other laws banning the selling/distributing, or forcing another person to take drugs against their will; This section does not affect liability for offenses whole under the influence of a controlled substance, but does not limit violations of the vehicle code
Delaware	Del. Code. Tit. 16, § 4769	Criminal immunity for individuals who are experiencing, or report, an overdose, or life

Table 3 Continued

		threatening emergency. An individual who contacts medical services for an overdose will not be arrested, charged, prosecuted, or changed or revoked parole, if: they report in good faith, provide relevant information on the cause of the overdose, at the scene or at the medical facility; Immunity applies to miscellaneous drug crimes, illegal possession or delivery of non-controlled medications, possession of controlled substances or counterfeit, possession of drug paraphernalia; This section's information should not be interpreted to be applied in other offenses that do not apply directly to this section.
New Hampshire	N.H. Rev. Stat. § 318-B:28-b	Immunity from liability A person who calls for medical attention, in good faith and in a timely manner, for an overdose, will not be arrested, prosecuted, or convicted for possessing a controlled substance if found at the scene; This section should not be interpreted to decrease admissibility of evidence at the scene for another person who does not fall under these protections; Contraband can be seized by law enforcement; Law enforcement can arrest and hold anyone who does not fall under these protections.
Pennsylvania	35 Pa Cons. Stat. §780-113.7	A person is immune from charge, prosecution, or parole violation if: law enforcement is made aware of the situation from the person transporting someone experiencing an overdose to a law enforcement station, campus police, or health care facility; the overdose is reported in good faith; they provide their name, location, and cooperate with law enforcement; they remain at the scene The person who overdosed is immune if the person reporting remains present Banning charges or prosecution is limited to the following: This section may not bar charges or prosecution if law enforcement becomes aware of the information prior to, or independent of the individual calling for law enforcement assistance; this section cannot interfere with the investigation, arrest, charging or prosecution of distributing controlled substances, or causing a drug induced homicide: this section cannot ban the acceptability of evidence related to a crime not illustrated in these sections; this section cannot restrict the use of evidence of an investigation of a crime with another defendant whom of which does not fall under these protections; if an individual who is subject to prosecution, that falls under immunity is

Table 3 Continued

		prosecuted, they are not responsible for the civil liability for filing the charges.
Washington	Wash. Rev. Code § 69.50.315	An individual with sincere intensions, who calls for medical assistance to aid a person undergoing a drug induced overdose, will not be charged or prosecuted for having a controlled substance in their possession. Those experiencing an overdose, needing medical assistance, will not be charged for possessing a controlled substance. The protections offered will not be used against them regarding other crimes.
West Virginia	W. Va. Code § 16-47-4	A person whom, in good faith, reports an overdose in a timely manner will not be criminally responsible of: possessing alcohol under the age of 21; providing fake identification to obtain alcohol; purchasing or consuming alcohol and unintoxicating beer under age 21;knowingly, and intentionally possessing a controlled substance; appearing intoxicated in public, drinking liquor in public; drinking in a motor vehicle on a highway, roadway, or parking garage; possessing liquor made under violations. Immunity does not apply to: selling or serving alcohol or liquor by someone under 21 years old. Immunity applies to: the person who reports the overdose stays with the person until medical services arrive; they identify themselves to law enforcement upon reporting the overdose; they cooperate, providing information to law enforcement, or emergency services; reporting an overdose may act as a mitigating circumstance upon criminal sentencing in prosecuting, where immunity does not apply. Given that the sentencing was because of evidence obtained or behavior during the reporting of the overdose; Despite the opposing, a person following the law who gets charged with an offense not exempt under this section, may plead guilty after consulting with their attorney; immunities that fall under civil law may not hold true to criminal law; a person who requests assistance, following this section, is not in violation of conditions regarding pretrial release, probation, leave, or parole.
	W. Va. Code § 16-47-5	Immunities outline in Section 4 apply to the person whom medical services were called for, as long as the person participates and completes a treatment plan provided by the court. If not, the court can consider the following: deferred prosecution; pretrial diversion; judgement in court; alternative sentencing or treatment including: probation, conditional discharge; weekend jail, work programs, community service;

Table 3 Continued

		regardless of contradictory guidelines, a person who tries to gain immunity, but is charged, can plea guilty to an offense after consulting with their attorney.
	W. Va. Code § 16-47-6	Law enforcement is immune from civil responsibilities for citing or attesting an individual who is layer found to fall under immunities, except in cases of deliberate misconduct.

