

1-1-2019

# A Multiple Case-Study Approach to Examine Police Officers Perceptions on Narcan® Policies

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**Nova Southeastern University  
College of Arts, Humanities and Social Sciences  
Department of Justice and Human Services**

A Multiple Case-Study Approach to Examine Police Officers  
Perceptions on Narcan Policies

By  
Casey Gnann  
A Dissertation Presented to the  
Department of Justice and Human Services  
of Nova Southeastern University  
In Partial Fulfillment of the Requirements for the Degree  
of  
**Doctor of Philosophy**

Nova Southeastern University  
2019

Appendix H

Approval Page

This dissertation was submitted by,

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## **Dedication**

I truly could not have completed this program without the unwavering support from my friends and family. I have been so fortunate to be surrounded by such wonderful and supportive people.

Thank you to my committee chair, Dr. Tina Jaeckle and committee members, Dr. Marcelo Castro and Mr. James Hall. Each of you added so much value to this dissertation and I cannot thank you enough for your guidance, support, and insight.

Thank you to the officers who agreed to participate. This would not have been possible without your participation and truthfulness.

A special thank you to my grandparents, Harvey and Betty Levins and my parents, Clark and Lisa Gnann, who have provided me a lifetime of unwavering support and encouragement. I am forever grateful.

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## Abstract®

A Multiple Case-Study Approach to Examine Police Officers Perceptions on Narcan® Policies. Casey Gmann, 2019: Dissertation, Nova Southeastern University, College of Arts, Humanities and Social Sciences, Department of Justice and Human Services. Descriptors: Law Enforcement, Opioid, Overdose, Naloxone, Narcan, Addiction, Harm Reduction

In October 2017, President Trump officially declared the opioid epidemic to be a public health emergency. Reports from the CDC indicate that over 140 Americans die per day as a result of an opioid overdose (NPR, 2017). This statistic alone highlights the tragic effects of the current opioid climate. To date, an abundance of research has been conducted on opioid addicts, family members, doctors approach to addiction, etc. However, there is a gap in the research regarding law enforcement officers and their ever-changing role in the fight against opioids. As the opioid epidemic has continued to worsen, many law enforcement departments have enacted policies, which require officers to carry and administer narcan [narcan is the nasal spray version of naloxone]. This dissertation sought to examine the perceptions of law enforcement officers who have been affected by the NS (nasal spray) naloxone policies.

This study was designed to garner a better understanding of how law enforcement officers perceive this policy change. I utilized a qualitative approach in order to examine the first hand accounts from the participating officers. More specifically, a multiple case-study design was employed, in order to examine the perceptions of each participant individually, as well as, collectively. The findings indicate police officers, often first to arrive on scene, recognize the importance of carrying nasal spray naloxone and the potential life saving ability. However, it was clear among the participant's that Naloxone should not be viewed as a solution to the epidemic, rather a Band-Aid.

Preliminary statistics for 2017, indicate opioid overdoses have continued to rise in the United States. As overdoses continue to rise, policy makers have continued to undergo fire for their failure to ignite change. Additionally, more and more police and Sheriffs departments have either enacted policy to equip officers with naloxone, or have received backlash for their failure to do so. It does not appear that the opioid epidemic will slow down anytime soon; therefore, it is more necessary than ever to determine how such policies may affect those involved. Police chiefs, law enforcement officials, and policy makers can utilize this study to further their understanding on law enforcements perceptions on carrying (NS) naloxone and harm reduction initiatives.

## **Chapter 1: Introduction**

### **Nature of the Research Problem**

In 2015, there were 52,404 lethal drug overdoses, 33,091 of which involved the use of an opioid (American Society of Addiction Medicine, 2016; Rudd et al., 2016). More specifically, 20,101 were attributed to prescription pain relievers, and 12,990 related to heroin (American Society of Addiction Medicine, 2016; Rudd et al., 2016). In 2016 the number of lethal drug overdoses in the United States reached 63,632 which represented a substantial increase from 2015. Additionally, in 2016 opioids were found to be involved in 42,249 of the overdose deaths, this represents a 27.9% increase from the data collected in 2015 (American Society of Addiction Medicine, 2016; Rudd et al., 2016). The American Society of Addiction Medicine (2016) explained this escalation can predominantly be attributed to the increase synthetic opioid overdoses, which doubled from 2015 to 2016. A preliminary report released in August 2018, found there 72,306 overdose deaths in 2017 (National Emerging Threats Initiative, 2018). This number represents an increase of 21% from the data provided in 2016. Of the 72,306 fatal overdoses, 67.8% were found to involve opioids (National Emerging Threats Initiative, 2018).

To further demonstrate the significance of this epidemic, in February 2017 the State of Alaska declared a state of emergency, in response to the growing concerns of opioids. Not far behind, the States of Florida, Maryland, and Arizona also declared a state of emergency in 2017 (Rutkow and Vernick, 2017).

From the late 1990s to present, we have continued to see a steady, often times substantial, increase in the use of opioids and subsequent number of opioid related

deaths. Given the constant rise of opioid use and the widespread havoc caused by this epidemic, it is more important than ever to address all aspects of the current opioid climate. In the recent years there has been a push, straight from the White House, to equip law enforcement officers with an intranasal form of naloxone, also known as naloxone (The White House, 2013).

Expecting officers to carry and administer naloxone represents a seismic shift in the typical duties of law enforcement officers. However, to date, little research has been conducted to examine the perceptions of these officers in regards to the shift in duties. This study aimed to bridge the gap in the research and develop a better understanding for how law enforcement officers feel about this added responsibility and the new role they are expected to play in the war on drugs. This topic is not only timely and relevant, but it also intended to give law enforcement officers an outlet to voice their opinions, on a very controversial, albeit significant topic.

## **Background**

Hedegaard et al. (2017) found the age-adjusted rate of drug overdose deaths in the United States has tripled from 6.1 per 100,000 standard populations in 1999 to 19.8 in 2016. In August 2017, the Center for Disease Control and Prevention (CDC) released the provisional data for 2016, which reported 64,070 lethal drug overdoses in the United States from January 2016 to December 2016 (CDC, 2017). This represents a 22% increase from the 52,898 lethal drug overdoses reported in 2015 (CDC, 2017).

The “Drugs Identified in Deceased Persons by Florida Medical Examiners 2016 Interim Report”, which used data collected in the first half of 2016 (January through July) found the number of drug related deaths in Florida increased 13.9%, when compared to

the first half of 2015 (FDLE, 2016). Additionally, the same data set yielded deaths caused by fentanyl, heroin, and oxycodone increased 139.5%, 25.3%, and 17% respectively, when compared to the first half of 2015 (FDLE, 2016). As the opioid epidemic continues to plague the nation, we have seen a steady increase in opioid related deaths in the United States.

In January 2016, the state of Florida reported 3,324 drug overdose related fatalities (CDC, 2017). The 2017 provisional data released by CDC indicated a 55% increase in January 2017. In the 13-month period between August 2015 and August 2016, provisional data collected by the CDC, indicated 4,091 reported drug overdoses in Florida (CDC, 2017). When compared to the following 12-month period, ending in August 2017, this number increased 35.9% to 5,559 fatal drug overdoses (CDC, 2017).

There are countless statistics that can be inserted to demonstrate the gravity of the current opioid epidemic. However, grasping the overwhelming impact of this epidemic would be impossible without the first hand accounts of the first responders, the grieving family members who aspire to inspire change, and the addicts themselves who no longer recognize their reflection in the mirror. Since inception, the opioid epidemic has evolved from non-medical use of prescription medications to heroin to clandestinely produced synthetic opioids. The source of the drug may be a doctor, a neighbor, a friend, a Chinese laboratory found on the dark web, or a 14-year-old kid who stole his/her parent's oxycodone. This epidemic does not discriminate; people of all backgrounds, education levels, and socioeconomic status' have and will continue to be affected.

In November 2016, the Drug Enforcement Administration (DEA) denoted prescription opioids, heroin, and fentanyl as the principal drug related threats to the

United States. Although prescription opioids, heroin, and fentanyl may fall under different schedules, they are similar in composition (DEA(F), 2016) ;(Rudd et al., 2016). Illicit drugs such as heroin and fentanyl may be viewed in a different light as prescription opioids, such as oxycodone, hydrocodone, methadone etc.; however, one thing that is consistent in opioid overdoses, is the need for naloxone. Naloxone is an opiate antidote, which works to block the opioid receptors and effectively reverses an overdose, for a limited period of time.

Davis et al., (2014) reported, as of November 1, 2013, all 53 jurisdictions (50 states, Washington, D.C., Guam and Puerto Rico) passed legislation which enabled paramedics to carry and administer naloxone. Notably, in many jurisdictions, paramedics have been carrying and administering naloxone for decades. However, as the sheer number of overdoses has continued to skyrocket, the need for expanded naloxone access has continued to be a timely and pertinent topic of debate. This discussion is particularly relevant in more rural areas, in which law enforcement officers may be able to respond significantly quicker than paramedic professionals.

This study examined the thoughts and perceptions of police officers who have been mandated to carry and administer naloxone. As the opioid epidemic continues to plague the United States, police chiefs, especially those in rural areas, have received public backlash for their hesitation to equip their officers with naloxone. However, to date, there is minimal research which examines how the officers feel about this added responsibility.

The relevance of this study is two-fold, for one, we are currently living through an opioid epidemic, in which naloxone has become the “life-saving drug”. Secondly, not all

law enforcement agencies have enacted legislation for officers to carry naloxone.

Additionally, agencies which have enacted such policies may be experiencing difficulty in receiving and maintaining adequate funding measures to ensure the continuation of these policies.

The current study allowed the writer to develop a first hand account of the insights and perceptions of various police officers, who are required by policy, to carry and administer naloxone. This study aimed to identify how law enforcement officers and their day to day interactions are affected by naloxone policies. Conducting this study using the perceptions and insights of the police officers affected, offered a different approach and fresh analysis of a pertinent and relevant topic. The results of this study provide policy makers and police chiefs a better understanding of police officers and how they may be affected by naloxone policies.

### **Problem Statement**

The devastating effects of the opioid epidemic have resulted in numerous policy changes, designed to better address the growing number of opioid related overdoses. One of these policy changes directly affects the day to day responsibilities of many law enforcement agents. According to the North Carolina Harm Reduction Coalition (NCHRC), as of November 2018, 2,482 law enforcement agencies in the United States, had enacted naloxone policies (NCHRC, 2017). Notably, this number only includes Law Enforcement agencies which have registered with NCHRC. This number will most likely continue to increase as opioid use and the prevalence of overdoses continues to increase.

The administration of naloxone is often viewed as a medical procedure. In fact, paramedics have carried and administered naloxone since it's inception. Therefore, it is

argued that naloxone policies for law enforcement represent a shift in their typical responsibilities. Notably, in the recent years' naloxone has evolved and is currently available in a nasal spray, known as "Narcan", which makes the application less cumbersome, than injecting application. With that said, there are potential complications that may arise when using a medication such as naloxone, designed to effectively reverse an opioid overdose.

To the public eye as well as policy makers, these policies may seem necessary and possibly even overdue. However, this research serves to provide policy makers and law enforcement officials with the perceptions of law enforcement officers who are mandated to carry and administer naloxone.

In 2016 a Florida Fire Rescue Department reported the agency administered naloxone to 289 people, of which, 193 showed improvements following administration. (Keever, 2017). In July of 2017, 125 doses of naloxone were administered by aforementioned Florida fire rescue department (Keever, 2017). About 64% of these cases reported improvements, following the use of naloxone (Keever, 2017). Equipping law enforcement officers with naloxone does not eliminate the need to call EMT/paramedics. However, law enforcement officers may often arrive on scene several minutes before EMT/paramedics. Depending on the nature of the overdose, several minutes could be the difference between life and death.

In mid-2017, a Sheriff's Office located in Florida enacted policy which equipped officers with naloxone. In the two months following the inception of the naloxone policy, officers were on scene on nine occasions in which naloxone was administered (Keever, 2017). Of the nine incidents, seven patients survived (Keever, 2017). On a small scale,

these seven lives shine a light on just how powerful naloxone can be in the war against opioids. It is important to note, the article consulted above, does not indicate whether the LEO's or paramedics administered the naloxone.

### **Theoretical Framework**

The conceptual framework for this study was derived from the theory of harm reduction. Costigan et al., (2003) defined harm reduction as “the prevention of adverse consequences of illicit drug use, without necessarily reducing their consumption” (p. 35). Fundamentally, harm reduction is a social policy which places the focus on reducing the harm associated with drug use, rather than focusing on reducing the illicit use of drugs (Newcombe, 1992). Proponents of harm reduction argue that achieving a drug free society is an unrealistic goal, which may hamper the implementation of measures designed to address the various harms associated with illicit drug use (Hunt, 2003). Harm reduction strategies represent a drastic shift from abstention policies, which typically employ a more punitive approach, designed specifically to decrease illicit drug use (Newcombe, 1992).

In the war on drugs, harm reduction tactics may impact the day to day operations and expectations of police officers. This is particularly applicable in the discussion on equipping police officers with naloxone. This study aimed to develop a better understanding of police officer's perceptions of the use of naloxone in the field, as it is important to differentiate between officer's views on naloxone itself, and harm reduction collectively.

### **Dissertation Goal**

The purpose of this research was to develop a better understanding of law

enforcement officer's perceptions on the implementation of naloxone based policies. One may argue, the administration of naloxone would generally be considered a medical application. Therefore, requiring law enforcement officers to carry and administer naloxone would represent an unprecedented shift in law enforcement duties. However, as the opioid epidemic continues to plague the United States, it has become abundantly necessary to adjust current policies to better address the devastating effects of the epidemic.

Currently, there is a gap in the research regarding law enforcement officer's perceptions of these added duties. The goal of this research was to address this gap and develop a better understanding of how law enforcement officers, in the field, view this policy change, and how it may affect their day to day interactions and responsibilities. This research specifically focused on law enforcement officers who work for an agency, which has enacted and implemented naloxone policies.

The findings from this study help fill the void in the research regarding law enforcement officers and their ever-changing role in the opioid epidemic. Ideally, this study will aid policy makers in the implementation of future policies regarding naloxone and law enforcement.

### **Significance**

In many areas, law enforcement officers are able to respond to an emergency call significantly faster than the paramedics. For this reason, among many others, policy makers have sought to expand access of naloxone to law enforcement officers. To date, many high level discussions have taken place to discuss the pros and cons of equipping law enforcement officers with naloxone. Additionally, several studies have been

conducted to examine how these changes would affect the growing opioid epidemic. However, a review of the available literature indicated a gap in the research in regards to the examination of the attitudes and perceptions of the law enforcement officers, themselves. Requiring law enforcement officers to carry and administer naloxone represents a seismic shift in their typical duties and responsibilities.

In today's day and age, law enforcement officers are constantly under intense scrutiny. In fact, you can not turn on the news without watching some sort of exposé regarding an officer's missteps or, at best, a critical analysis of his/her every move. Yet, we are essentially demanding law enforcement officers to expand their already extensive laundry list of duties to now include an unambiguously, medical task.

A podcast entitled "Policing Matters", provides in depth discussions of applicable law enforcement topics, one episode previewed law enforcement officers who shared their thoughts on being equipped with naloxone. One officer stated

I am not a paramedic; I did not sign up to be a paramedic. I am not a social worker; nor did I sign up to be a social worker. If someone does not want to possibly die when they take an illegal drug, don't do it (Dudley & Willey, 2016, p.2).

In fact, the majority of the comments, at least those presented in the podcast, appeared to be negative in nature. Another officer stated: "narcanned a guy three times in two days and he fought us every time, what a joke this world has become; tax dollars being spent to save drug addicts" (Dudley & Willey, 2016). In the case of equipping law enforcement officers with naloxone, it is clear that there may be a disconnect between the policy makers, and those individuals affected by the policies.

### **Definitions of Terms**

Analogue: According to the Drug Enforcement Administration “A controlled substance analogue is a substance which is intended for human consumption and is structurally or pharmacologically substantially similar to or is represented as being similar to a Schedule I or Schedule II substance and is not an approved medication in the United States” (DEA, n.d.).

Bitcoin- Bitcoin is a form of digital currency which allows the buyer to remain anonymous. Once a bitcoin is acquired, it is stored in a digital wallet, housed in the cloud or on the owner’s computer (Yellin, et al., n.d.). Bitcoin transactions are logged; however, the identity of the buyer and sellers are not released. Instead, the users are tracked solely by their digital wallet number. For this reason, bitcoins have become the primary currency for illicit dark net marketplace transactions.

Dark Web- Deep and dark web are often used interchangeably; however, this is not accurate. Thompson (2015) defined the dark web as “accessible, albeit anonymously hosted, websites that exist within the Deep Web” (p.1). In order to access the dark web, the user must utilize a software designed to mask the users IP address. The onion browser, aka TOR, is a commonly used software (Thompson, 2015).

Darknet Marketplace: Anonymous marketplace which facilitates the sale of potentially illicit materials. The use of the dark web protects the identity of the seller and consumer. Silk road is an example of a well-known illicit dark web marketplace.

Deep Web- The deep web is the section of the world wide web, which is not indexed by customary search engines.

Doctor shopping: Doctor shopping refers to patients who see multiple doctors in an attempt to receive several prescriptions within a short period of time. Specifically, an

individual is considered to be “doctor shopping” when he/she sees 5 or more prescribers and visits 5 or more pharmacies in a 90-day period. This allows patients to fill multiple prescriptions at one time, often for the same medication, unbeknownst to the providers. Prescription drug monitoring programs have helped physicians and pharmacists better monitor the actions of patients and therefore curtail the prevalence of doctor shopping.

Drug Diversion: Drug diversion occurs when a legally prescribed controlled substance is transferred from the individual for whom the prescription is written to another individual, for an illicit purpose, such as use or sale. Drug diversion was extremely common during the “pill mill era”. Notably, the DEA employs countless “diversion investigators” a position designed to solely combat drug diversion.

Naloxone- Naloxone is an FDA approved medication, used to prevent and reverse the effects of opioids. Naloxone is typically administered when an individual is undergoing an opioid overdose. The medication blocks opioid receptors and can reverse the damaging of the overdose (SAMHSA, 2016).

Narcan- Naloxone is a form of naloxone that is administered through the nasal cavity.

Oxy Express- The highway system in Florida gained the nickname “the oxy express”, due to the prevalence of overdoses which occurred while individuals were travelling to or from Florida in order to acquire OxyContin and other prescription drugs. Florida’s lax prescribing laws and the absence of a PDMP (until 2011) appealed to out of towners from states such as Kentucky with more stringent regulation.

Pain Management Clinic: Health care clinics designed to detect, diagnose, and manage chronic pain.

PDMP: Prescription Drug Monitoring Programs. A PDMP is a state wide database which collects data pertaining to the dispensing of certain substances. PDMP's are a resource used to combat prescription drug diversion and abuse.

Pill Mill: A pill mill is typically used to describe a health clinic, doctor, or pharmacy that irresponsibly and recklessly prescribes and/or dispenses controlled substances (Rigg et al., 2010).

Pill mill legislation- In 2011 Florida Attorney General Pam Bondi, worked in conjunction with the Florida Legislature to pass the "Anti-Pill Mill Bill." This bill was created to enact various measures designed to address the Florida pill mill debacle.

Schedules of Controlled Substances: DEA (n.d.) explains "Drugs, substances, and certain chemicals used to make drugs are classified into five (5) distinct categories or schedules depending upon the drug's acceptable medical use and the drug's abuse or dependency potential" (p.1). Schedule 1 drugs have no approved medical use and are extremely addictive, whereas, schedule 5 drugs represent the lowest potential for abuse (DEA, n.d.).

TOR: Software which allows access to the dark web

## **Summary**

The direct goal of this research was to identify and further examine the perceptions of law enforcement officers regarding policies which equip officers with naloxone. In addition, this research was designed to fill the gap in research which fails to address the ever evolving role of law enforcement officers in the ever growing battle against opioids. This dissertation provides policy makers, politicians, law enforcement management, and other consumers overdue data which may aid high-level discussions

regarding the role of law enforcement in the opioid epidemic. Ideally, this research allowed law enforcement officers the ability to provide truthful and meaningful data which will help guide future policy decisions.

In 1995 Purdue Pharma released the “extended release” version of OxyContin. Eight years later in 2007, the Federal Government criminally prosecuted Purdue Pharma for misleading consumers on the addiction potential of OxyContin, among other charges. In 2011, Florida began the crackdown on pill mills, through various legislative efforts including the pill mill legislation and the inception of PDMP’s. Finally, in 2018 President Trump signed an executive order calling for the establishment of a Presidential Commission designed to combat drug addiction and the opioid crisis.