California, Kansas, Montana, Nebraska, and Washington have the lowest overdose death rate changes between 2005 and 2016; all of the rate increases are between 1.4-2.2 per 100,000 of the total population (CDC). Three of the bottom 5 states, Kansas, Montana, and Nebraska, have no data listed on protections from controlled substances, drug paraphernalia, probation or parole violations, or reporting an overdose to act as a mitigating factor in sentencing. Washington and California both have Good Samaritan laws in place. California's laws protect from arrest, charge, and prosecution of individuals who have controlled substances and from drug paraphernalia in their possession. Washington's laws protect against charge and prosecution of possessing a controlled substance; there are no protections in place drug paraphernalia possession, nor from probation or parole violations.

Additionally, all of these states have a Naloxone Access Law in place. These laws provide protections similar to those of Good Samaritan Laws. None of the above listed states have civil liability immunity for a prescriber as it pertains to prescribing, dispensing, and distributing Naloxone (PDAPS). Refer to Table 4 for detailed information on Naloxone Access Laws.

Naloxone laws can allow Naloxone prescriptions to be authorized to third parties, pharmacies can dispense/distribute Naloxone without a patient specific prescription, and a layperson can be immune to criminal and civil liabilities for administering Naloxone. Pharmacies are able to dispense/distribute Naloxone without a patient specific prescription in all ten states listed, except Nebraska. Delaware is the only state that does not provide criminal liability immunity to those laypeople who administer Naloxone. Delaware, Nebraska, and Ohio do not provide civil liability immunities to laypeople administering naloxone.

Naloxone access laws can provide protections for physicians, pharmacists, third parties, and laypeople. Each of the 50 states, plus D.C, have naloxone access laws set up. Good Samaritan laws may directly affect Naloxone laws, because the protections of Good Samaritan laws can determine if a peer or bystander is willing to help save someone who is experiencing and overdose instead of fleeing the scene.

Table 4: Naloxone Access Laws

State	Naloxone Access Law	Criminal Prescriber Immunity	Civil Prescriber Immunity	Professional Sanction Prescriber Immunity	Criminal Dispenser Immunity	Civil Dispenser Immunity	Professional Sanction Dispenser Immunity	Naloxone RX to third parties	Pharmacy Dispense w/o Pt. RX	Criminal Immunity Layperson Admin.	Civil Immunity Layperson Admin.	Criminal Protection Layperson Possessing Naloxone w/o RX
CA	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
DE	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	No	No	No
KS	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
MT	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
NE	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	No	No
NH	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
OH	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
PA	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
WA	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
WV	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes

Good Samaritan Laws and Naloxone Laws can aid in the change of drug misuse stigma. Portugal can be used as an example. Implementing these laws are can protect people who would call emergency services or administer naloxone in someone overdosing, they would be more likely to help that person. The ultimate challenge exists with informing the population as a whole of these two laws, and the protects they offer to encourage helping others in good faith.

4.0 RECOMMENDATIONS

- Increase the general population's knowledge and educational opportunities about drug facts, addiction, risk factors, overdoses, and Naloxone administration.
- Develop a change management program to shift the general population's stigma on drug misusers, and those addicted to drugs.
- Create partnerships between law enforcement, the mental health system, and treatment facilities for individuals that are in need of help through the use of a universal database.
- Implement clean needle sharing programs, especially in hot spot areas.
- Increase access to treatment centers through expansion of services to include inpatient and outpatient services, that are customized subjectively, and embody and holistic approach.

5.0 CONCLUSION

Each of the three countries have taken their own steps to decrease the occurrences of overdose deaths, and to prevent children and teens from becoming addicted to opioids and illicit drugs. Portugal was able to change both policies and the stigma that surround drug use. They have seen a voluntary uptake of people seeking treatment programs of all forms, and there has been a decrease in the number of young people misusing drugs. Spain has been able to provide clean needle and syringe programs, safe injection spaces, and Naloxone dispensing for overdose cases.

Stigma describes the rejection of society on drug users. Stigma convinces drug users that they will be rejected and looked down upon, so they tend to keep use to themselves (Palamar). Cocaine and opioid drug users experienced high levels of rejection (Palamar). Fear and stigma prohibit treatment seeking (Palamar, Hakitis, & Kiang). There are three intervention techniques in changing stigmas, which include, protesting the unfair treatment of individuals, education to provide actual facts, and contact with people facing addiction (Michaels, et. al). Increasing knowledge about drugs, risk factors, overdoses, and Naloxone administration can be an effective way to begin the change in stigma in the U.S. Increasing education may allow for individuals to seek treatment, or to prevent overdose deaths in peers (Espelt, et. al.). This recommendation can work in the U.S, and can be utilized through many different avenues, including television, radio, advertisements, continuing educational credits, and mandatory courses at all school levels. It is important for this education to be administered at all ages because the epidemic is so widespread throughout the U.S. Between the years of 2013 and 2014, all regions of the U.S saw increases in overdose deaths. The northeast recorded an 8.8% increase, Midwest had a 9.6% increase, the

south's deaths increased by 6.9%, and finally the west showed a 0.7% increase. Additionally, between 2013 and 2014, all age groups saw an increase in deaths, including children ages 0-14, with 105 and 109 deaths, respectively. The age groups of 25-34 and 35-44 years old saw the largest percent increases, at 10.5 and 8.7%. Knowing the signs and risk factors of addictive drugs can allow fewer lives to be lost, and increased seeking in treatment (CDC).