There is no argument that there are various efforts designed to combat the opioid epidemic; however, through the desperation associated with this growing epidemic, law enforcement officers have seen a shift in their responsibilities. Officers who were once instructed to crack down on drug use are now expected to carry and administer an opioid reversal applicator. Additionally, Good Samaritan legislation principally prevents officers from charging drug users using information or illicit paraphernalia identified when responding to an overdose. My goal in conducting this research was to address law enforcement officer’s outlook on these policies and in turn their evolving role in the opioid epidemic. The results of this study can be used to aid law enforcement officials and key decision makers in future policy decisions regarding law enforcement’s role in combating the opioid epidemic.

## **Chapter 2: Literature Review**

### **Coverage**

This literature review sought to develop a better picture of the opioid epidemic. In order to conduct a comprehensive review of the literature, numerous databases were utilized. Primary databases include: Academic One File, JSTOR, National Criminal Justice Reference Service, ProQuest, General One File, LexisNexis, Sage Online, ScienceDirect, Taylor and Francis Online. The initial searches included terms such as: “prescription pill” “opioid”, “addiction”, “heroin”, “fentanyl”, “naloxone”, and “narcan”. These terms were cross referenced with the terms such as: “mortality,” “addiction,” “epidemic,” “law enforcement”, and “overdose”. The studies that fit the criteria for the literature review were sorted based on the topic of the study. Once the categories were determined, the articles in each category were organized by the date of publication. Sorting by date allowed the writer to focus on the more recent articles, when available. This literature review includes a variety of different types of studies, including quantitative, qualitative, and mixed methods. Additionally, due to the topic at hand, many of the research included was published by government entities. The literature review is broken up in to three sections. The first section will discuss the opioid epidemic as a whole, the second section examines the transition from licit to illicit opioids, and the third section presents the topic of naloxone.

### **Theoretical Framework**

In the recent decades we have begun to see a shift from abstention related policies to harm reduction strategies, in an attempt to minimize the ever growing harms associated with the opioid epidemic. Marlatt (1998) defined harm reduction as “an umbrella term for

interventions aiming to reduce the problematic effects of behaviors (p.1).” Although a harm reduction stance can be employed for a myriad of different topics, this review will focus primarily on the use of harm reduction in drug policy.

Harm reduction policies such as needle exchange programs, naloxone distribution, safe injection sites, etc. are designed to reduce the harms associated with drug use. However, adversaries argue these policies hinder abstention goals and may even enable drug users (Logan & Marlatt, 2010). Harm reduction tactics are controversial and often criticized. Notably, law enforcement officers are typically not consulted in the development and implementation of harm reduction policies. Yet, they may be expected to obey policy directives that fall in direct contention with their typical guidelines.

Many harm reduction strategies and policies require the participation and execution of law enforcement officials. In the recent decades, Vietnam has experienced difficulty in the implementation of harm reduction policies and the necessary participation of law enforcement officers. However, a study conducted in 2012, indicated issues arose due to a lack of communication and leadership. Jardine et al., (2012) found the majority of the law enforcement individuals interviewed felt conflicted with the newfound responsibilities associated with harm reduction policies. Additionally, interviewees noted a lack of training and education for policeman in regards to harm reduction theories and policies (Jardine et al., 2012). An overwhelming majority of the participants explained the change in policies did not warrant a change in performance measures. Therefore, police officers were expected to meet numbers and predetermined statistics that did not necessarily align with harm reduction practices (Jardin et al., 2012).

One of the harm reduction strategies that has been employed in the recent

decades, is the widespread availability of naloxone. Policy makers coupled with pharmacies have worked together to develop looser guidelines, designed to make naloxone more readily available for addicts, friends of addicts, family members, etc. Additionally, police chiefs around the United States have implemented policies designed to equip law enforcement officers in the field with NS (nasal spray) naloxone. However, adversaries of harm reduction strategies argue that providing easy access to naloxone may encourage users to overindulge or use recklessly. Law enforcement officers are expected to obey policy measures, regardless of personal opinion. This research examined law enforcement officer's perceptions of the use of naloxone in the field as well as their perceptions of harm reduction techniques.

### **Prescription Opioid Epidemic**

The abuse of prescription and illicit opioids has skyrocketed in the recent decades, resulting in a crisis affecting virtually all aspects of society. From the 1990s to the present we have seen a notable increase in the prescribing of opioids, use of opioids, and rate of drug overdoses. In the time period between 1997 and 2007, opioid prescriptions in the United States skyrocketed 700% (Boyer, 2012). From 1999 to 2014 drug overdose deaths in the United States, practically tripled (Rudd et al., 2016). In 2010, the annual number of opioid prescriptions reached 210 million, an increase of 135 million from 1991 (Guohua et al., 2014; National Institute on Drug Abuse NIDA 2011; Volkow 2008; Volkow and McLellan 2011). The National Survey on Drug Use and Health (NSDUH) anticipated 12.5 million Americans misused a prescription medication in 2015 (SAMHSA, 2016). In 2014, 47,055 deaths were found to be a direct result of a drug overdose, 28,647 of which were determined to have involved an opioid (Rudd et al.,

2016). In 2015, 52,404 deaths were found to be a direct result of a drug overdose, 33,091 of which were found to have involved an opioid (Rudd et al., 2016). In the one-year period between 2014 and 2015, drug overdose deaths increased 11.4% (Rudd et al., 2016). In the same time period, opioid death rates increased by 15.6% (Rudd et al., 2016).

In 2015, the DEA reported "overdose deaths, particularly from prescription drugs and heroin, have reached epidemic levels" (DEA, 2014, p.2). Rudd et al. (2016) reported the drug overdose death rate substantially rose from 12.3 per 100,000 populations to 16.3 per 100,000 populations, in 2010 and 2015, respectively. The United States experienced a monumental increase in the number of dispensed opioids as well as the number of drug overdoses from the 1990s to the current day. Perhaps most notably, is the substantial increase in opioid related overdoses, and subsequent fatalities. Prior to 2011, the Drug Abuse Warning Network (DAWN) kept track of the number of hospital visits which involved pharmaceutical opioids. From 2004 to 2011, DAWN found medical emergencies involving pharmaceutical opioids rose 183% (SAMHSA, 2011). This number likely would have continued to increase; however, DAWN was discontinued by SAMHSA.

The five-year period between 2010 and 2015 saw a 2.6% increase in the death rates for natural semisynthetic opioids, 20.6% increase in the death rates for heroin, and 72.2% increase in the death rate for synthetic opioids, excluding methadone (Rudd et al., 2016). These increases were consistent among all demographics and locations. The years between 2010 and 2015 saw a 9.1% decrease in the methadone death rates (Rudd et al., 2016). Rudd (2016) attributes the reduction, to increased efforts in the early 2000s to

reduce the use of methadone. In late 2016, the DEA classified prescription drugs, heroin, and fentanyl as the top drug-related threats to the United States (Rudd et al., 2014).

Provisional data collected by the CDC indicated, in the 12-month period between August 2015 and August 2016, there were 59,417 drug related overdose deaths (Ahmad et al., 2018). When compared to the following 12-month period ending in August 2017, this number increased 13.3% to 67,344 overdoses (Ahmad et al., 2018). Of the 67,344 drug overdoses reported from August 2016 to August 2017, 45,200 were found to be caused by opioids (Ahmad et al., 2018). Of the opioid related overdoses (45,200) synthetic opioids, heroin, and natural/semi synthetic opioids attribute for roughly 25,382, 15,358 and 14,344, respectively (Ahmad et al., 2018). Notably, the number of synthetic opioid related overdoses increased from 15,256 in the period ending in August 2016 to 25,382 in August 2017 (Ahmad et al., 2018).

NSDUH projected “30.5 million Americans aged 12 or older were current illicit drug users” (SAMHSA, 2018). NSDUH defined a current drug user as an individual who had used an illicit drug in the last month (SAMHSA, 2018). When categorized by drug of choice, marijuana was found to be the most commonly used (26.0 million), followed by prescription pain relievers (3.2 million). In 2017, NSDUH estimated 2.1 million people were suffering from opioid addiction (SAMHSA, 2018). The overwhelming majority (1.7 million) were said to have a prescription pain reliever use disorder, whereas the remaining (.7 million) were found to misuse heroin (SAMHSA, 2018).

When discussing drug overdose statistics, it is important to note the difficulty in ensuring the accuracy of the data. Drug overdoses often occur when an individual ingests more than one type of drug. However, depending on the timeliness of the autopsy it may

be difficult, if not impossible, for the medial examiner to determine which drug in fact caused the overdose. Hedegaard et al. (2017) noted that in about 1 in 5 drug overdoses, the type of drug is not listed on the medical certificate. With that said, it is possible that the number of opioid involved overdoses is underreported.

As news stations continue to inundate viewers with heart wrenching statistics, politicians aim to present their angle on the daily circuit, and the White House works to develop a plan to tackle the ever-growing epidemic, we still appear no closer to a drug-free society. Each state has taken it upon themselves to develop legislation designed to better combat the opioid epidemic in their respective territories. However, addicts continue to outsmart the system and exploit areas with weaker legislative policies. This literature review aimed to deeply explore the opioid epidemic, more specifically, the series of events which cultivated an environment conducive to growing the epidemic, the growth and danger of synthetic opioids, and the importance of naloxone in working to prevent opioid related overdoses from turning fatal.

**Defining “Pain”.** In 1998, pain, was officially classified as the fifth vital sign (Quinones 2015). Essentially, pain is now viewed in the same category as pulse, blood pressure, respiration, and body temperature. (Quinones 2015). This classification represented a seismic shift in the way the medical community responded and treated a patient’s pain level. Prior to the second half of the 1900s, many doctors publicly expressed their distaste for pain management treatment. These medical professionals argued pain was beneficial to the patient and a necessary component of the healing process (Lembke 2012).

However, as medicine began to evolve, views on pain followed in suit.

In the late 1980s, medical professionals were encouraged to view pain as a

subjective experience for the patient (Lembke 2012). This notion was reinforced through the use of patient satisfaction surveys. A typical patient satisfaction survey includes a component pertaining to the doctor's ability to address the patients pain (Lembke 2012). The results of these surveys may be used to determine a physician's bonus, job security, etc. Doctors who refuse to prescribe pain killers to patients who describe their pain level using terms such as "unbearable", "intolerable", "debilitating", etc., may be viewed as withholding necessary treatment measures. One patient summed up the conundrum doctors face, she stated: "I'm addicted to (opioids) and its the doctors fault because they prescribed them. But I'll sue them if they leave me in pain" (Lembke, 2012 p. 2).

A typical medical professional does not undergo extensive training in pain management. However, on job training indicates that a quick visit with a patient resulting in a pain prescription is more cost effective than the alternative. Doctors who choose to take the time to educate their patients on addiction or utilize counseling techniques may be criticized for their inability to "turn patients over" quickly and efficiently. These shifting views coupled with the popular notion that pain counteracts the euphoric effects of opioids, led to disaster. As physicians began to open their mind to the use of prescription opioids, pharmaceutical companies such as Purdue Pharma, seized the opportunity.

**Big Pharma.** OxyContin was first introduced by Purdue Pharma in 1996 (Zee, 2009). Purdue Pharma revolutionized the advertising tactics for pain medicine. They utilized aggressive techniques and substantial monetary incentives to capture the market. In 2000, OxyContin sales reached over \$1 billion, a substantial increase from the \$48 million posted in 1996 (Zee, 2009). These financial strides were the result of aggressive

advertising coupled with a liberalized approach to pain management (Zee, 2009). In the five-year period between 1996 and 2001, Purdue Pharma held over 40 national conferences, in which more than 5,000 medical professionals accepted invitations to attend, free of charge (Zee, 2009). While in attendance medical professionals were recruited and subsequently trained to speak on behalf of Purdue Pharma. Zee (2009) explained, Purdue Pharma specifically targeted doctors who demonstrated high prescribing tendencies. Additionally, Purdue Pharma developed a lucrative incentive system, designed to motivate sales representatives to utilize any and all marketing tactics to increase sales in their respective territories (Zee, 2009). In 1996, the Purdue Pharma sales force consisted of 318 employees, this number increased to 671 by 2000 (Zee, 2009). Sales representatives inundated doctors with OxyContin merchandise such as hats, pens, t-shirts, etc. Perhaps most notably, a chart which indicated a patient's prescription for another pain pill being crossed out and replaced with OxyContin (Quinones 2015). Additionally, Purdue Pharma distributed a coupon which allowed new patients to receive a free supply of OxyContin (Zee, 2009). On the topic of the OxyContin marketing campaign, the DEA stated no company had ever utilized such tactics in the advertising of a schedule II drug (Quinones, 2015).

Purdue Pharma utilized numerous different avenues such as videos, conferences, spokesman, etc to inform consumers that the chance of patients becoming addicted to OxyContin was extremely rare. Purdue Pharma cited the timed release formulation of OxyContin to present the idea that it was less addictive. The company relayed that the slow release of the opioid, prevented patients from experiencing extreme highs and lows, which are prevalent in addiction (Zee, 2009). In fact, sales representatives were trained

and encouraged to communicate the message that the chance of addiction was "less than one percent" (Zee, 2009, p. 223). Purdue Pharma exploited the limited staff of the Food and Drug Administration (FDA) and released OxyContin promotion video to medical professionals prior to receiving the stamp of approval from the FDA. This video was later deemed inappropriate due to the minimization of the risks and promotion of the unsupported benefits. However, in 2007 a partner company of Purdue Pharma, Purdue Frederick Company Inc., along with 3 high ranking employees pled guilty to the misrepresentation of OxyContin (Zee 2009). They were subsequently ordered to pay \$634 million.

In August 2010, Purdue Pharma released a new version of OxyContin. This version was designed to help prevent users from crushing and subsequently snorting or injecting the pills. Data collected from the Rocky Mountain Poison Control Center Drug Diversion Monitoring Program demonstrated a substantial decrease in the demand for OxyContin, following the release of the new formula (Severston et al., 2016). The same data set, yielded the illicit market price for OxyContin, dropped 50 percent, following the release of the reformulated pill (Severston et al., 2016). Cicero et al., (2012) conducted a study to gauge the effectiveness of the reformulation. Prior to the release, 35.6% of survey respondents designated OxyContin as their preferred drug of choice (Cicero et al., 2012). This percentage dropped to 12.8%, 21 months following the release of the reformulated pill. All of the participants who admitted to abusing both versions of OxyContin, preferred the original formula (Cicero et al., 2012). 66% of participants, who previously indicated OxyContin as their drug of choice, switched to a different opioid (typically heroin) following the release of the reformulation (Cicero et al., 2012). One

participant stated “most people that I know don’t use OxyContin to get high anymore. They have moved on to heroin [because] it is easier to use, much cheaper and easily available” (Cicero et al., 2012). It is important to note, the statement above, although not necessarily corroborated with statistical data, may be a strong indication for the gateway between prescription opioids, specifically OxyContin, and heroin use.

**Prescription Drug Monitoring Program.** The National Alliance for Model State Drug Laws defines a prescription drug monitoring program (PDMP) as a centralized, comprehensive database which houses statewide data regarding prescribed substances (DEA, 2016). Currently, most states require practitioners to diligently update the PDMP with patient information, including but not limited to, prescription history, prescriber information, specific dosage details, current medications, etc. (Astho, n.d.). Depending on the state, this information may be provided to various agencies or parties such as public health agencies, physicians, public safety agencies, pharmacies, etc. (Astho, n.d.).

The first PDMP was established in California in 1939 (Blumenschein et al., 2010). By the early 90s, 10 states had active PDMPs (Blumenschein et al., 2010). At this time, there was no blueprint for the establishment of a PDMP. As a result, each PDMP differed in the design of the program. The overall goal of the early PDMPs was unified among the states. Unfortunately, the lack of standardization among these programs made it increasingly difficult to open the lines of communication and share information among neighboring states.

In the early 2000s, the abuse and diversion of controlled substances continued to increase. With the financial support of Congress, the Bureau of Justice Assistance (BJA), Office of Justice Programs in the U.S. Department of Justice, established the Harold

Rogers Prescription Drug Monitoring Program (Blumenschein et al., 2010). These grants were designed to assist states in the planning, implementation, or enhancement of a PDMP. The U.S. Department of Health and Human Services, followed in suit and created the National All Schedules Prescription Electronic Reporting Act (NASPER) (Blumenschein et al., 2010). NASPER funds were designed to be used in the creation or improvement of a state PDMP (Blumenschein et al., 2010). For the Harold Rogers Grant and NASPER, President Obama proposed allocating seven million and two million, respectively, in the budget for fiscal year 2010 (Blumenschein et al., 2010).

Each state has the autonomy to develop and utilize the PDMP to best serve the needs of the state. The majority of established PDMPs are housed in the state public health agency; however, a handful of states house the PDMP with a law enforcement agency (Astho, n.d.). The administrative details as well as the housing agency differs among states; however, the underlying concept of the PDMP is typically similar (Blumenschein et al., 2010). Generally, PDMPs are established in an attempt to combat the diversion of controlled substances. However, many states cite the importance of improving the pharmaceutical treatment of patients (Astho, n.d.). Critics of PDMPs cite the danger of refusing to prescribe patients who are in legitimate pain.

The lack of uniformity among state PDMP's has made it increasingly difficult for states to share PDMP data. As a result, doctor shoppers may travel across state lines to receive prescriptions from doctors, unaware of their medical history in other states. Other differences in PDMPs among states may include the number of scheduled drugs included (Gugelmann et al., 2012). For example, the PDMP in Pennsylvania only requires medical professionals to track the dispensing of Schedule II drugs (oxycodone, and

hydromorphone *et al*). More commonly, PDMPs require the tracking of Schedules II-IV (Gugelmann et al., 2012). Additionally, states may differ in the period of time allowed before updating the system (Gugelmann et al., 2012). For example, Florida allows medical professionals and pharmacies a seven-day window to update the system with newly acquired data.

Another difference among states is the accessibility of the PDMP. Typically, states allow a combination of pharmacists, prescribers, medical professionals, and law enforcement agencies, limited or full access to the database. Various law enforcement agents have expressed frustration with their lack of access to the information housed in the PDMP. Gugelmann et al. (2012) stated there are a handful of states which prevent prescribers from accessing the data available on the PDMP before prescribing a controlled substance. This legislation is designed to prevent the prescriber from facing civil liability. One could argue this policy may negate the purpose of the PDMP. The inability of out of state data sharing among many states limits the effectiveness of PDMPs. In fact, the differences among states, allows addicts to exploit the weaknesses of various states and reap the potential benefits of less stringent legislation.

**Climate in Florida.** In the early 2000s, Florida was viewed as the hub for prescription drug diversion. Addicts from neighboring states travelled down I-95S, often referred to as “the oxy express”, to Florida to obtain prescription medication. As more states began to implement PDMP legislation, Florida became a haven for traffickers and those addicted to opioids. The lax regulatory oversight of physicians and pharmacies coupled with the lack of a prescription drug monitoring program cultivated an environment conducive to prescription drug diversion (Florida Board of Medicine, 2014). In the five-year time

period between 2005 and 2010, the prevalence of oxycodone related deaths in Florida, jumped 345% (Department of Justice, AG Remarks, 2011).

Johnson et al. (2014) stated in 2010, 98 of the top 100 oxycodone dispensing prescribers were located in Florida. In 2010 the DEA reported the state of Florida was home to at least 900 unregulated pain management clinics (Florida Board of Medicine, 2014). All but one of the top 50 oxycodone dispensing pain clinics, were located in Florida (Florida Board of Medicine, 2014). These clinics alone were responsible for the sale of more than one million oxycodone pills each month (Florida Board of Medicine, 2014). Using data provided from the Florida Medical Examiners yearly reports, it was estimated that each day about ten people die from drug overdose. (Florida Board of Medicine, 2014). Per 100,000 populations, oxycodone related deaths in Florida skyrocketed 265% and 118.3%, between 2003 and 2009 and 2007 and 2010, respectively. Johnson et al. (2014) reported between 2003 and 2010, the frequency of deaths resulting from drug overdose jumped 58.9%.

The “Drugs Identified in Deceased Persons by Florida Medical Examiners 2016 Interim Report”, which used data collected in the first half of 2016 (January through June) found the number of drug related deaths in Florida increased 13.9 percent, when compared to the first half of 2015 (FDLE, 2016). Additionally, the same data set yielded deaths caused by fentanyl, heroin, and oxycodone increased 139.5%, 25.3%, and 17% respectively, when compared to the first half of 2015 (FDLE, 2016). As the opioid epidemic continues to plague the nation, we have seen a steady increase in opioid related deaths in the United States.

A qualitative analysis conducted on law enforcement perceptions of prescription

pill abuse indicated that many law enforcement officers were quick to disregard the severity of the prescription pill addiction (Gau and Brooke, 2017). With "hard" drugs such as heroin, cocaine, meth, etc on the streets, there was little time to focus on a doctor prescribed medication. One law enforcement officer stated "five, 6 years ago, it was like the Wild, Wild West. There was no regulation. They [pill-mill physicians and owners] weren't afraid. They in no way had any fear of arrest of being incarcerated or anything like that" (Gau and Brooke, 2017, p. 196). Gau and Brooke (2017) found the law enforcement officers interviewed, overwhelmingly supported the notion that, in the last few years, the prevalence of prescription pill mills decreased substantially in Florida (Gau and Brooke, 2017). Notably, a portion of the individuals interviewed argued that the pain clinics may have outsmarted the system and simply relocated (Gau and Brooke, 2017).

In the recent years, we have seen an increase in the successful prosecution of doctors involved in pain management clinics. However, in order to charge a physician under the Florida Statutes regarding lawful prescription of controlled substances, the prosecutor must prove the physician "knowingly" prescribed opioids to patients who were abusing the medication or distributing for financial gain (Gau and Brooke, 2007). Essentially, the prosecutor must prove the doctor incorrectly gauged the level of pain, experienced by the patient. Pain management clinics are essentially legal, as is the distribution of prescription opioids. Therefore, law enforcement and prosecution must identify and prove the criminal intent of a generally, legal operation. Law enforcement officers cited numerous difficulties in building air tight cases against physicians. For one, doctor-patient confidentiality makes it difficult for law enforcement officers to gain

access to a patient's medical records. Additionally, and perhaps most notably is the knowledge possessed by physicians. One law enforcement officer mentioned he was ill-equipped to determine how many pills and patient should receive, which made it difficult to prove ill intent.

**Diversion of Prescription Pills.** The overwhelming presence of pain clinics or "pill mills" coupled with the ease of obtaining prescriptions for opioids and onsite pharmacies created the perfect combination for diversion. In this case, diversion is the act of transferring legally obtained prescription opioids out of the control of the individual for whom it was prescribed and distributing for illicit use (Surratt et al., 2014). The lack of pill mill legislation in Florida, throughout the first decade of the 2000s, made it extremely difficult to identify and subsequently combat instances of diversion. Many patients utilized the concept of "doctor shopping" to acquire additional prescriptions. A "doctor shopper" is a patient who actively seeks medical prescriptions from multiple doctors without informing the other doctors of their acquired prescriptions. In a study conducted in the United States, researchers concluded the average doctor shopper received 32 prescriptions for opioids from ten different medical professionals (Melville 2013). Other methods which often lead to diversion include forging prescriptions, stealing from patients or pharmacies, and under the counter sales by physicians. Between 2008 and 2010 pill mills were found to be the primary source of prescription opioids sold on the illicit market (Surratt et al., 2014).

In 2014, the NSDUH, reported the majority (63.6%) of illicit prescription pill users, received the drugs from friends or relatives (Substance Abuse and Mental Health Services Administration, 2014). The remaining individuals received the drugs from

physicians (21%), drug dealers (4.3%) and online avenues (0.1%) (Substance Abuse and Mental Health Services Administration, 2014).

Using law enforcement data in Florida, researchers found the diversion rates of oxycodone and several other opioids, decreased following the PDMP implementation and various legislative efforts (Surratt et al., 2014). Surratt (2014) found that the diversion of fentanyl, hydromorphone, buprenorphine, and tramadol neither increased nor decreased during the period of analysis.

**Florida Response.** In the early 2000s, the Federal Center for Disease Control denoted Florida as the epicenter of prescription drug diversion. Until 2009, Florida failed to enact any legislative policies designed to combat the proliferation of pill mills and the overwhelming diversion to illicit markets. In 2009, the Florida legislature approved the passing of a law designed to address the states rising issue with prescription drug abuse and diversion (Florida Board of Medicine, 2014). Prior to the implementation of the PDMP, Florida introduced the pain clinic legislation (PCL) in October 2010 (Surratt et al., 2014). The PCL initiative sought to address pain clinic ownership, streamline the inspection and registration of pain clinics, limit cash transactions, and eliminate the ability to dispense substances in the same place as the patient doctor interaction (Surratt et al., 2014).

In 2009, the Miami division of the DEA, created the Tactical Diversion Squad (TDS), in Weston Florida. The TDS was designed to bridge a partnership between the DEA's subject matter experts and the various law enforcement partners. This force specifically focuses on the Controlled Substance Act and statues associated with diversion of pharmaceuticals (DEA, 2013). The early success of the TDS in Weston

encouraged the DEA to expand these forces to Tampa, Orlando, and West Palm Beach (DEA, 2013). In 2010, Florida enacted policy which required pain management clinics to register with the Department of Health by January 4, 2010 (Delcher, et al., 2015) (Johnson et al., 2014).

In February 2010, the DEA partnered with various Florida law enforcement agencies to form a joint task force to combat prescription pill diversion. This partnership was responsible for numerous victories, perhaps most notably was Operation Oxy Alley. The outcome of this operation was 32 arrests, on various key players in the pill mill industry, including doctors and pill mill owners (Kennedy-Hendricks et al., 2016).

In February 2011, the DEA again colluded with over 500 state and local law enforcement officers to target pill mills. The immediate results included the execution of 21 search warrants in various South Florida locations, 25 arrests on the basis of drug and money laundering charges, the seizure of almost \$10 million in assets, and numerous pill mill shutdowns (DEA Diversion PPT, 2013). This massive operation dubbed “Operation Pill Nation” led to the subsequent enactment of Operation Pill Nation: II. Together, these operations have led to the closure of more than 40 pain clinics, 100 arrests, at least 80 DEA registrations were capitulated, and almost \$20 million in assets seized (Department of Justice, AG Remarks, 2011).

Florida Statute, 893.055 authorized the creation and implementation of a comprehensive, electronic database, designed to house information regarding the prescription of controlled substances (FL Statue 893.055). Florida Statue 893.055 provided stringent guidelines to existing pain clinics, in an attempt to curtail the overwhelming amount of prescription drug diversion, in the early-mid 2000s (Florida

Board of Medicine, 2014).

In 2011, the Electronic-Florida Online Reporting of Controlled Substances Evaluation (E-FORCSE) became operational. E-FORSCE is housed by the Department of Health and funded through a non-profit, direct support organization (Florida Board of Medicine, 2014). The Florida PDMP requires pharmacies and physicians to update the record in the system within seven days of dispensing a controlled substance (Surratt et al., 2014).

Soon after the implementation and launch of E-FORSCE, Florida overhauled the existing registration requirements for medical clinics, in the prescription pill industry (Gau and Brooke, 2017). At this time, Florida coined the term "pain-management clinic", as any facility which advertised pain-management services, or if 50% of the patient population in one month was prescribed opioids, benzodiazepines, barbiturates, or carisoprodol (Gau and Brooke, 2017). This legislation provided local law enforcement agencies as well as the DEA, the ability to better track and monitor these pain-management clinics.

In July 2011, Florida Governor Rick Scott, signed FL House Bill 7095 into law. FL House Bill 7095 commonly referred to as the "pill-mill law" enacted increasingly stringent guidelines regarding pain management clinics. First, this legislation prevented medical practitioners from dispensing prescription opioids on site (FL House Bill 7095, 2011). It was a common practice of pill-mills to profit greatly by dispensing the prescriptions out of the same locations in which they were prescribed. This not only eliminated the hassle of travelling to a second location, but also allowed patients immediate access to the opioid, and eliminated any fear of getting rejected at a pharmacy.

Additional regulations included new inspection standards for pharmacies, and a reduction in the amount of time allowed for PDMP reporting (FL House bill 7095, 2011). Lastly, the House Bill 7095 legislation redefined patient treatment standards, and enacted more stringent penalties on physicians who failed to comply.

The Florida Board of Medicine (2014) reported a 41% decrease in the oxycodone death rates, since the implementation of E-FORSCE. From the date of inception till July 2014 over 112 million records regarding the dispersion of controlled substances have been entered in to E-FORCE (Florida Board of Medicine, 2014). In 2014 the Florida Board of Medicine (2014) reported over 25,000 practitioners had registered for E-FORSCE, which included 8,259 Medical Doctors who were found to actively utilize the system. In the time period between 2010 and 2012, oxycodone prescriptions decreased 52% in Florida (Johnson et al., 2014).

Delcher et al. (2015) identified an inverse relationship between PDMP searches and oxycodone-caused deaths. Delcher et al. (2015) found a 25% decline in oxycodone-caused mortality following the implementation of E-FORSCE in October 2011. Additionally, oxycodone-alprazolam, alprazolam, and benzodiazepines-caused deaths also declined following the implementation E-FORCSE (Delcher et al., 2015). It is important to mention the Abuse-Deterrent Formulation of OxyContin® was released in 2010. Studies have demonstrated a decrease in the use of OxyContin following the reformulation. This relationship is further explored on page 42.

**Current Climate.** Numerous studies have concluded that the efforts and legislation in Florida, designed to combat the illicit use and diversion of controlled substances, was overwhelmingly successful. Following the various legislative efforts between 2010 and

2013, Florida reported about 250 pain clinics closed (Johnson et al., 2014). Additionally, the number of top quantity oxycodone prescribers went from 98 to 13 to 0 in 2010, 2012, and 2013, respectively (Johnson et al., 2014). Johnson (2014) stated, Florida law enforcement agencies reported the diversion of controlled substances decreased between 2010 and 2012 (Johnson et al., 2014).

Due to the close proximity of various measures, it is near impossible to determine the individual effect of each of the legislative efforts in Florida designed to curb prescription pill distribution and subsequent diversion. Gau and Brooke (2017) conducted a study in which they sought to examine the comprehensive impact of these legislative efforts. Gau and Brooke (2017) found a 50% decline in the number of pain management clinics in Florida, from 2009 to 2014. Additionally, the number of pain management clinic applications rapidly declined following the legislative efforts in 2010 and 2011 (Gau and Brooke, 2017). This provides support for the notion that the various legislative action enacted in Florida in 2010-2011 was successful in limiting new pain management clinics.

As mentioned above, in the time period between 2009 and 2011, Florida unleashed a series of legislative efforts designed to reduce the number of pill mills in operation. Although met with wide success, many medical professionals have attributed the increase in heroin use and related overdoses, to the crackdown on the prescription opioid market. Many prescription opioid non-medical users utilized “legal” methods to obtain hundreds of prescription opioid pills. As a result, a large percentage of these users became dependent on the prescription opioids. However, with the “crackdown” in Florida, these users were left addicted to opioids with no legal avenue to obtain the

opioids necessary to maintain the addiction. James Hall, an epidemiologist in South Florida, explained Florida has yet to establish adequate treatment avenues for the prescription opioid users who are addicted to a medication they are unable to legally access (American Medical News, 2013).

Kennedy-Hendricks et al. (2016) conducted a study in which they used conservative assumptions to examine how Florida would have fared, in terms of opioid mortality rates, if they failed to implement the various legislative measures in 2010-2011. The results indicated the rate of prescription opioid overdose mortality may have been significantly lower, if Florida failed to enact various legislative measures, designed to curb prescription opioid use (Kennedy-Hendricks et al., 2016).

**Heroin.** The opioid epidemic may have begun with the rapid prescribing of prescription opioids; however, as the epidemic ravaged on, the use of heroin has become a necessary topic of discussion.

Heroin was first created in 1874, by a Bayer Pharmaceutical chemist, Heinrich Dreser (Quinones 2015). Initially, heroin was marketed as a non-addictive pain remedy. The claims of the non-addictive nature of the drug, coupled with the lack of available medicine, resulted in prevalent, widespread use and subsequent high rates of addiction (Quinones 2015). Around this time period, numerous government campaigns were conducted in an attempt to frame addicts as criminal in nature (Quinones 2015). Although the medical benefits of heroin were de-bunked, heroin soon became a staple on the illicit market. Heroin was a dealers dream; cheap to make, easy to produce, and simple to traffic. Over time competition among dealers led to diluted products and discounted rates.

In the 1970s, US Congressman, Robert Steele, analyzed the drug use reports of

U.S. military men during the Vietnam war (Frontline, 2014). Based on the analyzed reports, Steele concluded an addiction rate of 10-15% (Frontline, 2014). This finding together with the overwhelming amount of Vietnam soldiers who returned from war addicted to heroin, fast tracked the issue to President Nixon's drug agenda. In 1971, President Richard Nixon declared drugs, particularly heroin, to be the biggest enemy the Country faced (Gerstein and Green, 1993).

Currently, you cannot listen to a news broadcast without hearing a discussion centering around the drug epidemic plaguing our nation. However, although heroin is a key part of the current epidemic, the using population is starkly different from that of the 1970s (Cicero et al., 2014). Historically, heroin users were viewed as minorities living in low-income, primarily urban areas. Currently, the stereotypical heroin user is an affluent Caucasian living in suburban or rural areas. The shift in the average heroin consumer may be attributed in part, to the increase in the use of prescription opioids and the subsequent transition from prescription opioids to heroin.

Cicero et al. (2014) conducted a study in which they examined the transition from opioid use to heroin and vice versa. Of the participants who reported they began using opioids in the 1960s, at least 80% indicated their experimentation with opioid drugs, began with heroin (Cicero et al., 2014). When examining the participants who began using opioids in the 2000s, 75% reported their experimentation began with a prescription drug (Cicero et al., 2014). Cicero et al., (2014) found the current wave of heroin users exhibit similar patterns of abuse as those individuals abusing prescription opioids. In that sense, the results indicated that prescription opioid users may shift to heroin at some point in their addiction. Numerous studies have demonstrated that heroin is easily

accessible and substantially more affordable than prescription opioids. This quote exemplifies the potential conundrum many prescription opioid users may face:

All of my friends use heroin and I know multiple people who will sell it to me or help find me someone who has it. Also if I have money I wanna spend it on something I know will get me high. If I buy pills I might not have enough money to make sure I get high (Cicero et al., 2014, p. 825).

In a study of 103 patients, derived from individuals entering drug treatment programs in the United States between 2009 and 2012, 47.4% reported using OxyContin, 30 days prior to the reformulation of OxyContin. Following the reformulation of OxyContin this number dropped to 30% (Moyer, 2013). In the same time frame, using the same study population, reports of heroin use practically doubled (Moyer, 2013). Although, there is not a clear line connecting the increase in heroin use to the crackdown on prescription pill mills and diversion, many argue this relationship is casual, at the very least.

**Prescription Opioids to Heroin.** In 2014 the Deputy Attorney General, James M. Cole spoke at the “Pills to Needles: The Pathway to Rising Heroin Deaths” Event. Deputy Attorney General Cole stated the following in regards to the current opioid epidemic:

Abuse of prescription drugs leads to dependency and that dependency leads to demand for more prescription drugs. That demand, users find, ultimately cannot be satisfied by the harder-to-obtain and more expensive prescription pills. That is where the heroin problems sneak in. The ready availability and lower cost of heroin makes it an easy and cheap alternative with tragic consequences (Department of Justice, 2014, p. 2).

Deputy Attorney General James M. Cole stated the DEA revamped and increased efforts along the border to better address heroin trafficking. The amount of heroin seized along the southwest border skyrocketed 320% from 2008 to 2013. This statistic is reflective of both an increase in the attempt to traffic heroin across the border, as well as, the exhaustive efforts of the DEA to address the issue (Department of Justice, 2014).

In 2013, it was estimated that 681,000 individuals engaged in heroin use in the past year. This number represents an 82.6% increase from the data collected in 2007 (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014; Votaw et al., 2016). Notably, the 2017 NSDUH estimated 886,000 people had used heroin in 2017. This number represents indicates a rise of over 200,000 people, from the data collected in 2013.

Pain and addiction specialists have warned that by shutting down pill mills and eliminating the ability for prescription opioid users to access their prescriptions, we may see these users to turn to the illicit market to obtain opioids (Moyer, 2013). Heroin, being a cheaper and more available product on the illicit market, may serve as a substitute for prescription opioid users, in the event the user can no longer obtain or afford prescription opioids (Moyer, 2013). Nicholas Kardaras, PhD, stated prescription opioids and heroin cause the same neurochemical affect, which may entice prescription opioid users who are strapped for cash to seek heroin, a cheaper alternative (Moyer, 2013). Pain management specialist, Lynn Webster MD, relayed she had seen an increasingly high number of patients switch from prescription opioids such as OxyContin, to heroin after OxyContin was reformulated to prevent users from crushing and injecting (Moyer, 2013).

From 2009-2012, many states enacted various legislative efforts designed to combat the diversion of prescription opioids. Although these efforts are often viewed as successful, in terms of reducing the amount of pain clinics and the illicit diversion of prescription opioids, many researchers argue these changes may have led to an increase in heroin and other easily accessible street drugs (Compton et al., 2016). The National Survey on Drug Use and Health (NSDUH) reported 79.5% of new heroin users, indicated

they had used a prescription opioid prior to heroin use (Dart et al., 2015). The CDC reported a slight decrease of opioid related deaths in 2012 and 2013; however, in 2014 the number of opioid related deaths increased from 16,235 to 18,893 (Compton et al., 2016). In 2014 the NSDUH projected that 917,000 people had engaged in heroin use during their life, this represents a 145% increase since 2007 (Compton et al., 2016). Additionally, there were 10,574 heroin related deaths in 2014, up from 1,842 in 2000 (Compton et al., 2016). Muhuri et al. (2013) conducted a study utilizing data collected from the 2002-2011, NSDUH study. The results indicated a notable association between using pain relievers with no medical purpose (NMPR), and the use of heroin in the year following NMPR use (Muhuri et al., 2013). Muhuri et al. (2013) reported the initiation of heroin use was 19 times higher in individuals who reported using NMPR.

Dart et al. (2015) conducted a study to examine diversion and abuse trends between 2002 and 2013, using five programs from the Research, Abuse, Diversion, and Addicted Related Surveillance System (RADARS). Data from the National Poison Data System indicated heroin related deaths is inversely correlated with prescription opioid related deaths (Dart et al., 2015). Dart (2015) reported, heroin related deaths remained constant between 2002 and 2010; however, heroin related deaths increased, yearly, from 2010 to 2013 (Dart et al., 2015). In contrast, prescription opioid related deaths spiked between 2002 and 2006, remained constant from 2006 to 2008, and then steadily decreased from 2010 to 2013 (Dart et al., 2015). The availability of prescription opioids began increasing in the 1990s and continued upward until a plateau in 2011. Dart et al (2015) reported findings, consistent with numerous other studies, which indicated an increase in the abuse of prescription opioids, prior to 2011.

According to the Drug Abuse Warning Network (DAWN), hospital medical emergencies associated with prescription opioids, increased 183% from 2004 to 2011 (Dart et al., 2015; Drug Abuse Warning Network, 2013). However, recent trends indicate a decrease in the availability and subsequent diversion of prescription opioids. Dart et al (2015) attributes this reduction to various legislative measures and an associated decrease in prescription pill mills, etc. Notably, although the direct cause may be unknown, this study demonstrates the fluctuation of the rate of opioid and opioid analgesics abuse is correlated *with* rises in heroin related deaths (Dart et al., 2015).

Peavy et al. (2012) conducted a study in which they interviewed 553 syringe-exchange clients, of which 433 admitted to using heroin in the four months prior to the interview. Of these participants, 39% reported using some sort of prescription opioid prior to experimenting with heroin (Peavy et al., 2012). These participants were typically younger, Caucasian, and appeared to have a more stable living situation. These results can have a variety of implications for the trajectory of drug use in the United States in the past decade. For one, the indication that those individuals who reported using prescription opioids prior to heroin were generally younger than the alternative may be a result of the availability of prescription opioids through both licit and illicit channels. This notion would be in line with the argument that prescription opioid non-medical use may be a gateway to heroin use.

### **Similar effects, different chemical makeup**

Imagine its 2005, you went to a doctor for a knee injury and left with a two-month supply of oxycodone. Two-months later you have gone through your supply, but can't see to shake the headache, fever, nausea, etc. Your knee may not hurt anymore, but the

withdrawal symptoms are too much to bear. You decide to revisit the doctor, upon arrival you present the receptionist with the \$200 “doctor fee” and your ushered to a crowded waiting room, filled with people from all walks of life. Three hours later your name is called, you are directed to a room where you will spend the next 2 minutes chatting with a doctor about your lingering knee pain. You managed to “convince” the doctor of your dire pain, and in turn received a 90-day supply of 60mg of OxyContin. However, one pill at a time is no longer satisfying the craving, you begin doubling and tripling the dosage, and before long your down to your last pill, 20 days early. You know you cannot visit the same doctor, so you find an ad in the paper for “pain management clinics, with onsite pharmacy” you even find a coupon in the paper for one free visit. Very similar to the first doctor you spend a total of 5 minutes with the doctor and leave with another 90-day supply of oxycodone.

Fast forward to 2012, virtually every fraudulent pain management clinic in Florida is shutdown; the ones in operation are mandated by very stringent guidelines; additionally, there’s a database which tracks all of the prescriptions and works to prevent doctor shopping. Many prescription opioid users were no longer able to obtain these medications through legal channels. As a result, they turned to illicit networks to obtain opioids and satisfy the craving. However, as more pill mills were shutdown, street dealers were finding it increasingly difficult to acquire prescription opioids. As any instance of supply and demand, as the demand increased, the price followed in suit. Countless users were unable to afford the amount of prescription opioids which would satisfy their craving. At this point, many addicts were simply trying to fight off the feelings of withdrawal, getting high was no longer an option. Users who may have started for

medical reasons, were now meeting dealers on street corners to get a baggie of heroin. Users who failed to realize they had developed an addiction, were now injecting drugs in to any viable port to achieve a stronger, faster, better high.