Education, addressing several working parts of the opioid crisis, is necessary in changing the stigma of drug users by Americans. As addressed in the analysis section, much of the American population is unaware of protective laws that states have implemented in response to the crisis. People do not understand, or are completely unaware of Good Samaritan and Naloxone Access laws. Educating the general public seems like an easy first step in saving the lives of others, as well as introducing a change in stigma.

There are many people that are unaware of underlying causes of addiction, and the impacts that mental health has on an individual. Chemically and physiologically, opioids have a high addiction potential, due to their potency, so it is normal for people who are prescribed these medications to become addicted. Additionally, it needs to be common knowledge that mental health and addiction often go together, and those individuals need to have access to healthcare for treatments. Several individuals who suffer from addiction also experience mental illnesses, including depression and anxiety. Mental illnesses can be as a result of addiction, or addiction begins to deal with mental illnesses (NIH). Mental Health needs to be taken more seriously. Until education is expanded, and a basic understanding of Mental Health needs are addressed, the stigma will not change.

As a pilot location to test educational programs, Pennsylvania's Allegheny County houses the southwestern portion of the state's only syringe exchange program, called Prevention

Point Pittsburgh. This program provides clean syringes to discourage the spread of HIV and Hepatitis C. Other services include counseling, education, and case management on disease spread prevention, naloxone education and how to use it, high risk behavior education, HIV wound care, and STI testing. The aforementioned services are all provided anonymously for all individuals who seek them. There are three locations that patients can seek services from, most of which are located in low income areas. One of the locations is a physical building, located in Pittsburgh's neighborhood of East Liberty. The program also provides three mobile clinic locations, on three different a week, at various locations throughout the city. Since Prevention Point Pittsburgh was created to help drug users, this group could be an excellent target to ask their opinions on educational materials, like brochures and pamphlets.

Creating partnerships between entities like law enforcement, mental health professionals, and treatment facilities will greatly impact the opioid epidemic. A partnership will encourage proper treatment, and another chance at life for those addicted to drugs. The success of this partnership would reach many individuals in all areas of the U.S. This will success will not currently work, because the importance of Mental Health is so underestimated. Until it is recognized, getting people help will be difficult. Drug misusers should not be placed in jail, because that will offer no solution to them, nor the criminal system.

The implementation of a program, like PDMPs, would create a universal system that can be shared by law enforcement, mental health, and treatment professionals. A universal system provides the opportunity to share data across disciplines. This system would in the least provide information on individuals, and can help in providing the best care and next steps for them. This should be a universal system that works beyond stateliness, to be the most effective.

Syringe and needle exchanges should be available in hot spot areas of the states, as they are in Portugal. Pennsylvania's Allegheny county has implemented a program that can be translated to other hot spot areas. Prevention Point Pittsburgh's model can act as an example for a safe needle exchange program in Allegheny County. A needle exchange portion can be added to their already provided programs. This model can be used in other cities throughout the United States. Due to the model working within the United States already, it would be a more realistic recommendation then implementing a program used in other countries, like Portugal and Spain. These two countries are able to provide syringe and needle exchange programs through mobile clinics in hotspot areas around the country. An additional barrier that the United States faces is jurisdiction laws. Providing needle and syringe exchange programs may be illegal because it can be classified as providing drug paraphernalia to users. Government officials can be ordered "to look the other way" in response to the laws surrounding these exchange programs (Burris, Finucane, Gallagher, & Grace). Realistically, all jurisdictions within the United States need to have law enforcement "look the other way" to implement successful programs, like those in Spain and Portugal.

In 2014, nearly 23 million people were in need of addiction treatment services, of that 23 million, only about 4 million people were able to receive treatment, and even less, about 2.6 million people were able to seek specialized treatments (NIH). Treatment options need to be customizable for each individual seeking treatment. Each person is unique, meaning that a blanket treatment program may not work for everyone. Treatment plans should change with the individual as they go through their perspective treatment programs (NIH). A holistic approach will allow several health aspects to be addressed. Treatment options that have shown to be successful include behavioral health therapy, medication assisted therapies, devices and

applications to teach skills to overcome withdrawal symptoms, simultaneous treatment of mental illnesses, and follow-up to avoid relapsing (NIH).

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