Addiction, in itself, is a horrible, horrible thing to endure. However, addiction to a legally distributed medical prescription is arguably safer, than addiction to heroin, crack, or any other substance sold through illicit networks. For one, many heroin users choose to inject the drug, injection opens the door to the various infectious diseases associated with needle sharing. Secondly, and perhaps most notably, is the fact that dealers, users, medical professionals, etc. are completely in the dark as to the makeup of the purchased substance. One may think they are purchasing pure heroin, when in fact, this heroin may have been mixed or cut with a different substance. Users, dealers, first responders, are all in the dark as to the chemical makeup of each “batch” of heroin, as each is different, it makes it difficult for users to determine how much they need to use to obtain the high but avoid the overdose. Additionally, first responders may have difficulty determining how to address the medical emergency due to the unknown components.

### **Synthetic Opioids**

Synthetic opioids and natural opioids are similar in that they target the same receptors. However, natural opioids are naturally occurring substances, whereas, synthetic opioids are synthesized in a laboratory (DEA, 2017). Synthetic opioids are cheaper to produce and easier to acquire than natural and semi-synthetic opioids, such as heroin. As a result, many street dealers mix synthetic opioids with heroin, in order to increase profits. Often times, synthetic opioids are clandestinely produced as counterfeit prescription opioids, such as OxyContin (DEA, 2017). The abuse pattern of synthetic

opioids is very similar to heroin and prescription opioids (DEA, 2017). However, synthetic opioids are extremely and often fatally, potent. Consumers are unable to determine the potency of a clandestinely produced synthetic opioid, which heightens the risk of overdose (DEA, 2017). Prekupec et al (2017) stated there were 9,580 deaths attributed to synthetic opioids, excluding methadone, in 2015. Recently collected law enforcement data demonstrated a surge in the street presence of novel synthetic opioids (NSOs), including but not limited to: acetyl fentanyl, butyrylfentanyl, furanylfentanyl, and U-47700 (Prekupec et al., 2017).

Organized crime groups identified the potential profit in the drug trade and have spent recent decades infiltrating the marketplace. In order to stay one step ahead of law enforcement, organized crime groups have partnered with drug manufacturers located primarily in China to benefit from the manufacturing capability in Asian countries (Prekupec et al., 2017). As the United States government works to designate new illicit substances as illegal, manufacturers are developing analogues of these substances, to serve as a replacement (Prekupec et al., 2017). Recent estimations indicate hundreds of thousands of counterfeit prescription pills can be manufactured from just one kilogram of new psychoactive substances (NPS), such as fentanyl analogs (Prekupec et al., 2017). These tablets can be purchased online and imported through international delivery services and the US mail. The small quantities of each shipment makes it extremely difficult for mail inspectors and law enforcement officers to identify and seize the packages (Prekupec et al., 2017).

As China continues to create fentanyl analogs, U.S. law enforcement agencies and subject matter experts struggle to stay up to date with the latest trends and

substances. In order for scientists and toxicologists to determine the chemical composition of each new analog, the substance must be identified and confiscated by law enforcement and quantified in the seized drugs (Prekupec et al., 2017). Biological samples from those individuals who ingested the substance, can be used for testing. Notably, a standard urine toxicology screen can detect heroin and morphine, but is unable to identify opioids with unique structures, such as fentanyl and fentanyl analogs (Prekupec et al., 2017). Prekupec et al. (2017) explained fentanyl can be identified using an enzyme-linked immunosorbent assay (ELISA). However, more complex methods are needed in order to differentiate between fentanyl and fentanyl analogs (Prekupec et al., 2017). Prekupec et al. (2017) stated “to date, no antibody-based methods are commercially available to detect non-fentanyl analogs such as AH-7921, U-47700, or MT-45.” It has become extremely difficult to develop immunoassays for all NSOs, at the rate of which they are created. With that said, it is suggested the frequency of NSO use is likely underreported.

**U-47700 "Pink".** U-47700, commonly referred to as "pink" is a synthetic opioid. In November 2016, the DEA officially classified U-47700 as a Schedule I drug, which means it offers no medical benefit but yields strong potential for addiction. The National Forensic Laboratory Information System (NFLIS) indicated the first report of U-47700 occurred in October 2015 (DEA 440, 2016). The DEA reported based on the collected evidence, the consumption pattern of U-47700 mirrors heroin and prescription opioids (DEA 440, 2016). Recent seizures identified U-47700 in tablet form, designed to appear as a pharmaceutical opioid or stamped with logos to mimic heroin (DEA 440 2016). Reports indicate U-47700 has been identified as a solitary substance as well as mixed

with various substances such as heroin, fentanyl and fentanyl analogs (DEA 440, 2016). The majority of U-47700 is distributed through online channels or street dealers. Due to the fact that this substance is distributed through non-regulated sources, the user is unable to determine the true chemical make-up of the substance. This puts the user in grave danger of overdosing, etc. Currently, U-47700 is advertised through various online channels as a "research chemical" (DEA 440, 2016). The DEA identified at least 46, U-47700 related fatalities from late 2015 to mid 2016 (DEA 440, 2016).

It is important to note; reporting of occurrences of U-47700 was not specifically requested by the Florida Medical Examiners Commission in 2017. Due to the rapid rise of deaths associated with U-47700, many Florida Medical Examiner Districts voluntarily reported data; however, the data is not complete. A total of 132 medical examiner occurrences of U-47700 were reported in Florida during 2017. Reporting of U-47700 by all districts will begin with the 2018 Drugs Identified in Deceased Persons Reports.

**Fentanyl.** In the 1960s Janssen Pharmaceuticals manufactured a synthetic opioid, now referred to as fentanyl (Lozier et al., 2015). The CDC (2017) defines Fentanyl as a "synthetic and short-acting opioid analgesic", typically prescribed for patients diagnosed with advanced forms of cancer. The potency of Fentanyl makes it incredibly dangerous. In some cases, ingestion of only .25 mg can be fatal. Notably, a dose of fentanyl can be up to 100 times more potent than morphine and 30-50 times stronger than heroin. (CDC, 2017; DEA, 2015). In order to meet the ever-rising heroin demand, dealers have been found to use illicitly manufactured fentanyl (IMF) or a fentanyl analog to mix with heroin and meet the demand, without diminishing the potency (Bode et al., 2017).

In the 1970s clandestine laboratories began to synthesize fentanyl derivatives,

these analogs were comparable in pharmacokinetics but differed in potency (Lozier et al., 2015). Lozier et al. (2015) stated in the early 1980s, IMF and fentanyl analogs were flooding the illicit channels. Misaildi et al. (2017) reported over 1400 fentanyl analogues have been manufactured in the recent decades, of which, 200 have been studied by pharmacologists, and 12 have been identified in the illicit drug market in the last five years. In the recent decades, we have seen several waves of fentanyl related overdoses throughout the Country (Lozier et al., 2015). In 2013, as a result of fentanyl seizures, the NFLIS identified 942 fentanyl submissions (DEA, 2015). The following year, this number increased to, 3,344 (DEA, 2015). Traces of fentanyl were identified in 90% of the 281 accidental overdoses which occurred in Ohio, during a two-month period in early 2017 (Morgan & Jones, 2018).

The DEA stresses the importance of differentiating between pharmaceutical fentanyl and illicitly manufactured fentanyl (IMF). Although the diversion of prescription fentanyl is certainly a factor, the drastic increase in fentanyl related overdose deaths can primarily be attributed to IMF (DEA, 2016a). Prekupec et al. (2017) stated, the number of overdose deaths involving synthetic opioids may be grossly underreported. Typically, medical examiners and crime laboratories do not conduct testing to determine the presence of fentanyl or NSOs, unless instructed to do so. As a result, overdoses which may be solely attributed to heroin, may be mischaracterized.

Not only is Fentanyl extremely potent, but it is also easy to acquire through the dark web or tor browser and significantly more profitable than heroin (Kulbarsh, 2016). In the time period between 2010 and 2014, heroin involved deaths skyrocketed increasing more than three-fold (Macmadu et al., 2017; Compton et al., 2016). Additionally, from

2013 to 2014, synthetic opioid related overdoses increased 80% (Macmadu et al., 2017; Rudd et al., 2016).

Gladden et al., (2016) found when purchasing drugs through illicit channels, the user is typically unaware of the chemical make-up of the substance. Therefore, it is difficult for a user to gauge how much he/she must inject in order to achieve the high but avoid the overdoses. Drug purchasers who unknowingly purchase products, laced or cut, with fentanyl are at a heightened risk of overdosing, due to the intense potency of fentanyl. Macamadu et al. (2017) conducted a study to examine the use of fentanyl among young adults who reported non-medical prescription opioid use, in the United States. Of the participants who reported using Fentanyl in the six-month study period, 59% admitted being unaware that they were using fentanyl, until after consumption. Unanimously, the participants recognized the potential overdose danger of using fentanyl (Macamadu et al., 2017).

The Florida Department of Law Enforcement Medical Examiners Commission Annual Report, reported 251 deceased individuals were found to have fentanyl in their system, in 2012 (DEA Fentanyl, 2016). This number increased 263% to 911 in 2015 (DEA Fentanyl, 2016). In 77.4% of the cases identified in 2015, fentanyl was determined to be the cause of death. This represents a 418% increase from the data collected in 2012 (DEA Fentanyl, 2016). From 2013 to 2014, fentanyl submission in Florida, jumped 494% from 33 to 196 (CDC, 2016). In the same time period, Florida experienced a 115% increase in fentanyl related deaths, which totaled 397 fentanyl related deaths (Gladden et al., 2016). In the period between January and June 2015, fentanyl analogs (acetyl fentanyl, butyryl fentanyl and beta-hydroxthiofentanyl) were identified in 49 lethal drug,

overdoses (Gladden et al., 2016). Gladden et al. (2016) identified additional substances present in the wake of a lethal fentanyl overdose. In 2013 to 2014, 33% of fentanyl deaths tested positive for cocaine, 19% tested positive for heroin, and 28% tested positive morphine (Gladden et al., 2016).

It is important to note, heroin quickly metabolizes to morphine, therefore it is possible that morphine positive fentanyl deaths, could be attributed to the metabolism of heroin (Harruff et al., 2015). The detection of other illicit substances present in the case of a fentanyl overdose provides support for the notion that illicitly manufactured fentanyl is likely to blame. The dramatic increase in fentanyl related deaths demonstrates the high potency of fentanyl and the danger of engaging in IMF use. Notably, most recreational and habitual drug users are often unaware the heroin, or other illicit substance they are purchasing may be mixed with fentanyl or a fentanyl analog.

**Acetyl Fentanyl.** Acetyl fentanyl is a synthetic opioid, derived from fentanyl. The chemical composition of acetyl fentanyl may be similar to fentanyl; however, the DEA classified acetyl fentanyl as a schedule 1 substance, with no medical use (Stogner, 2014). Although acetyl fentanyl has been linked to a slew of overdoses in the recent years, it is possible that many deaths and overdoses associated with acetyl fentanyl are deemed heroin related, due to the absence of testing to further identify the chemical make-up (Stogner, 2014). Stogner (2014) stated in the case of an overdose, patients would likely respond similarly to naloxone, as in a heroin overdose; however, a stronger dosage would likely be needed.

In 2014 drug traffickers were exploiting a grave weakness in the war against drugs. At this time, acetyl fentanyl was not scheduled under the Controlled Substance

Act. The fact that it was a fentanyl analog made it illicit for human consumption; yet, if the packaging indicated the contents were not for human consumption, it would be difficult to seize and subsequently prosecute (Stogner, 2014). Stogner (2014) referred to this conundrum as the “analogue loophole”. It is important to note, in July 2015, Acetyl fentanyl officially became classified as a schedule 1 substance. However, the “analogue loophole” is still very problematic due to the vast efforts of clandestine drug manufactures to create new analogs, and inundate the marketplace, before law enforcement can identify the new products.

In order to keep buyers content and increase profits, dealers may mix a small amount of heroin with a dose of acetyl fentanyl and market the product as pure heroin. This allows the dealer to use less heroin, a more expensive and harder to traffic product. Stogner (2014) mentioned acetyl fentanyl may be manufactured and packaged to imitate prescription pills, typically oxycodone. Stogner (2014) stated analogues of schedule 1 substances have been marketed as products such as cleaners and plant food and sold in various drug paraphernalia stores.

**Butyrylfentanyl.** Butyrylfentanyl, a fentanyl analog, was first discussed in scientific journalism in the 1980s. NFLIS reported the first confiscation of Butyrylfentanyl occurred in March 2014 in Kansas (Prekupec et al., 2017). As of 2015, the DEA attributed Butyrylfentanyl to at least 40 deaths (Prekupec 2017). The DEA stated the potency and toxicity of Butyrylfentanyl is unknown due to the lack of scientific data (DEA, 2016a). However, the pharmacological profile is similar to that of fentanyl and other fentanyl derivatives. Additionally, the abuse pattern of this substance is similar to heroin, fentanyl, and other fentanyl analogs. In May 2016, Butyrylfentanyl was temporarily placed in to

schedule 1, of the schedules of controlled substances. The final order stated, the substance offered no medical value and serves as a danger to users and first responders, due to the clandestine production (DEA, 2016a).

**Furanylfentanyl.** Furanylfentanyl, a fentanyl analog, was first mentioned in a patent text in 1986 (Prekupec et al., 2017). There is limited knowledge as to the potency and toxicity of this substance, due to the lack of human testing. Furanylfentanyl was first noted by NFLIS in January 2016 (DEA, 2016e). In the time period between January 2016 and May 2016, 80 law enforcement reports noted the confiscation of identification of Furanylfentanyl (DEA, 2016c). DEA (2016e) identified at least 128 Furanylfentanyl related deaths in 2015 and 2016. Due to the lack of medical value and the potential for addiction and overdose, in September 2016, Furanylfentanyl was temporarily placed in to schedule 1, of the schedules of controlled substances (DEA, 2016e).

**Carfentanil.** Carfentanil is a synthetic opioid designed to tranquilize elephants and other large mammals (DEA, 2016c). Carfentanil is a derivative of fentanyl; however, it is 100 times more potent than fentanyl, and 10,000 times more potent than morphine (DEA, 2016c). Due to the lack of human testing, experts are unsure of the lethal human dose of Carfentanil. In 2015, the United States produced 19 grams of Carfentanil for legitimate purposes (Melendez, 2016). In 2016, the DEA identified one shipment from that contained more than 50 times that amount (Melendez, 2016). US Customs and Border Patrol reported 5 Carfentanil seizures between October 22, 2016 and June 27, 2017 (US Customs and Border Protection Office of Field Operations, 2017). The amount of Carfentanil seized in these shipments totaled nearly 2 kilograms (US Customs and Border Protection Office of Field Operations, 2017).

The DEA reported Carfentanil is typically trafficked from Mexico and China and sold directly in to the illicit drug market, often through the dark web. Similar to fentanyl, Carfentanil is cheap to produce and easy to acquire. The potency of the drug, allows dealers to mix it with heroin to keep cost down and make a bigger profit. Notably, because Carfentanil is extremely potent, less quantities are necessary for trafficking purposes. Therefore, it is easier to send and disguise through mail channels.

The DEA reported overdose rates skyrocketed in August and September 2016. The Midwest and Appalachian regions seemed to be hit the hardest (Sanburn, 2016). Hamilton County, Ohio reported 200 overdoses in a seven-day period in August 2016 (Sanburn, 2016). The DEA estimated the Midwest region saw about 300 overdoses in less than a month. Tom Synan, the director of the Hamilton County Heroin Coalition, hypothesized the Carfentanil originated in China and travelled to Mexico in response to online purchases. Mexican drug traffickers then transported the product to the United States and distributed via illicit channels (Sanburn, 2016).

Misailidi et al. (2017) stated that up until March 2017 Carfentanil was not regulated in China, therefore there was no limitation on the production, manufacturing, or sale. Misailidi et al. (2017) explained Carfentanil is openly marketed on the dark web, typically as a “research chemical”. In 2016, a search in a dark web search engine, yielded 118 websites in which Carfentanil was available to purchase (Misailidi et al., 2017). Melendez (2016) quoted one dark web vendor who warned potential consumers of the potency of Carfentanil “Again, we can’t stress this enough, Carfentanil is meant to be purchased by *\*only\** experienced fentanyl users with a high tolerance, this stuff is NO JOKE.”

**Cryptomarkets.** Unbeknownst to many, the dark web aka the deep web is an online platform which allows users anonymity. The dark web allows users to anonymously purchase items such as guns, ammunition, etc. using bitcoin. Bitcoin is a digital currency which operates independently of a central bank and utilizes various encryption methods to ensure anonymity (Yellin et al., n.d.). Gilbert and Dasgupta (2017) defined a cryptomarket as an online, internet-based platform which allows users to operate under false personas to conduct transactions for various information and commodities. The privacy of the dark web coupled with the anonymity of the bitcoin, created the ultimate market for drugs. Perhaps one of the most popular cryptomarkets, prior to its 2013 shutdown, was Silk Road (Gilbert and Dasgupta, 2017). Silk Road, created in February 2011, flourished for two years before eventually being shutdown as the result of an FBI investigation. Once Silk Road was shutdown, cryptomarkets began to multiply due to the potential profit and the open market. Gilbert and Dasgupta (2017) estimated in early 2017, about 50 cryptomarkets were in operation.

Although numerous cryptomarkets popped up after the Silk Road shutdown, Alphabay appeared to be the most profitable. Similar to Silk Road, Alphabay was an online marketplace, located in the deep web, designed to facilitate anonymous transactions between users. According to the FBI, Alphabay became operational in December 2014 (FBI, 2017). It took several months to gain the trust and support of the dark web marketplace; however, within six months Alphabay was flourishing (FBI, 2017). At the time of the shutdown, Alphabay had over 200,000 users, 40,000 vendors and 250,000 drug products and toxic chemicals listed for sale (FBI, 2017). To put this in comparison, in 2013, when Silk Road was shut down in 2013, it had about 14,000 listings

for illicit drug products (FBI, 2017). The number of vendors advertising for heroin and fentanyl was 238 and 122, respectively (FBI, 2017). From inception to closure, Alphabay generated over \$1 billion in illicit transactions (FBI, 2017).

Some, including the attorney of Dread Pirate Roberts, aka Ross Ulbricht, the founder of silk road, argued that Silk Road provided a “safe” environment for drug users to purchase products. Essentially the argument holds that Silk Road eliminated the drug dealer/drug user relationship. As a result, drug users were provided an avenue to purchase drugs, without travelling to a bad area of town, establishing connections with drug dealers, etc. However, the counterargument holds, silk road and other cryptomarkets result in the “amazon” effect. Essentially, the ease of purchase appeals to the consumer. Law enforcement professionals argue many cryptomarket customers, may have never purchased a drug if it wasn't for the cloak of anonymity “guaranteed” through the use of TOR and bitcoin.

Barratt et al. (2016) conducted an ethnographic study with 17 individuals who reported purchasing drugs on Silk Road, the results indicated that at least “some” of the study population admitted Silk Road was the start of their drug use. One participant explained that he had no avenues to purchase drugs, prior to the establishment of the Silk Road (Barratt et al., 2016). 14 of the 17 participants indicated an immediate increase in drug use, following the first purchase from Silk Road (Barratt et al., 2016). Notably, several participants reported their drug use “steadied” after the initial excitement (Barratt et al., 2016). The majority of the participants reported finding a new cryptomarket following the closure of Silk Road.

Quintana et al. (2017) conducted a study in 2015, in which they sent four samples,

marketed in a cryptomarket on the dark web as heroin to Energy Control for evaluation. The results indicated that each of the four samples contained products other than heroin. All four of the samples were found to contain Ocfentanil, a synthetic opioid derived from fentanyl. A test conducted using lab rates yielded Ocfentanil is about 2.5 times more potent than fentanyl and 1,300 times more potent than morphine (Blanckaert, 2017). As with other fentanyl analogs, Ocfentanil is dangerously more potent than heroin.

Products marketed as heroin, which contain fentanyl analogs, are extremely dangerous to users due to the increased potency. Proponents of cryptomarkets argue the substances offered are typically pure and potent, as a result of the rating scale. “Dealers” are concerned with their rating, so they are sure to be honest about the product they are marketing. However, this study demonstrates that substances sold on the dark web may not always be pure and could be cut or mixed with other substances.

### **Naloxone**

The first part of this literature review was provided to demonstrate the prevalence, rapid expansion, and danger of the opioid epidemic in the United States. The remainder of this literature review will examine the current, available literature pertaining to the use of naloxone. The difference between getting an opioid from a trusted source such as a doctor and getting an opioid through a variety of illicit channels such as a street dealer or dark web, can be the difference between life and death. As the number of overdoses continues to skyrocket and China continues to infiltrate the drug market with synthetic opioids, the need for naloxone is stronger than ever.

Substance Abuse and Mental Health Services Administration (SAMHSA) explained Naloxone is an FDA approved medication, used to prevent opioid overdoses.

In the midst of a drug overdose, naloxone is often used as a last ditch effort to block the opioid receptor sites and ideally stop and reverse the respiratory damaging effects of an overdose (SAMHSA Naloxone, 2016).

Fairbairn et al. (2017) explained there are four naloxone delivery methods that are currently on the market. These methods include: intramuscular via vial, intramuscular via auto injector (Evzio), multi-step off-label intranasal spray, and a single-step nasal spray (Narcan®) (Fairbairn et al., 2017). Resnick (2014) quoted a fire official who stated “there’s somebody who’s on the ground, who’s literally dead, sometimes they’re blue, sometimes they’re black, and you administer this stuff and sometimes in a minute or two or three they’re actually up and talking to you” (p. 1).

In 2014, 47,055 fatal drug overdoses occurred in the United States, 61% (28,647) of which were attributed to prescription opioid analgesics and heroin (FDA, 2016). The FDA (2016) explained the pathophysiology and critical response time of an overdose attributed to a legally obtained prescription opioid is comparable to an overdose which occurs as a result of an illegally obtained opioid. Simplistically speaking, regardless of where/how the opioid is obtained, the response to an overdose will be the same. Boyer (2012) explained higher doses of opioids can cause respiratory depression to occur which affects the oxygenation of blood, this can lead to a reduction of oxygen for the brain and the heart (Boyer 2012, FDA, 2016). The deprivation of oxygen from the heart and the brain will eventually result in death (FDA, 2016). In most cases, respiratory depression can take up to 3 hours, and it can be reversed until mortality (Boyer 2012). Naloxone is used in the wake of an overdose to reverse respiratory depression by “displacing opioids from the opioid receptor and block the binding of additional opioids for 20 to 90

minutes” (Boyer, 2012). Notably, depending on the amount and type of opiate injected, the user may reenter respiratory depression after the application of naloxone.

Although naloxone is currently the ‘talk of the town’ and debated, the use of naloxone is not new, by any means. In the late 1990s, amidst the ‘heroin era’, syringe needle access programs (SNAP) were initiated in cities such as New York to reduce the impact of sharing syringes linked to HIV and other infectious disease transmission. Fairbairn et al. (2017) explained community based programs partnered with SNAP and began dispensing naloxone to drug users, specifically those who inject drugs. These programs were found to be very successful in reducing heroin-related deaths.

Walley et al. (2013) conducted a study in which they compared the opioid overdose death rates in communities where overdose education and nasal naloxone distribution (OEND) was implemented to communities with no OEND programs. Communities where OEND was implemented saw a decrease in opioid overdose death rates. Notably, there are myriad of other factors that could have impacted the reduction in opioid overdose deaths. However, this study adds support for the importance of community education and the potential positive effects of distributing naloxone.

Fairbairn et al. (2017) stated in 2010 the United States saw a dramatic increase in the heroin overdose rates. During the same time period, the U.S. saw a decrease in the number of opioid prescriptions supplemented by an increase in the production of synthetic opioids. Although heroin overdoses are apparent and problematic, the current crisis is more complex than the heroin era of the 1990s. Fentanyl, fentanyl analogs, and other clandestinely produced synthetic opioids are flooding the drug marketplace. The potency of these alternative substances have had a devastating effect. Heroin users have

always ‘gambled’ with the purity/potency factor which is considered an overdose risk; however, synthetic opioids drastically increase the risk of overdose.

The optimal dosage of naloxone depends on the amount of the substance injected/ingested as well as the potency of the substance. This has proven extremely problematic in the current drug climate. Recent studies have found that a fentanyl overdose may require multiple doses of naloxone to reverse the overdose (Somerville et al., 2017; Sutter et al., 2017; Fairbairn et al., 2017). This was demonstrated in British Columbia, Canada in 2016. According to medical professionals and first responders, patients who reported smoking crack-cocaine, which was later determined to be furanyl-fentanyl, required notably high dosages of naloxone (Klar et al., 2016). Several patients required 3.0 mg of injectable naloxone, which is more than 7 times the typical dosage of 0.4 mg. Klar et al., 2016)

In 2014, the World Health Organization (2014) suggested individuals who have a strong chance of being present at the time of an opioid overdose should carry naloxone (WHO, 2014). As opioid overdoses continue to ravage the United States, the need to educate users and the community on how to react in case of an overdose has become increasingly apparent. It is customary for medical facilities which administer opioid medication, to carry naloxone. Additionally, ambulances and other medical transportation systems are typically equipped with naloxone. However, many argue it makes the most sense to equip addicts and family members with naloxone, which will allow them to respond quickly in the event of an overdose. From the early 1990s to present day we have seen a notable increase in the programs designed to educate and equip individuals with the tools to effectively handle an opioid overdose.

The Harm Reduction Coalition (HRC), conducted a study in which they sought to identify how many naloxone kits had been distributed as of June 2014. They contacted, through online survey, executives of 140 organizations which distribute naloxone kits. Such organizations included pharmacies, health care providers, rehabilitation facilities, etc. (Wheeler et al., 2015). Wheeler et al. (2015) reported from 1996 to June 2014, the 136 responding organizations, provided 152,283 individuals with applicable training and overdose kits which include naloxone. Of the 136 responding agencies, 109 collected overdose metrics, these agencies documented 26,463 overdoses reversals, 8,000 of which occurred in 2013 (Wheeler et al., 2015).

**The Legal Journey.** Naloxone is characterized as a prescription drug; however, it is not classified as a controlled substance. (van Dorp et al., 2007). Although classified as a prescription drug, naloxone has no potential for abuse and a low overall risk of harm (Davis and Carr, 2017). In the recent years, we have seen a push by both the Federal and State government to expand the access to naloxone in order to better equip laypersons. However, numerous overdoses which have resulted in death are often viewed as preventable if naloxone was on hand for immediate application. Naloxone can be an extremely powerful, life saving tool; however, it is extremely important that it is administered as soon as possible to avoid permanent cell death and other possible negative effects. Time is of extreme importance when it comes to opioid over-induced respiratory depression.

Due to the impending clock and the prevalence of overdoses, numerous medical health associations advocate for the importance of equipping lay persons and addicts with take-home naloxone kits (Davis and Carr, 2017). However, even though naloxone is not a

controlled substance, it is defined as a prescription substance and therefore typically requires the prescriber to examine the individual seeking the prescription, prior to writing the prescription (Davis and Carr, 2017). Nevertheless, given the current state of the opioid epidemic, in the recent years' numerous states have adjusted the stringent guidelines which prevented widespread naloxone distribution.

Davis and Carr (2017) explained the majority of states have disregarded the constraint which required naloxone to be administered only for use on an individual for which the prescribing doctor had an established prescriber-patient relationship. In 44 states, third-party prescription laws allow naloxone to be prescribed and distributed to any individual who may be present at the time of an overdose (Davis and Carr, 2017). Alternative means of distribution occur via non-patient specific standing orders (NPS). These orders are typically written to allow the distribution of naloxone to any individual at risk of an overdose (Davis and Carr, 2017). NPS orders fall widely under the best judgment of the prescriber. Furthermore, in the recent years 32 states have enacted legislation which provide naloxone prescribers with criminal immunity for "state law violations to pharmacists that dispense naloxone as authorized by the law" (Davis and Carr, 2017, p. 183). The majority of states have removed some of the legal barriers to the prescribing and dispense of naloxone.

**Good Samaritan Laws.** As mentioned above, time is of the essence when it comes to responding to an opioid overdose. With a product such as naloxone available, one may assume that the majority of opioid overdoses may be preventable. However, often times, the individuals who witness the overdoses are in the possession of drug paraphernalia, under the influence of an illegal substance, or simply at the wrong place/wrong time and

concerned of how they may be treated in light of law enforcement intervention. These fears have prevented countless of individuals from contacting the authorities in the wake of an overdose and may have delayed a potential life saving effort.

Based on information reviewed, in July 2017 40 states and the District of Columbia were found to have enacted Good Samaritan legislation (Davis, 2017). Although the inner workings of each law differs by state, overall the legislation is designed to offer individuals who in good faith contact authorities in the wake of an overdose, some sort of protection. Depending on the state, Good Samaritans may be granted protection from possession of drug paraphernalia or illicit substances, as well as protection from probation or parole violations, and various other charges.

**Price and Products.** Naloxone was first approved by the FDA in 1971 (Gupta et al., 2016). The rapid and widespread increased in opioid overdoses led to the formulation of the auto-injector formula (Evzio®) (Gupta et al., 2016). In 2014, the FDA accelerated the approval process to meet the ever growing demand for a user friendly naloxone delivery method (Gupta et al., 2016). The auto-injector formula allowed individuals with no medical training an easier route to deliver naloxone.

In 2015, the FDA again accelerated the approval process, for a nasal-spray product designed to deliver naloxone. The nasal-spray also known as naloxone was designed to reduce the risk of administering naloxone, by the untrained professional. As the theory of supply and demand would indicate, in the recent years we have seen steep increases in the cost of naloxone. Perhaps most significantly, Evzio®, the auto-injector version of naloxone increased from \$690.00 in 2014 to \$4,500 in 2016 (Gupta et al., 2016).

Recent data indicate two nasal-spray doses of naloxone costs approximately \$178 for government agencies, first responders, health departments, and other qualifying groups when they purchase directly from the manufacturer, Kaléo, or its authorized distributors (Evzio, 2018). The lack of competition in the marketplace coupled with the growing demand, allows retailers to continually raise prices. In the recent years, states such as California and Vermont have enacted legislation designed to prevent unnecessary price gouging (Gupta et al., 2016).

Childs (2015) listed several road blocks that law enforcement agencies may face in the implementation of naloxone policies. The first and perhaps most notable is the ever increasing price of naloxone. The gravity of the potential expenses associated with equipping law enforcement with naloxone has resulted in back lash from the law enforcement community. Law enforcement agencies maintain they do not have the funding available to implement naloxone programs which require purchasing naloxone and ensuring officers are trained to properly administer the medication. Although there are cheaper versions of naloxone available, such as the syringe based formula, law enforcement officers in certain states are not authorized to administer the medication through injection, which limits the purchasing options (Childs, 2015).

The argument against the price of naloxone has continued to strengthen due to the continuous emergence of synthetic opioids. Synthetic opioids such as fentanyl, and fentanyl analogs have been found to require a stronger dose of naloxone. In the past the starting dosage of naloxone was recommended to be .4 mg; however, in the recent years it has been recommended to immediately start with a 2.0 mg dose (Prekupec et al., 2017). Prekupec et al. (2017) stated there are known cases which have required 10mg to 20 mg

doses of naloxone.

Additional barriers to law enforcement implementation of naloxone policies include liability concerns, lack of Good Samaritan laws, and medical doctors who refuse to write a standing order for the dispense of the naloxone (Childs, 2015). Due to the fact that naloxone is a prescription medication, but not a controlled substance, first responders must be authorized to carry and administer the drug (BJANTTAC, n.d.). Typically, a licensed prescriber can issue a “standing order” to an entire department which would allow first responders to carry and administer naloxone (BJANTTAC, n.d.).

Commonly, the law enforcement agency and the collaborating health care agency sign a memorandum of agreement to legitimize the relationship (BJANTTAC, n.d.). New York was the first state to work directly with the Board of Pharmacy to simplify the process and enacted legislation which allows law enforcement agencies to purchase naloxone directly from a wholesaler, which eliminates the need for a prescription and a standing order (BJANTTAC, n.d.). In some states, law enforcement agencies have established working relationships with EMS agencies to streamline naloxone training and purchasing (BJANTTAC, n.d.).

**Adversaries of Naloxone.** Many adversaries of naloxone distribution programs argue that by distributing naloxone kits to addicts, family members, and friends, we are essentially enabling addicts to abuse illicit drugs. Seal et al. (2003) conducted a study in which they surveyed a population of 82 San Francisco based drug users, who reported experiencing at least one heroin overdose. An overwhelming 87% of the participants indicated they would be inclined to participate in an overdose training program to learn situational awareness and receive take-home naloxone (Seal et al., 2003). 35% of the

respondents indicated the distribution of naloxone may allow them to feel more comfortable when using heroin and subsequently use higher doses (Seal et al., 2003). However, to date, research has not demonstrated that overdose education and naloxone distribution programs (OEND) lead to an increase in drug use for participants (Doe-Simkins et al., 2014).

Seal et al. (2003) found, if provided naloxone, 62% of respondents reported they may refrain from calling law enforcement in the event of an overdose. Notably, 30% of participants indicated they would leave the scene following the application of naloxone (Seal et al., 2003). Due to the potency of many synthetic opioids currently on the market, it is extremely important to monitor an individual following the use of naloxone. In a qualitative study designed to gauge officers' perceptions on the overdose epidemic, in regards to naloxone one officer stated:

I think it's a 'get out of jail free' card, cause if you take the naloxone, "Oh, you know what? Hey, I screwed up and I fell off the wagon. Let me just take the naloxone and Ill start over again. It gives them a way out (Green et al., 2013, p. 10).

**Naloxone and Law Enforcement.** As the opioid epidemic continues to worsen and overdoses become increasingly prevalent, states have begun to develop new initiatives to better combat the growing epidemic. Community-based programs have been key in equipping addicts, friends, and family members with opioid overdose training as well as an overdose prevention kit, which includes naloxone. Since the late 1960s, paramedics have been carrying doses of naloxone to be prepared in the wake of an overdose call. However, as opioid overdoses continue to increase, many states along with the Federal Government have stressed the importance of equipping other first responders with

naloxone (Davis, et al., 2014). Since 2010, the National Drug Control Strategy has urged state and local authorities to implement policies, designed to better equip officers and first responders with naloxone (Executive Office of the President of the United States, 2016).

The Federal Government has also implemented a number of initiatives designed to combat the opioid epidemic. The Department of Defense (DOD) has begun to equip first responders stationed on military bases with naloxone kits and opioid overdose training (Executive Office of the President of the United States, 2016). Since 2013 the Department of Veterans Affairs distributed over 45,000 naloxone kits, 39,000 of which went to veterans (Executive Office of the President of the United States, 2016). The Food and Drug Administration fast-tracked the evaluation process of Narcan®, the nasal spray version of naloxone, in order to provide first responders and laypersons an alternative to the injection route (Executive Office of the President of the United States, 2016). From the fourth quarter of 2013 to the second quarter of 2015, we have seen a drastic, 1170% jump in the pharmacy distribution of naloxone (Jones et al., 2016).

Since the release of naloxone in the 1960s it has been a staple in hospitals, paramedic kits, ambulances, and other medical facilities which use prescription opioids. As the number of opioid overdoses and subsequent fatalities continues to increase, the need for law enforcement, and EMTs to carry naloxone has become a controversial topic. The debate is especially pertinent in rural areas, where it may take a longer period of time for a paramedic to reach the scene of an overdose. Whereas officers or EMT's may be closer in proximity and able to respond in a shorter period of time. In a study conducted in 2006, it was found that by equipping EMT's with naloxone, the time to reach the scene

of the overdose would be reduced anywhere between 5.7 and 10.2 minutes (Belz et al., 2006). Belz et al., (2006) highlighted the potential efficiency that could be a result of utilizing EMTs to respond to overdose calls, rather than paramedics.

Kitch and Portela (2016) conducted an observational study in which they examined officer's experiences and outcomes when administering naloxone. The results indicated that within a 48-hour span, officers who had received training in overdose identification and naloxone application, were successful in administering naloxone to four overdose victims. Kitch and Portela (2016) explained that although the initial results appeared to be positive, equipping law enforcement with naloxone requires funding, inner agency communication, and consistent training.

As the government continues to encourage law enforcement agencies to equip officers with naloxone, adversaries cite potential liability charges as a deterrent factor. Davis et al. (2015) stated a review of the available research indicated no cases regarding law enforcement and naloxone administration.

**Danger for LEO.** In 2010, the Office of National Drug Control Policy (ODNP) stated “naloxone should be in the patrol cards of every law enforcement professional across the nation” (The White House, 2013). With that said, each individual law enforcement agency has the autonomy to decide whether or not to equip officers with naloxone. Paramedics typically administer naloxone through injection; however, in 2015 the FDA approved a nasal spray, commonly referred to as naloxone. Naloxone allows police officers to deliver potentially life saving medicine through a nasal spray, subsequently avoiding the potential risk associated with needle exposure (Ray et al., 2014).

Green et al. (2013) conducted a qualitative study in which they examined officer's

attitudes toward overdose prevention strategies. Green et al. (2013) found many officers considered it part of their job duties to protect the community and ensure public safety; however, a majority of the participants reported concerns regarding the additional responsibility of preventing overdoses. Additionally, many participants communicated feelings of helplessness due to the lack of treatment options available for addicts (Green et al., 2013). On the topic of law enforcement officers carrying naloxone, one supervisor stated “I know I don’t want my officers giving people shots and pills. We get sued for enough stuff. Let people with some health training issue that” (Green et al., 2013).

### **Gaps in the Research**

Yin (2009) defined a six step process that may be utilized when conducting a qualitative case-study. The first step is defined as the “planning stage”. During this time, the researcher should conduct a review of the literature and identify any notable gaps. If any gaps are identified, the researcher should ensure to utilize research questions which may serve to address such topics (Darke, Shanks, & Broadbent, 1998). In this case, the researcher examined the opioid epidemic as a whole. The researcher sought to examine the ever changing epidemic, the current climate, and the role of law enforcement. By examining these topics further, the researcher was able to identify significant gaps in the research regarding the ever evolving role of law enforcement officers.

Although, the current research provides ample detail regarding policy changes and applicable statistics which demonstrated how these changes may have affected the community, the research fails to examine the thoughts and opinions of the law enforcement officers, themselves. As a result of the literature review, I designed a case-study which will serve to fill the gap in the research. This multiple-case study was

designed to provide a better understanding of how six law enforcement officers perceive policy changes which require law enforcement officers to carry and administer naloxone.

### **Research Questions**

1. How do law enforcement officers, who are mandated by policy to carry and administer naloxone, perceive this change in policy?
2. How do law enforcement officers, who are mandated by policy to carry and administer naloxone, describe the potential barriers to the successful implementation of naloxone policies?
3. How do law enforcement officers, who are mandated by policy to carry and administer naloxone, view the harm reduction approach of equipping officers with naloxone?

## Chapter 3: Methodology

### Research Method

Edmonds & Kennedy (2013) stated “the aim of the qualitative method is to reveal and understand phenomena within a particular context without attempting to infer any type of causation” (p. 112). Often times, qualitative research is used as a means to pave the way for future quantitative analysis, in which causation may be inferred (Edmonds & Kennedy, 2013). Due to the lack of available research on law enforcements perceptions of using naloxone, this study utilized a qualitative approach in order to develop a better understanding of the topic at hand.

This qualitative study employed the multiple case-study design. Baxter and Jack (2008) stated “qualitative case-study methodology provides tools for researchers to study complex phenomena within their contexts” (p. 1). When used in the correct context, case studies can aid in theory development and program evaluation (Baxter and Jack, 2008). Edmonds & Kennedy (2013) argued using a qualitative case-study design prevents the researcher from inferring causation or generalizing the results of the study.

More specifically, by utilizing the multiple-case study approach, I was able to examine dissenting and similar views among case participants (Yin, 2003; Baxter and Jack, 2008). Yin (2003) stated using a multiple case-study approach allows the researcher to identify and develop an understanding of the similarities and differences between each case (Gustafsson, 2017). The issue at hand is one of complexity which required an in-depth study in which multiple perspectives were presented and analyzed.

A multiple case-study design allowed me the opportunity to explore the views of six law enforcement officers. The “case-study” aspect allowed me to develop a deep

understanding for each participant's views. Whereas, the "multiple" aspect allowed me to view these perceptions not only individually, but also collectively.

### **Participants**

The target population in this study was police officers who are mandated, to carry and administer naloxone, if the opportunity presents itself. This study used participants from one mid-size, Florida sheriff's office which enacted legislation which requires officers to carry and administer (if necessary) naloxone. Yin (2003) stated "because comparisons will be drawn, it is imperative that the cases are chosen carefully so that the researcher can predict similar results across cases, or predict contrasting results based on a theory" (Baxter and Jack, 2008, p. 5). As stated by Yin, when using the multiple-case study approach it is important to hand pick cases (Yin, 2003). Baskarada (2014) stated that the ideal case-study design would include 8-12 participants. However, it is important to mention, the number of participants in a case study varies depending on the nature and constraints unique to each study.

### **Sampling Strategy**

This study is comprised of six, hand-picked officers, from one mid-size, Florida sheriff's office. Burmeister & Aitken (2012) argued that in order to reach data saturation, the researcher must be mindful in determining the sample size. However, it is notable that a larger sample size does not automatically ensure data saturation will be reached (Burmeister & Aitken, 2012). In actuality the make up of the sample size is instrumental. For this reason, it is essential to be mindful and hand select the willing participants in order to best fit the study at hand. For this study, the researcher decided to use six participants and place more of an emphasis on experience with naloxone based policies,

rather than expand the number of participants. The participants chosen for the study had experience working at the mid-size Florida Sheriffs Office, in the time period following the enactment of the naloxone policy.

This study required the participants to have experience carrying and ideally administering naloxone. In order to ensure the participants selected meet the criteria for inclusion in the study, purposeful sampling was employed. Purposeful sampling occurs when the researcher deliberately selects participants in order “provide information that cannot be gotten as well from other choices” (Maxwell, 2005, p. 88).

Prior to contacting the Sheriff’s Office, I worked through the IRB approval process. Once the IRB board granted approval for this study, I identified several Sheriffs department located in Florida, which enacted policy that required officers to carry naloxone. After researching the departments further, I contacted one mid-size Florida Sherriff’s Office to discuss the study further. I was able to pitch the study to the PR representative, who then put me in contact with the Undersheriff. The Undersheriff agreed to allow LEO’s to participate, if they should choose to do so.

Through the IRB approval process, I created a recruitment flyer, which provided a brief overview of the study as well as my direct contact information. The Undersheriff disseminated my recruitment flyer via email to all Law Enforcement Officers employed by the selected agency. By providing my contact information, I eliminated the need for a middle man, the officers were instructed to contact me directly, if they would like to participate, or if they had any questions or concerns.

The majority of the participants contacted me via email to express their willingness to participate. At this point, I utilized the questions in Appendix B, to screen

the interested candidates to ensure they meet the criteria for inclusion in the study. I then forwarded each candidate a copy of the recruitment flyer to ensure they were aware of the purpose of the study, prior to the interview. Some of the participants had further questions, which were addressed prior to the interview.

I then utilized purposeful sampling methods to hand select participants. My goal was to employ a diverse sample, in terms of years of experience, in the field of the law enforcement. I wanted to ensure the sample covered individuals newer to law enforcement, as well as, career officers who may offer a different perspective.

As the majority of the officers elected to be interviewed while on shift, there were several instances which required us to reschedule the interview. If a participant elected to remove himself/herself from the study, I would have employed the snowball technique to garner additional participants.

For the purpose of this study, I chose to interview six participants. The consulted research on multiple case-studies varies as to the “right” number of participants. However, I believe the number six allowed me to deeply examine the individuality of each person, but also allowed me to capture potential themes.

Prior to the interview, participants were informed that their participation is fully voluntary and they may terminate the interview at any time, should they wish to discontinue participation in the study. I explained the purpose of the study to each participant and presented them with the consent form. I asked each participant to review the consent form and we discussed any questions or concerns they may have. I also explained, by signing the consent form they are giving me permission to record the interview. Each participant was then asked to sign the consent form which indicated they

are comfortable with the study, they have been informed of the process, and they are able to discontinue participation at anytime. This form is provided in Appendix A.

### **Instruments**

It is important for qualitative researchers to be able and willing to evolve a study, as the data dictates. Creswell (2013) explained the methodology employed by the researcher may be altered or shifted after the researcher begins the data collection process. With that said, I found it necessary to approach each participant individually. While, I stayed true to the underlying purpose of the research, each interview was guided by the participation and passion of each participant.

Each participant housed different passions and beliefs, if he/she wanted to discuss a specific question further, I felt it was important to allow their interests to guide the interview. With that said, each interview was guided by a predetermined set of questions and the topics discussed remained true to the purpose of this study.

The data collection method was comprised solely of face to face interviews with each participant. First and foremost, the researcher must ensure access to the participants (Yin, 2017). Secondly, it is of the utmost importance to ensure the researcher is adequately equipped with a laptop, paper and pen for notetaking purposes, and a recorder (Yin, 2017).

It was of the utmost importance to best ensure the comfort of each participant. In order to accommodate the participant, I requested each participant to choose the time and location of each interview. Yin (2017) stated using a case-study method requires the researcher to cater to the schedules and preferences of the participants. Notably, the majority of the participants chose to meet during their scheduled work hours. As a result,

several interviews were rescheduled due to various work matters.

Yin (2016) provided several recommendations for a novice researcher to follow when conducting interviews. The first recommendation made by Yin (2013) was to “speak in modest amounts” (p.144). He further explained it is important to craft the interview in a way that will allow the participant to respond in a lengthy manner. As many of the participants had a lot to say on the current topic, I was merely there to guide the interview. Yin (2017) further explained it is extremely important for the interviewer to refrain from asking leading questions to avoid interviewer bias.

The next recommendation made by Yin (2013) was to be non-directive. He further explained “your goal is to let participants express their own meanings as part of their own way of describing the world” (p.144). Although I developed an interview protocol (Appendix C) which listed pertinent topics and key questions, each interview remained fluid in structure. As a result, each interviewee did not receive all of the same questions. The interview protocol (Appendix C), was designed to guide the interview and ensure I was able to gain insight in to the research questions (Hancock & Algozzine, 2017).

Yin (2013) further advised the interviewer to “remain neutral”, “maintain rapport”, and “analyze while interviewing”. As the sole researcher and analyzer, it was important for me to remain neutral throughout the duration of the study. I did my best to harbor any preconceived notions and remain present in each interview. As an employee of a law enforcement agency, I was able to gain rapport with each participant through common interests and career discussions. This rapport continued throughout the duration of the interview, which served to allow for an open discussion.

I further utilized a semi-structured approach which allowed autonomy to develop and ask probing questions as the interview progressed. Due to the lack of strict protocol, I developed a type of social relationship, unique to each each interview/participant (Yin, 2013; Seidman, 2006). By employing the open-ended interviewing techniques, the participants were ultimately free to challenge my line of questioning. With that said, it was extremely important to be well-prepared to react in the event the interview went off script.

### **Procedure/Data Analysis**

One of the biggest hurdles faced in a qualitative case-study is the potential bias of the researcher. In this study, I was the primary data collector and therefore the sole data collection tool, it is important to address the potential bias that may be present in social research. Researchers who are able to identify his/her personal views and distinguish personal ideologies will be more successful hearing and digesting the behaviors of others, in this case the interviewees (Dibley 2011; Fields & Kafai, 2009).

The data collection process was managed and enacted solely by me. I am the only person responsible for collecting and maintaining data throughout this study. Once I had approval from the IRB board and the Sheriff's department, I contacted each of the six participants to schedule an interview. The location and time of the interview was at the preference of the participant. I did my best to ensure the interview location was suitable for recording purposes. Each interview was conducted in person and utilized and semi-structured, "shorter" case study interview (Yin, 2017).

Rubin & Rubin (1995) stated "qualitative interviewing requires intense listening...and a systematic effort to really hear and understand what people tell you"

(Rubin & Rubin, 1995, p. 17). Due to the importance of understanding, comprehending, and analyzing each word and interaction in a qualitative interview, each interview was recorded and subsequently transcribed by me.

Prior to the recording of the interview, I obtained the written permission of the interviewee, to ensure the participant was aware and comfortable with the use of a recording device (Hancock & Algozzine, 2017). For this study, I utilized a hand-held audio recording device. In order to be safe, I utilized two recording devices, to prevent reliance on one device. The entire interview from start to finish was recorded. Stuckey (2014) explained that by recording the interview, the researcher is free to fully concentrate on the conversation and responses of the interviewee, rather than trying to write copious notes.

Additionally, I used a note pad to reflect on notable moments throughout the interview. This includes, documenting notable statements, identifying topics which may need further questioning, recognizing key points, noting mannerisms or facial expressions and any other interactions deemed noteworthy.

Shortly following the interview, I transcribed the interview in entirety. In this case, data transcription aided me in the further analysis and comprehension of the interview contents. Transcription is not simply a verbatim rendition of the audio recording, rather it is important to recognize the use of tone and inflection to garner a full picture of the interviewee (Stuckey 2014).

Once all of the interviews were completed and the data was transcribed in entirety, I began the coding process. Again, this task was completed solely by me, who also conducted and transcribed each of the six interviews. This allowed me to draw on

memory as well as the data to provide a complete picture of each interview including key points and themes.

Due to the small sample size, I did not utilize a coding software to organize the data. In following the interview plan, each participant was asked similar questions, in order to promote data saturation. These questions were grouped by question responses. Questions that were not asked to each participant were organized based on similarities. Yin (2017) explained that organizing the data in a systematic format will lead to a stronger analysis of the data. Once the data was organized and grouped it will serve as the data database.

Yin (2017) stressed the importance of constantly re-reading the data to identify the distinctive features and identify key themes and potential new insights. This process also helped ensure the data was consistent among all interviews (Yin 2017).

The use of one researcher minimized the amount of data that needed to be modified. Although a coding software was not used, I utilized Microsoft word to formally organize electronic copies of the data transcripts and various other documents. Additionally, these documents were printed for the coding process.

### **Coding**

The coding method allows the researcher to break the data up in to smaller parts and then reassemble to tell the narrative (Stuckey 2015). Once the data was coded, I examined the data for patterns. During this time, the researcher is constantly questioning what statements may mean and how they may be interpreted (Yin, 2017). This aided me in determining present themes and interpreting the reassembled data.

Yin (2017) explained that identifying patterns is the main goal of the assembling

phase. There are no constraints in the identification of patterns. These patterns do not need to relate to one another, there is no pattern to broad or to narrow (Yin, 2017).

Essentially, during the reassembling phase, I was familiarizing myself with the intricacies of the data. At this stage, I organized the data methodically using arrays.

As defined by Yin, the next stage in the research process is interpreting the data (Yin, 2017). At this point, I developed a strong sense of the themes present in the data. During this phase the researcher sought to develop a comprehensive interpretation of the data, which included “completeness, fairness, empirical accuracy, value-added, and credibility” (Yin, 2017, p. 221). Finally, once the data was interpreted, I drew conclusions. Yin (2017) defined several types of concluding actions researchers can take. For one, based on the findings, I identified future research needs (Yin, 2017). Additionally, I presented the findings and new concepts or theories that were developed throughout the course of this research study (Yin, 2017).

### **Confidentiality**

In order to ensure the confidentiality of the participants, I did not include personal identifying information. Participants were advised that their participation in this study would remain confidential. I stored and will continue to store any documents, forms, or collected PII information in a safe location. Any additional confidentiality concerns held by the participant were discussed and handled accordingly.

### **Limitations**

Yin (2017) stated “a valid study is one that has properly interpreted its data, so the conclusions accurately reflect and represent the real world that was studied”. When using a case-study research design, the terms internal and external validity are typically

replaced by trustworthiness and authenticity (Zucker, 2009). This study relied fully on the participation and truthfulness of the participants. In a multiple case-study the researcher is dependent on the participants to provide truthful and accurate depictions of their thoughts and emotions. However, it is the role of the researcher/interviewer to ensure the questions and the atmosphere of the interview cultivated an open and truthful dialogue.

Although I was unable to control the truthfulness of the participants, I believe each interview provided a safe environment for information sharing. Additionally, many of the statements made by participants were explained through real life examples or situations they had endured.

Limitations and delimitations refers to threats to the internal and external validity of the study. Specifically, a limitation refers to areas of potential weakness in the study. Limitations often result from the design of the study or the employed methodology. On the other hand, delimitations are typically a direct result of parameters set or decisions made by the researcher. It is important to be cognizant of the potential limitations and delimitations.

A limitation is a facet of the study or research, which the researcher is unable to control but may negatively affect the study or the outcome (Patton, 2003). Unfortunately, there are several limitations of the proposed study that should be mentioned. First and foremost is the number of participants. This study included six officers; however, the years of experience as well as the familiarity with naloxone/naloxone varies among participants. Additionally, due to the importance of using individuals who have at least baseline experience carrying naloxone, the researcher was unable to randomly select participants. However, the goal of this research design was not to generalize the findings

of the sample population to all law enforcement officers who are required to carry/administer naloxone.

Another limitation present in qualitative research is the potential for researcher bias. Essentially, the researcher may consciously or unconsciously affect the study with the presence of preconceived notions. The researcher's thoughts and opinions may impact the way he/she understands and evaluates the data. This limitation is further exacerbated due to the fact that I am the sole researcher, the sole interviewer, analyzer, coder, etc in this study.

This qualitative study is fully dependent on semi-structured interviews. There are several limitations associated with the use of self-report data in a qualitative study. For one, you are forced to assume the participants are being forthcoming and honest throughout the duration of the interview. This limitation is especially present in the current study due to the role of the police chief in implementing the discussed policy. The researcher utilized several procedures in order to provide an atmosphere conducive to in-person interviews:

1. Participants were fully informed of the general topic of discussion, the initial questions which serve to guide the interview, and the interview process.
2. The comfort of the participant was of the utmost importance, if the participant preferred to collect his/her thoughts using written notes, prior to responding to a question, he or she was authorized to do so.
3. Participants were informed that if at anytime during the interview process they felt they could not answer a question honestly, the interview would be terminated and next step actions will be discussed.

4. Interviews were scheduled at the convenience of the participant. I made every attempt to ensure the location/time of the interview is convenient for the participant.

The second limitation of this study is the lack of generalizability of the results. This study utilized a small sample size, which eliminated the possibility of generalization. In addition, the sample was purposefully selected by the researcher in order to ensure each participant had applicable experience. As a result, the sample size may not serve to cover all demographics. Simon & Goes (2013) stated “case studies may be suggestive of what may be found in similar organization, additional research would be needed to verify whether the findings from one study would generalize elsewhere.” (p. 2).

### **Delimitations**

Simon & Goes (2013) explained that delimitations arise as a result of the various decisions made by the researcher. Delimitations may include the design of the study, choice of variables, interview questions, participants selected, etc. One of the prime delimitations of this qualitative multiple case-study is the sample size and the participants. In choosing the sample study, the researcher decided to focus on law enforcement officers from one agency. As a result, this sample is not representative of all law enforcement agents. Secondly, the researcher determined that a sample of six participants will be sufficient for the study at hand. However, it is possible that a larger sample size would allow the results more generalizability.

### **Summary**

The devastation caused by the opioid epidemic has emphasized the desperate need for policy, designed to combat the ever-growing epidemic. Often times, desperation leads

to policies being implemented as a result of perceived necessity rather than evidence-based research. Many naloxone advocates, argue there is no harm in equipping law enforcement officers. Some may say, “if it saves a life, it is worth it”. However, in opposition, one may ask “why equip officers with naloxone to save addicts, when we fail to equip officers with epi-pens?”

Ultimately, the opioid epidemic is not improving and the role of law enforcement officers may continue to expand to unprecedented measures. However, to date, the research fails to address law enforcements perceptions of this role change. More specifically, this study will serve to fill the gap in the research, regarding law enforcement officer’s perceptions of carrying and administering naloxone. Although, the use of naloxone is relevant and heavily discussed, I believe there is a lack of knowledge regarding the perceptions of those affected by these policies, the law enforcement officers. The qualitative research design, allowed me to deeply examine the perceptions of the six interviewees.

From the data collected, I was able to garner a better understanding of how this policy change affects the day to day operations of the law enforcement officers and how they perceive such changes. The results of this study, may aid senior law enforcement professionals in better drafting and implementing naloxone policies.

## CHAPTER IV- RESULTS

### Introduction

This qualitative study was designed to examine police officer's perceptions of the use of NS Naloxone® in the field. In Chapter 4, I will present my findings with a strong emphasis on direct quotes made by participants, in order to allow the voice of each participant resonate. The data collected in this study was derived from semi-structured interviews, with each participant. The findings presented in this chapter are solely based on my analysis of the interview transcriptions. In order to ensure each research question was addressed, I created an interview guide which split the interview in to three sections. Each section was dedicated to a research question. Additionally, I created a series of questions for each individual research question. I allowed the interview to progress organically and only used the predetermined questions if the conversation required guidance. However, the majority of the interviews naturally covered each research question and did not require specific probing.

My knowledge and interest in the topic coupled with the participants' honesty and passion for their job, allowed for a natural and thorough discussion. The sample size for this study, consisted of six individuals employed by a mid-size Florida Sheriffs office. All six of the participants were interviewed in person, at a location of their choosing. The methodology employed was a multiple-case study design. In order to better examine the topic at hand, the following research questions were created:

RQ1: How do law enforcement officers, who are mandated by policy to carry and administer Naloxone, perceive this change in policy?

RQ2: How do law enforcement officers, who are mandated by policy to carry and

administer Naloxone, describe the potential barriers to the successful implementation of Naloxone policies?

RQ3: How do law enforcement officers, who are mandated by policy to carry and administer Naloxone, view the harm reduction approach of equipping officers with Naloxone?

### **Descriptive Information**

The sample in this study was comprised of police officers with experience ranging between 2 years and 37 years. These officers were all employed by the Sheriff's Office for at least one year and were familiar with the policy regarding Naloxone. The participants ranged in age from 27 to 55. All of the participants were Caucasian, there was one female and five male participants. The participants of this study were chosen based on their experience level. Purposeful sampling was employed in order to ensure the participants had a wide range of experience.

### **Data Collection**

The data collection consisted of individual face-to-face interviews with each of the participants. All of the participants were employed at the same Sheriff's Department located in Florida. Once an officer was selected to participate, he/she was contacted via email to schedule a time for the interview. All of the participants were asked to choose a location and a time for the interview, in order to facilitate comfort and convenience for each participant. The interviews spanned in duration from 30 minutes to 60 minutes. Immediately following the interview, the researcher summarized key points, reviewed notable statements, and recorded any other pertinent observations. At a later date, the interview was transcribed in entirety, by the researcher. The interview was recorded using

two separate devices, in order to prevent dependence on one device. The devices used were an iPhone 7s and the Olympus Voice Recorder. The process remained the same for all six interviews. There were no notable mishaps or situations which would have altered the data collection process. The collection of the data is further outlined in Chapter 3.

### **Interviews**

Each of the six participants were asked to pick a time and location which was both comfortable and convenient to him/her. Upon meeting, participants were presented with the informed consent form, which educated the participant on the regulations of the study and the use of a recording device. At this point, the participants were informed they had no obligation to participate in this interview and they may choose to discontinue their participation at any time. The participants were also notified that their identity would be kept confidential. Before the interview, I provided a brief overview of my research and the purpose of the interview. During the interview, I wrote down key terms and notable content, the interview was recorded in entirety and transcribed. Immediately following each interview, I wrote down a summary of the meeting, including my reaction, key moments, notable body language, etc.

### **Theme Development**

One of the rigors of qualitative research is theme development. The first step in theme development is to become well acquainted with the transcripts. In order to do so, I first transcribed the interviews in entirety. Once the interview was transcribed, I listened to the recording while reading along to ensure the accuracy of the transcription. While reviewing each transcript, I would highlight or notate any memorable statement or comment that garnered my attention. Once I developed a deep understanding for each

transcript, I reviewed each transcript in conjunction with my interview notes. This allowed me to develop a deeper association between the conversational cues and behavior I notated and the verbiage provided in the transcript.

In order to develop the themes unique to each research question, I broke each transcript down to three sections, each section represented one research question. At this time, the repetitive nature of qualitative analysis became the forefront. I read section one of all six transcripts numerous times in an attempt to identify repetitive words, themes, comments, etc. This process was repeated for sections two and three. Although each officer spoke of different experiences and presented individual opinions, there were clear and decisive similarities between their experiences and thought process. This allowed for the creation of overarching themes, consistent throughout the interview transcriptions. These themes are explored at a deeper level, in the section below. The identified themes include: duty to serve, protection, life saving measure, frustration, job hazard, temporary fix, enabling, little fish-big pond.

## **Results**

The current study was intended to develop a better understanding of law enforcement officer's perceptions on carrying NS Naloxone. The interview framework was designed to establish a conversational rapport with each participant. The first research question asked: how do law enforcement officers, who are mandated by policy to carry and administer NS Naloxone, perceive this change in policy? Ultimately, this topic of conversation explored the changes in each participant's job due to the opioid epidemic, the use of NS Naloxone in the field, including but not limited to: training, ease of use, medical aspects, etc. The interview transcription coupled with conversational

cues, and observations made throughout the interview, yielded the following notable themes: duty to serve, protection, life saving measures, frustration. Additionally, several notable comments/concerns, that did not necessarily belong under a certain theme, were explored further below.

### **Duty to Serve**

Research question one allowed participants the opportunity to discuss their thoughts on carrying NS Naloxone. All six of the participants indicated they agreed with the policy which equipped them with NS Naloxone. Notably, each participant was asked if he/she would choose to carry NS Naloxone if not mandated by the department, each participant answered yes, seemingly without hesitation. The researcher sought to examine the question further by asking participants if they felt it would be possible to arrive on scene to a drug overdose, without Naloxone, which would render them essentially useless. All six participants expressed discomfort at this notion. Three of the officers explained it is their duty to serve and Naloxone simply serves as another “tool in their tool belt”. One participant stated, “It’s morally ethically as a human being you see somebody who is obviously dying and you feel that you have to do something, you know, your still in this business, you choose this career to help people.”

Additionally, all six of the participants stated they had a duty to serve and protect. Three of the six officers, specifically mentioned the impact of the Sheriff in the implementation of the policy. Each of these officers portrayed a deep respect for the Sheriff and supported his decision. Two of the six officers specifically cited the mission statement of their office. One participant stated, “The sheriff’s office mission statement is taking care of people, so with that, you know, that is what we are doing, we are savings

someone's life, no ifs ands or buts about it.”

### **Protection**

The concept of protection was a constant in the conversation with all six participants. Specifically, each participant provided they first started carrying NS Naloxone for their own protection. The participants explained that it was a seamless transition. Essentially, officers were first equipped with NS Naloxone for their own safety and overtime they began to use it on overdose victims. Therefore, it appears none of the officers were caught off guard by the policy change.

All six of the participants indicated they feel it is necessary to carry it for their own protection and the protection of their fellow officers. One participant stated:

I think it's a good thing for a couple reasons, one because we are helping to save lives, but this Naloxone is also here for our use. Heaven forbid one of us gets exposed to something I've, heard about in the news, then you know we all carry it in our pockets or our vest, and our buddy there can Naloxone us until rescue can get there and take care of us.

A second participant stated “Your own partner could easily be just as affected by it and you could be saving his life. To me its important not just for the public but also for myself.” The six officers I spoke with, overwhelmingly supported carrying NS Naloxone for their own protection and the protection of their fellow officers.

I asked each officer if they could imagine a situation in which they were carrying NS Naloxone, but were not authorized to deploy it on an overdose victim. Each participant explored the potential legality issues that may arise in such a situation. When asked if he/she would feel comfortable carrying NS Naloxone for his/her own protection but not using it on an overdose victim, one participant stated:

I would think that if any law enforcement agency carries it, I think we would be

legally obligated. I can't see any agency where it would be like, its for you guys, but not for the people we are serving.

### **Life-Saving Measure**

The participants were asked if they felt comfortable administering NS Naloxone, based on the training, complexity of use, after care, etc. All six of the participants explained that the administration of NS Naloxone itself was extremely simple.

Participants stated that they had to undergo a PowerPoint training which included a short video. All of the participants agreed this training was sufficient. Three participants chose to remove the NS Naloxone from their vests to further demonstrate the simplicity of the application. Two of the participants admitted the most difficult aspect of NS Naloxone was the importance of temperature regulation. NS Naloxone is heat sensitive, therefore officers cannot leave Naloxone sitting in their vehicle, they must keep it on their person.

One participant explained it was no more complex then using Flonase [Flonase is an over the counter allergy relief nasal spray]. All six of the participants stated that they viewed the administration of Naloxone as a basic lifesaving technique viewed in the same light as CPR. When asked if they viewed administering NS Naloxone as a medical procedure, one participant stated "No, I wouldn't say that, because we do CPR, I don't think that's actually considered a medical procedure, its just some basic life support, that's what I call it, that's what I would call NS Naloxone, the same thing." One participant referenced the use of tourniquets that would be used for a gun shot wound, explaining that Naloxone would be no more medical than applying a tourniquet. Another participant stated:

Have you ever watched someone use Naloxone, you literally just shoot it up the nostrils, its not like I feel as if I am not trained enough or I don't have the skills,

there is no skill, you shoot it up their nose, and if necessary give them another dose?

All of the participants noted that fire rescue typically arrives within several minutes and takes over the scene. Three participants indicated there might be more of a medical component in a more rural area, where fire rescue takes longer to arrive on scene.

### **Frustration**

One theme constant throughout each interview, was that of frustration amongst the participants. Although all six participants explained they are on board with carrying and administering NS Naloxone, when the situation arises, four of the six participants specifically cited frustration in instances which involved “repeat offenders”. A repeat offender refers to an individual who has previously been administered Naloxone by the Sheriff's Office/Paramedics. One participant stated “It does become frustrating whenever you deal with the same person over and over and over again. I mean I have given Naloxone to the same person over three times. Me personally. Two times in one week.”

The current sheriff's department assigns officers to specific areas of town, therefore, many of these officers have been interacting with individuals in their AOR for extended periods of time. One participant explained, he makes an effort to try to get to know the people he is interacting with. He further explained it is difficult to watch these individuals repeatedly participate in destructive behavior.

The second research question asked: how do law enforcement officers, who are mandated by policy to carry and administer Naloxone, describe the potential barriers to the successful implementation of Naloxone policies? This research question was designed to develop a better understanding of the potential complications that may arise when

deploying NS Naloxone. The interview transcription coupled with conversational cues, and observations made throughout the interview, yielded the following notable themes: job hazard.

### **Job Hazard**

Each participant was specifically asked if he/she was concerned of the media/societal backlash in the event that something went wrong while administering Naloxone. Three of the six participants stated that regardless of the outcome in any given situation there will be media backlash. One participant stated “were viewed in a negative light anyway. Regardless... We could save someone’s life, and we do, and the media and a small percentage of society, it doesn’t matter what we do, were wrong.” Another participant stated “From my experience, doing this for a little bit, it doesn’t matter what you do, if something goes wrong, its going to be all your fault, at least according to the media and certain portions of society.” A third participant stated that “I’d like to think that they would look at it like deputies did everything within their knowledge and ability...there is always a few people who will say what they want to say, it is, what it is.” These three participants explained that the job hazards associated with Naloxone are no different than a simple traffic stop. In either situation if something goes wrong, the situation will be constantly analyzed in the media.

Two other participants stated there were no concerns with administering Naloxone. One stated “One of the beauties of Naloxone, is that if you use it on a person that doesn’t need it, there is no negative effects, no side effects.” He went on to further explain that if something were to go wrong, “there is a law that covers us, if we are acting in good faith and we have proper training so that if we do something and it goes wrong,

especially on the medical side.” Ultimately these five officers were aware that every action they take as a LEO will be scrutinized; however, they were no more concerned with this scrutiny when it comes to Naloxone than any other situation they would encounter on the job.

The one dissenting officer cited a concern, not with the media or the perception of the situation, but with his safety and the safety of his fellow officers. This officer was in his twenties and no more than 150 pounds. He explained that oftentimes upon revival, individuals wake up disoriented, sick, combative, confused, etc. In fact, he made it clear that you really have no idea what to expect when an individual is “coming to” after being administered Naloxone. The participant noted oftentimes you are administering Naloxone in a room full of needles, unaware of the surrounding environment, and may be dealing with a subject large in stature. He explained the importance of surveying the surrounding environment and ensuring he is a position to best ensure his safety and the safety of the other individuals at the scene.

The third research question asked: how do law enforcement officers, who are mandated by policy to carry and administer Naloxone, view the harm reduction approach of equipping officers with Naloxone? This research question was designed to develop a better understanding of officer’s views on harm reduction policies in the context of law enforcement strategies. The interview transcription coupled with conversational cues, and observations made throughout the interview, yielded the following notable themes: temporary fix v. permanent solution, enabling, and little fish/big pond.

### **Temporary Fix**

All six of the officer’s interviews considered Naloxone a temporary fix to the

opioid epidemic. Five of the six officers did not support the use of harm reduction policies. One participant stated “That’s not our place, we are a law enforcement agency, the only reason the Naloxone is even on our radar, is the lifesaving aspect.” A second officer did not support the use of harm reduction policies and cited a personal reason. He stated:

I live in this community; I raise a kid in this community. So, someone using heroin and then getting Naloxone doesn’t solve the problem. I don’t want my kid around someone using heroin, I want that person to go to jail.

A third participant stated “I just don’t like the fact that the government, my tax dollars are paying for it.” This participant further explained that his/her mother had passed away from an illness, one of which she did not choose to have, and the government failed to “pitch in” for her treatment costs. The one dissenting participant stated:

I think the harm reduction at this point, especially at this point in my career, is a good thing, I mean we want to put something with that, you know try to get them away from the drugs with something, counseling, whatever they can do, it has to be more than just that, it has to be a combination, or everything.

This participant explained that he would expect newer officers to have a stronger stance against harm reduction. However, he explained that with experience he started to see the potential benefits of a harm reduction approach.

### **Enabling**

Three of the six participants indicated that carrying NS Naloxone was enabling drug users. One participant stated that indeed it was enabling; however, it was better than the alternative option. Another participant stated administering Naloxone with no legal or financial repercussions is enabling. All three participants cited the cost of NS Naloxone and the lack of responsibility of the individual once the NS Naloxone has been deployed.

Participants were frustrated that individuals were given Naloxone and then let go with no further action.

The remaining three participants did not view Naloxone as enabling. Two of these participants cited not all overdoses are a result of an addict injecting heroin. One participant stated that Naloxone is a preventive measure:

It is no different then getting any other medical equipment yourself, you can go online and get medical equipment to address a gunshot wound and I don't think people are going out planning on getting shot, or planning on overdosing.

He explained that it is not enabling because addicts are not planning to overdose just because they know Naloxone may be available.

Another officer stated the use of Naloxone was a reactive measure, rather than a proactive measure. He further described that he does not support harm reduction because it is proactive in nature; whereas he supports administering Naloxone because it is a reaction to a situation rather than actively cultivating the situation.

### **Little Fish Big Pond**

In order to fully address research question number 3, officers were provided the below information regarding the 911 Good Samaritan Act in Florida.

893.21 Drug-related overdoses; medical assistance; immunity from prosecution. —

“A person acting in good faith who seeks medical assistance for an individual experiencing a drug-related overdose may not be charged, prosecuted, or penalized pursuant to this chapter for possession of a controlled substance if the evidence for possession of a controlled substance was obtained as a result of the person's seeking medical assistance.

(2) A person who experiences a drug-related overdose and is in need of medical

assistance may not be charged, prosecuted, or penalized pursuant to this chapter for possession of a controlled substance if the evidence for possession of a controlled substance was obtained as a result of the overdose and the need for medical assistance.

(3) Protection in this section from prosecution for possession offenses under this chapter may not be grounds for suppression of evidence in other criminal prosecutions” (Florida Statue 893.21)”

Essentially, this Act prevents law enforcement officers from charging or arresting individuals based on information that is identified through a call for medical assistance. Two of the participants indicated they felt this law impeded their ability to do their job. One of which stated “I think it hinders us a little bit you know, but at the same time, if it saves a life, it saves a life. Hopefully the person turns themselves around from it.”

All of the participants recognized the act was necessary to encourage bystanders to call law enforcement and potentially save a life. One officer stated “No, because part of our job, is not just to put people in jail, its to help them.” A second officer explained that often times the individuals who are overdosing are “the little fish in the big pond.”

He further elaborated:

But the issue with a lot of the street level users, you know their addicts, as soon as they get 20 dollars in their pocket, there going and spending it on their dope and there only buying enough to use it right then and there, there not buying a week worth. A lot of times, I’ve seen people overdose while their driving on the way home from buying their dope. They haven’t made it a half mile down the street before they start shooting up their doing it at red lights and stuff like that and what they bought is gone. So, you’ll find a needle, an empty bag with some residue in and a spoon, that’s it. They don’t have kilos of heroin or something, but you know I mean a lot of the people that we search who are users, there carrying empty bags. That’s all they have left on them, a needle and an empty bag.

Another officer explained that even if an overdose happened to occur at a prominent drug house, “usually our drug dealers will drag them outside and drop them in the driveway, so we don’t go in the house.” The same officer provided that many of the people he has come in to contact with are unaware of this act. He explained that often times he needs to inform the victim that he/she cannot be criminally charged based on any information gathered at the scene. Ideally, this would allow the victim to speak more openly with the officer. However, the officers unanimously held that the majority of the victims are unwilling to provide any information that would give away their drug source.

### **Notable Findings**

One overarching theme that was consistent throughout the duration of the interviews was that of accountability and financial burden. Regardless, of the officer’s personal point of views on the use of Naloxone, their interpretation of addicts, or the epidemic as a whole, each officer mentioned the financial aspect of Naloxone, numerous times throughout the interview. The consulted information yielded a dose of NS Naloxone costs about \$50.00. The participating organization dedicates a portion of their budget to fund the use of Naloxone by the department. The literature suggests that other agencies may finance the use of Naloxone through different measures including but not limited to: grants, donations, federal funds, etc.

One participant likened it to the use of CPR or an AED. He first stated that an individual who has a heart attack and goes unconscious is not being charged for CPR or the use of an AED. He then stated “people could have the argument, you can’t help if you have a heart attack or a drowning victim, people choose to inject those drugs.” Another officer stated:

The cost of it bothers me, you know its like 48 dollars a dose, but then you look at it like what's the cost of a life. I don't know I just have a real hard time with the whole, thing, that's a choice your choosing drugs, and society has to pay the price.

A third participant stated:

It is 50 dollars a pop. 50 dollars per dose, so somebody may require 3 or 4 doses, there's 200 bucks. Are you taking Naloxone and using it on somebody who obviously doesn't care and now we don't have resources for somebody else?

Ultimately, regardless of the financial aspect, all of the officers interviewed did not see a way around the use of Naloxone by law enforcement.

Throughout the interviews, there were several notable comments that deserve further attention. First and foremost, two participants specifically mentioned the life-saving award, or more specifically, lack thereof. The participating agency typically presents life saving awards to officers who are credited with saving a life. A typical life saving award may be given for administering CPR, saving a drowning victim, using AED, etc. There is no argument that administering Naloxone would in fact be considered a life saving action. However, the participating agency does not present officers with a life saving award for Naloxone saves.

One participant stated "I pull a little kid from a pool, or pull someone from an ocean, those are life saving awards, Naloxone? You deploy Naloxone and save someone's life, it doesn't count?" When asked why this is the case the participant responded "Because there's so many of them, there's so many of them, initially there were, but they didn't realize how many." A second participant stated the previous year there were at least 150 Naloxone saves in the department, alone. He went on to explain that when officers were first equipped with Naloxone, a Naloxone save would have yielded a life saving award. He then stated the policy was changed because "150 life

saving awards in a year that would be ridiculous.”

The second notable comment made by several officers was the fact that there are other portions of their job as a law enforcement officer that they may not agree with.

However, their job is not to enact policy changes or judge an individual based on their actions. Their job is simply to “serve and protect”. One participant stated:

I may not agree with, there's a lot of things I don't agree with, when I go to the domestics and I respond to the same house, for the fourth time, and we have provided you with all these resources, and you say your going, your tired of him beating on you, and we go back the fifth time, and now your almost lifeless, because he beats you to a pulp. That's not my choice, I just provide the consequences, its your life. And you're the one that has to live that life, with the consequences one way or the other, I may not agree with it, but I don't live the jerry springer lifestyle and I'm ok with that. I tell people that, you can live whatever lifestyle you want and it doesn't affect me, ya I am paid to be here, but I also love my job, you know, so, and things have changed so much in the 25 years since I've been here.

Another participant stated “there's a lot of things in our job that we do that I personally feel that we shouldn't do, because people kind of see law enforcement as an overall end all be all.”

Ultimately, today the discussion is Naloxone, but tomorrow it may be something else entirely, the officers interviewed were willing to do what needs to be done, at the discretion of their Sheriff, to successfully do their job, regardless of their personal opinions.

## **CHAPTER V: Discussion, Conclusions, Recommendations**

### **Introduction**

This qualitative multiple case-study was designed to examine police officer's perceptions of carrying and administering Naloxone in the line of duty. Ideally, I hoped to provide the officers the opportunity to share their side of the story. The good, the bad, and the ugly, of policing in regards to the opioid epidemic. This chapter includes a discussion of major findings.

### **Interpretation of the Findings**

While each officer's personal experience, perceptions, and professional careers differ greatly, each of the eight identified themes were applicable to the perceptions of each officers. The identified themes go far beyond the use of Naloxone, rather, they encompass the officer's dedication to their job and preserving the safety of their zip code.

### **Duty to Serve**

This study concluded that the officers interviewed simply believe they have a duty to serve. When asked their thoughts on using Naloxone in the field, every participant answered that it was their job to serve the public and ensure safety. Today, that includes carrying and administering Naloxone; tomorrow, it could be something entirely different, either way they will serve and protect.

The available research consulted for this study yielded similar findings. Purviance et al. (2017) conducted a study in which they examined law enforcement attitudes towards Naloxone training. The results yielded that law enforcement personnel are "receptive to Naloxone policies and that officers can be effectively trained to recognize and intervene in an overdose" (Purviance et al., 2017, p. 3).

Smyser & Lubin (2017) conducted a survey of police chiefs in Pennsylvania, “60% responded they strongly agree or agree, the benefits of Naloxone programs outweigh the risks.” Ultimately, the data collected indicated various opinions on drug users, legal policy, treatment options, etc.; however, the participants were unanimous as to the benefits of carrying Naloxone and the opportunity to save a life.

### **Protection**

As I was conducting the research for this study and creating the interview guide, I was completely naïve to the fact that many officers were carrying Naloxone for their own protection, far before they were mandated to carry it for use on the public. This realization was two-fold, for one, because officers were already equipped with Naloxone the transition from personal use to public use was relatively seamless. When asked if they would choose to carry Naloxone, even if it wasn't mandated, the response was a unanimous “yes”. All of the participants stated he/she felt more comfortable knowing it was available in the event himself/herself or a partner or dog was exposed to an unknown substance.

In the recent years, there have been numerous articles, news broadcasts, first hand accounts, etc. of officers or animals in the line of duty being exposed to opioid's. Opioids such as fentanyl and Carfentanil are extremely high in potency and even minute quantities can be life threatening to those exposed. A police officer in Ohio, Chris Green, had a near death experience, when he patted down a suspect and subsequently got white powder, possibly fentanyl on his hands (CBS News, 2017). It took four doses of Naloxone to revive Officer Green after the exposure. Brian Foley a deputy chief in Hartford recalled a situation in which exposure to fentanyl and heroin, sent 11 SWAT

members to the hospital (CBS News, 2017).

Not only are officers in danger of opioid exposure, but the K-9s, who frequently accompany officers on drug busts or raids, can absorb opioids through their paws which makes a drug bust extremely dangerous for these animals. In a 2016 DEA paper, officials provided “Canine units are particularly at risk of immediate death from inhaling fentanyl” (Cima, 2018). Deputy Chief Foley explained officers initially wanted to carry Naloxone to ensure the safety of the K-9’s (CBS News, 2017). Andy Weiman, a detective and dog trainer, explained the dogs can overdose on such a minute quantity, nothing more than two or three granules of sand (CBS News, 2017). A sergeant located in Greenville South Carolina stated ““It gives us a safety net," he said. "Our big thing is an ounce of prevention - preventing an incident for the civilians, the officers or the K-9s” (CBS News, 2017, p.1).

### **Life Saving Measure**

The AED, perhaps one of the most commonly used life-saving measures is known for its ease of use and application. Not only is the AED extremely straightforward, but it will also provide verbal commands to streamline the process. A majority of the participants interviewed emphasized the simplicity of Naloxone, explaining it rivals the AED for ease of application. One participant likened the application of Naloxone to that of Flonase (nasal spray used for allergies). The participants interviewed felt Naloxone was a life-saving measure, no different than CPR, and AED, or any other basic life-saving measure they would deploy. To put it simply, another tool in their tool belt.

The literature to date echoes these sentiments. A deputy chief in an Illinois police department, Tom Keane, offered that Naloxone will join AED’s and most likely become

an integral component of police first-aid kits (Wethal, 2015). Keane further stated “The technical operation part of it, you could open it up and use it without any training. This is just so easy” (Wethal, 2015). Kenyon (2018) explained the training for law enforcement on Naloxone “goes hand in hand with CPR training, the idea being that law enforcement may be able to take life-saving action before medical aid arrives” (p.1). Interestingly enough, several of the interview participants mentioned the Naloxone training would be combined with the CPR training for an annual refresher.

Ray et al. (2015) conducted a study designed to gauge LEO’s attitudes towards intranasal Naloxone training. The results indicated that “Naloxone training was not difficult and that trained officers felt it would be relatively simple to use Naloxone at the scene (Ray et al., 2015, p. 110).

### **Frustration**

At some point during each interview, every officer displayed some measure of frustration at the current state of affairs, in regards to the opioid epidemic. The frustration stemmed from a variety of different issues including: the lack of accountability from drug users, the lack of available treatment resources in the community, the price of Naloxone, the cycle of addiction, and most of all their inability to make a dent in tackling this epidemic.

The available research emphasized many of these frustrations. Notably, the research available which pertains to law enforcements views on carrying Naloxone is lacking. However, there have been studies which present point of views, other than LEO’s, which offer similar findings as this study. Haug et al. (2016) found nurses, EMTs, and other health care providers, experienced the highest levels of “burn-out, fatigue, and

stigma regarding Naloxone and overdose.”

For the purpose of this study, law enforcement, as a Naloxone carrying agency, would be considered a health care provider. A recent study conducted in Baltimore, found Baltimore emergency service medical providers often portrayed pessimistic attitudes toward programs designed to reduce overdose, such as Naloxone (Haug et al., 2016).

### **Job Hazard**

Each participant was asked if carrying and administering Naloxone presented a new set of concerns, in terms of legal liability. In response to this question the majority of the participants gave me a blank stare. Overall, the participants responded, every action they take is scrutinized, whether they are in the right, the wrong, or the unknown.

Essentially, when they put on the uniform, they are open to the hazards of the job, which unfortunately includes public scrutiny. It appears that the majority of the participants viewed Naloxone in the same light as a routine traffic stop. Could things go wrong? Sure. Could they save a life? Sure. Could the situation be interpreted incorrectly? Absolutely.

Davis et al. (2015) explained some departments have held off on equipping LEO's with Naloxone, citing agency and officer liability concerns. However, Davis et al. (2015) concluded “liability risks related to Naloxone administration to reverse suspected opioid overdose are similar to or lower than those of other activities in which LEOs commonly engage” (p. 1531). With that said, the participants were overwhelmingly satisfied with the training they received regarding using and handling Naloxone. None of the participants felt unprepared or hesitant to deploy Naloxone, in a permitting situation.

This study is consistent with previous research which concluded police officers

were well trained in administering Naloxone. Fisher et al. (2016) found police officers who underwent Naloxone training were able to accurately identify symptoms associated with an opioid overdose. The same study found officers were able to deploy Naloxone on an individual without “significant adverse effects or outcomes” (Fisher et al., 2016, p.1). Fisher et al. (2016) concluded the use of Naloxone by police “does not result in a significant incidence of combativeness or need for scene escalations such as immediate detention” (Fisher et al., 2016, p.1).

Ray et al. (2015) conducted a study in which they surveyed 117 police officers. The results indicated the majority of officers surveyed “would not fear aggression or withdrawal systems as a result of Naloxone, nor worry they concerned about injuring the overdosing victim or doing something wrong during the overdose” (Ray et al., 2015, p. 5).

It is important to note, one participant of the current study cited the importance of surveying the situation to ensure he/she is aware of size and potential strength of the victim. He/she has been in numerous situations where the patient has woken up agitated and discombobulated. You can never be sure how the patient will react once revived; therefore, officers must be cognizant of the surroundings to ensure safety. This sentiment has been echoed by several police chiefs, who refuse to equip officers with Naloxone due to the potential dangers.

### **Temporary Fix**

In today’s day and age, we have seen a shift from “tough on crime” policies to an approach more parallel with the theory of harm reduction. This study aimed to develop a better understanding for the participant’s views on their evolving role in a harm reduction

approach. The current study added to the body of research, in which law enforcement officers, view Naloxone as a temporary fix to a growing issue. The majority of the participants expressed a sense of futility on the topic. Explaining that once the Naloxone has been deployed, an individual is relatively free to go on about his/her life with no repercussions or treatment options. Furthermore, if an individual does express interest in checking in to a treatment center, there is no guarantee of funding, space, etc. Oftentimes, by the time a treatment center has availability, an individual is no longer amenable to the idea.

This sense of futility by law enforcement is consistent with previous research. Although law enforcement and other health care professionals consider Naloxone an effective life-saving tool, they recognize that it does not address the underlying causes of the addiction (Kenyon, 2018). Hence, the high number of individuals who overdose more than once. Green et al. (2013) concluded, law enforcement officers felt a sense of helplessness, in regards to the opioid epidemic, due to the lack of treatment options available. This sentiment was echoed by upper management of one law enforcement agency, who recognized the frustration of the LEO's and the lack of available resources for those in need (Green et al., 2013).

### **Enabling**

Discussing the concept of enabling in a harm reduction context is a catch-22. Whereas individuals who are opposed to the harm reduction tactic would most likely argue that harm reduction as a whole, could be viewed as enabling. Proponents of harm reduction, don't view it as enabling, rather, reducing harm. The current study was consistent with previous research, which demonstrated conflicting views among

participants. Notably, regardless of the response, in the current study, each participant was unable to answer the question without a pause and a thought. Several participants smirked and proceeded to ponder before responding. Ultimately, three participants eventually concluded that they do consider the widespread availability and ease of access to Naloxone, enabling.

Haug et al. (2016) explained that individuals who oppose Naloxone are fearful the accessibility and widespread use of Naloxone will provide a false sense of security for users and in turn increase opioid related overdoses and dissuade users from seeking treatment.

Banta-Green et al. (2013) surveyed police officers and paramedics to determine their knowledge of Naloxone and immunity laws in Seattle, Washington. One law enforcement officer stated: “I would not want Naloxone to be a safety net allowing greater use of drug” (Banta-Green et al., 2013, p. 1105). Additionally, several law enforcement officers wrote comments which indicated the belief that “Naloxone enables drug use” (Banta-Green et al., 2013, p.1105).

Green et al. (2013) found the law enforcement officers consulted were concerned about the type of message conveyed by allowing the widespread use and administration of Naloxone (Beletsky et al., 2009; Burriss et al., 2009). In the study conducted by Green et al (2013), one participant stated “I think it's a ‘get out of jail free’ card, cause if you take the Naloxone, “Oh, you know what? Hey, I screwed up and I fell off the wagon. Let me just take the Naloxone and I'll start over again. It gives them a way out” (p. 680).

### **Little Fish - Big Pond**

The current study indicated that law enforcement professionals do not believe the

“Good Samaritan Law” impacts their ability to do their job. Although, several participants did acknowledge situations which may have garnered frustration, they further explained the “Good Samaritan Law” does more good than harm. Additionally, the participants of the current study explained that they use the overdose calls as an information gathering mechanism.

Occasionally, concerned family members and friends are willing to provide the LEO’s with specific information pertaining to the drug source, etc. The participant further explained the typical overdose call is for a street level user; this type of user typically doesn’t have copious quantities of illicit substances; therefore, the “Good Samaritan Law”, is typically not saving drug dealers from prosecution.

This finding is consistent with the literature, which indicates the “Good Samaritan Law”, which encourages by-standers to report an overdose and potentially save a life, is worth the inability to prosecute based on the information found on the scene. Banta-Green et al. (2014) found that some law enforcement officers were not set on enforcing drug laws at the scene of an overdose, prior to the enactment of the Good Samaritan legislation. One participant stated “I feel people should respect the law, but people’s lives are more important. I wasn’t enforcing drug laws at OD’s before the law” (Banta-Green et al., 2014, p. 1196). Another participant argued that a simple drug possession charge, wasn’t worth an individuals’ life (Banta-Green et al., 2014).

The BJANTTAC (n.d.) reported, overdose reversal programs, implemented by Law enforcement agencies, were found to strengthen community ties and in turn improve the ability to gather intelligence. A police lieutenant located in Quincy, Massachusetts postulated “Good Samaritan” immunity, not only encourages bystanders to seek help in

the wake of an overdose, but also strengthens ties between police and the public (Davis et al., 2014).

### **Harm Reduction Theory**

Costigan et al., (2003) defined harm reduction as “the prevention of adverse consequences of illicit drug use, without necessarily reducing their consumption” (p. 35). This study sought to examine law enforcement officer’s perceptions of harm reduction tactics in a law enforcement element. The results of the study were notable; yet, conflicting. Five of the six participants indicated they did not see a place for harm reduction tactics in law enforcement elements. However, all six participants were on board with the use of Naloxone by law enforcement officers.

Each participant was asked if he/she viewed equipping LEO’s with Naloxone as a component of harm reduction, all six officers answered yes. One participant explained there was a difference between a reactive and a proactive response. Deploying Naloxone at the scene of an overdose is a reactive life saving measure. Other harm reduction tactics such as needle exchange programs, safe injection sites, etc., are proactive measures, which seemingly encourage drug use.

### **Assessing Trustworthiness**

It is no secret that qualitative and quantitative researchers often clash when discussing the quality of qualitative research. One of the disagreements is centered around the evaluation criteria for qualitative research. Ultimately, the disunion led to innovation in the evaluation of qualitative research (Smith et al., 2009). Qualitative research is now often evaluated by assessing the trustworthiness and credibility of the study, rather than the validity and reliability.

In order to build trustworthiness in the study, I followed the steps as recommended by Yin (2017) in the book entitled “Qualitative Research from Start to Finish”. As explained by Yin (2017), “the goal is to instill trustworthiness in the methods used to generate the data rather than to debate over the inherent “truthfulness” of the data” (Yin 2017; Gibson & Brown, 2009). First and foremost, Yin (2009) held, your study provides specifics as to the selection of your topic, study site, participants, and data collection methods. In chapter three of this paper, I provide this information in great detail.

Secondly, Yin (2017) offered the importance of demonstrating authenticity of your study. Authenticity is derived from the soundness of data, essentially referring to the accuracy of the information provided by the participants. (Yin, 2017). This study is wholly dependent on the participation and honesty of the participants. This is mentioned in further detail when discussing the limitations. With that said, each participant volunteered to participate on their own accord and they were given the opportunity to discontinue the interview at any time. Additionally, the majority of the conversation was derived from real life examples they provided, which may have shaped their opinions/experiences. Although authenticity cannot be guaranteed, the participants were real and raw in their responses, which led to rich and fruitful data.

Baxter and Jack (2009) provided several principles of qualitative research that can be followed in order to improve the quality of the study and ensure trustworthiness. One of which is to clearly define the case-study research question and ensure the research question is substantiated in the findings (Baxter and Jack, 2009). This was accomplished by consulting the original research question throughout all steps in the research process.

This allowed me to ensure I was staying on track with the original research question and as a result, the data collected would speak to the topic of study. I created an interview guide filled with questions, designed to address each research question. These questions allowed me to guide each interview, while still allowing the conversation to flow. Additionally, before each interview, I explained the purpose of the interview; This ensured the participants and I were on the same page, as to the topic of conversation.

Other suggestions offered by Baxter and Jack (2009) include member checking and reflection notes. Member checking was often employed throughout the interview in order to ensure I was correctly interpreting a participant's mannerisms, expressions, and words. For example, if a participant provided a convoluted response to a question, I would often repeat the key points back to he/she to ensure that I was comprehending the purpose of the statement. This allowed the participant to correct me, if I interpreted the comment incorrectly.

Reflection notes were taken throughout each interview. Although, interviews were recorded and transcribed in full, it was important for me to take notes throughout the interview to record key words and notable statements, but also to keep note of facial expressions, notable pauses, and other conversational cues, that are not available through a transcript. These notes were consulted throughout the transcription and coding process.

### **Limitations**

A limitation is a facet of the study or research, which the researcher is unable to control but may negatively affect the study or the outcome (Patton, 2003). There are several limitations of the current study that should be mentioned. First and foremost is the number of participants. The study included six officers; however, the years of

experience as well as the familiarity with Naloxone will vary among participants. Additionally, due to the importance of using individuals who have at least baseline experience carrying/administering Naloxone the researcher was unable to randomly select participants.

In order to ensure the level of experience was ranged throughout the participants, this study utilized purposive sampling. Although purposive sampling was utilized and the participants in turn had a wide range of experience, the small sample of willing participants prevented the researcher from better addressing diversity in the sample size. For example, the sample consisted of one female and five males, all of Caucasian descent. Therefore, a limitation of the study is the lack of diversity in the sample.

Next, as with all qualitative studies, the data collection process was fully dependent on the truthfulness and the willingness to share personal opinions and beliefs, by each participant. I addressed this limitation by allowing all participants the opportunity to discontinue the interview, if at any point he/she felt uncomfortable. I hope that by giving participants this opportunity throughout the interview, they would all choose to discontinue rather than share falsified information. Secondly, I made every attempt to establish conversational rapport with each participant to cultivate an environment suitable for information sharing and gathering.

Another limitation of the current study is the potential for researcher bias. As the sole researcher, data collector, and analyzer in the study, it is possible I developed preconceived notions prior the data collection phase. As I was aware of this potential issue, I made every effort to review the data with an open mind, free from pre-conceived notions. I found that transcribing the interviews as well as documenting notes of

reflection, aided in my ability to remain neutral.

The final limitation of this study is the lack of generalizability of the results. This study utilized a small sample size, which eliminated the possibility of generalization. In addition, the sample was purposefully selected by the researcher. As a result, the sample size was not diverse in demographical terms. Simon & Goes (2013) stated “case studies may be suggestive of what may be found in similar organization, additional research would be needed to verify whether the findings from one study would generalize elsewhere.” (p. 2). Although this limitation could not be fully addressed through my actions, this study addressed a topic that was lacking necessary research and identified numerous avenues for future research.

### **Delimitations**

Simon & Goes (2013) explained that delimitations arise as a result of the various decisions made by the researcher. Delimitations may include the design of the study, choice of variables, interview questions, participants selected, etc. One of the prime delimitations of this qualitative multiple case-study is the sample size and the participants. In choosing the sample study, the researcher decided to focus on law enforcement officers from one agency. As a result, this sample is not representative of all law enforcement agents. Secondly, the researcher determined that a sample of six participants will be sufficient for the study at hand. However, it is possible that a larger sample size would allow the results more generalizability.

### **Suggestions for Future Research**

First and foremost, the results of the current study only focused on law enforcement officers from one Florida Sheriffs office. Although the current department

has rural areas, it is important to conduct a similar study in a primarily rural area. Due to the quick response time of first responders in more urban areas, deploying Naloxone may further affect a department located in a rural area rather than an urban area.

Secondly, the current research identified a sense of desperation among law enforcement officers at the current state of the opioid epidemic. Future research is needed to determine how to better address drug laws and how they may impact the opioid epidemic.

Finally, harm reduction tactics are relatively new, when discussed in conjunction with the opioid epidemic. As a result, I believe there is often a negative connotation associated with utilizing such measures, especially in conjunction with law enforcement efforts. This area is a bit of an unknown and applicable research could serve to educate policy makers, the public, law enforcement, etc. Perhaps, if people were aware of the potential benefits of such programs they would be more willing to participate.

### **Implications of Study**

The current study focused on police officers use of NS Naloxone in the field. It also examined these officer's views towards harm reduction tactics in conjunction with law enforcement elements. Ultimately, the study indicated that although the officers appeared to dislike the idea of harm reduction tactics, they were fully on board with carrying and administering Naloxone. Ultimately, this study might prove applicable for instances other than the use of Naloxone. It is possible, that law enforcement officers would approach any situation as they have the current; do what is necessary to save lives, protect the public and ensure the safety of fellow officers.

## **Reflections**

This process was eye opening and rewarding. Each interview was unique, yet strikingly similar. However, the lessons I learned from each discussion were vastly different. First and foremost, the rumors you hear are true, the opioid epidemic affects individuals from all walks of life. Law enforcement, first responders, health professionals, friends, families, etc., although the experiences may differ, the devastation is the same. Several months ago, I came across an article which highlighted a librarian who had deployed NS Naloxone to multiple individuals on numerous occasions in the wake of an overdose, in a public library. I remember thinking, ‘that was certainly not what she signed up for’. Yet, she continues to carry and deploy Naloxone when the situation arises. I’m sure this woman did not expect this to be a function of her job as a librarian; nevertheless, she recognized a way to help and in turn she is saving the lives of parents, siblings, friends, etc. I reached a similar realization through the interview process.

About half way through the third interview, I realized this isn’t about Naloxone, this is about law enforcement and their willingness to serve and protect, emphasis on protect, the public and each other. I had the opportunity to speak with six remarkable individuals, from different walks of life, who all made it astoundingly clear that they would carry Naloxone by choice, because when they put on their uniform they have a duty to protect. Today, protecting the public includes carrying Naloxone; tomorrow, protecting the public may require something completely different, either way, law enforcement will adjust, put their personal beliefs aside, and serve.

## **Conclusion**

First and foremost, I was extremely fortunate to have the opportunity to interview six law enforcement professionals, who truly embody what it means to be a police officer. I highly recommend sitting down with an officer to discuss a prevalent topic, as they were all filled with insight and experiences, far beyond my expectations. In today's day and age, law enforcement officers, as a whole, are underappreciated and highly criticized, the conversations I had only solidified my deep appreciation and respect for the men and women in blue.

Secondly, when I first started my doctoral program in 2015, I had a naive notion that by the time I completed this study, the opioid epidemic would be winding down, better addressed, and eventually overshadowed. Unfortunately, as I delved deeper in the available literature, books, interviews, documentaries, etc., I feared this would not be the case. The opioid epidemic has not only remained pertinent, but has continued to catch fire, evolving far beyond my initial expectations.

Currently, I cannot turn on the TV, the radio, open a newspaper, peruse a bookstore, etc., without seeing some indication of the opioid epidemic. There are commercials for 'over the counter Naloxone', there are solicitors who call my phone with treatment options, book shelves are filled with first hand accounts of recovering addicts, and yet hundreds of individuals perish each week at the hand of an overdose. This epidemic does not discriminate, individuals from all walks of life have and will continue to be affected. Please take the time to educate yourself on the dangers of addiction and offer a hand to a friend in need. Together, we can ignite change and tackle this epidemic.

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## Appendix A: Informed Consent Form



NOVA SOUTHEASTERN UNIVERSITY  
College of Arts, Humanities, and Social Sciences

**General Informed Consent Form**  
**NSU Consent to be in a Research Study Entitled**  
*A Multiple Case-Study Approach to Examine Police Officers Perceptions on  
Narcan Polices*

### **Who is doing this research study?**

College: Nova Southeastern University, College of Arts, Humanities, and Social Sciences

Principal Investigator: Casey Gnann, (B.A., M.S.)

Faculty Advisor/Dissertation Chair: Dr. Tina Jaeckle (B.S., MSW, M.S., Ph.D.)

Funding: Unfunded

### **What is this study about?**

This is a research study, designed to test and create new ideas that other people can use. The purpose of this research study is to develop a better understanding of law enforcements perceptions on the use of narcan in the field. Preliminary statistics for 2017, indicate opioid overdoses have continued to rise in the United States. As overdoses continue to rise, policy makers have continued to undergo fire for their failure to ignite change. Additionally, more and more police and Sheriffs departments have either enacted policy to equip officers with narcan, or have received backlash for their failure to do so. It does not appear that the opioid epidemic will slow down anytime soon; therefore, it is more necessary than ever to determine how such policies may affect those involved.

### **Why are you asking me to be in this research study?**

You are being asked to be in this research study because you are an individual who has worked in law enforcement during the height of the opioid epidemic. This study aims to explore an issue related to the opioid epidemic, from the view of law enforcement.

This study will include five people.

**What will I be doing if I agree to be in this research study?**

While you are taking part in this research study, you will participate in one, in person, one-on-one interview, with me. The duration of the interview will range from 1-2 hours.

Research Study Procedures - as a participant, this is what you will be doing:

- Participating in one, one-on-one interview with me. This interview will range in duration from 1-2 hours.
- Participants are required to be employed by Saint Johns County Sheriffs Office, and must have experience carrying narcan (administration is not required)

**Are there possible risks and discomforts to me?**

This research study involves minimal risk to you. To the best of our knowledge, the things you will be doing have no more risk of harm than you would have in everyday life.

**What happens if I do not want to be in this research study?**

You have the right to leave this research study at any time, or not be in it. If you do decide to leave or you decide not to be in the study anymore, you will not get any penalty or lose any services you have a right to get. If you choose to stop being in the study, any information collected about you **before** the date you leave the study will be kept in the research records for 36 months from the end of the study but you may request that it not be used.

**What if there is new information learned during the study that may affect my decision to remain in the study?**

If significant new information relating to the study becomes available, which may relate to whether you want to remain in this study, this information will be given to you by the investigators. You may be asked to sign a new Informed Consent Form, if the information is given to you after you have joined the study.

**Are there any benefits for taking part in this research study?**

There are no direct benefits from being in this research study. We hope the information learned from this study will provide readers a better understanding of the role of law enforcement officers in the opioid epidemic.

**Will I be paid or be given compensation for being in the study?**

You will be reimbursed for any expenses you may incur by participating in this study. You will be reimbursed for gas expenses using the government rate of 54.5 cents per mile. Participants will be asked at the start of the interview to inform the interviewer the amount of miles travelled to the interview. This amount will be doubled to account for the expenses of the return commute. If the participant incurs any parking fees, he/she will provide the interviewer with the price of the fee and the interviewer will write a check to reimburse the participant.

You will also receive a \$50 visa gift card; the gift card will be given at the start of the interview. If at any time the participant chooses to terminate the interview, he/she will not be expected to return the gift card.

### **Will it cost me anything?**

There are no costs to you for being in this research study.

Ask the researchers if you have any questions about what it will cost you to take part in this research study (for example bills, fees, or other costs related to the research).

### **How will you keep my information private?**

Information we learn about you in this research study will be handled in a confidential manner, within the limits of the law and will be limited to people who have a need to review this information. In order to ensure the confidentiality of the participants, the researcher will not include personal identifying information. The researcher will store any documents, forms, or collected PII information in a safe location, which only the researcher has access. Any additional confidentiality concerns held by the participant will be discussed and handled accordingly. This data will be available to the researcher, the Institutional Review Board and other representatives of this institution, and any regulatory and granting agencies (if applicable). If we publish the results of the study in a scientific journal or book, we will not identify you. All confidential data will be kept securely in a locked filing cabinet in my home. All data will be kept for 36 months from the end of the study and destroyed after that time by shredding.

### **Will there be any Audio or Video Recording?**

This research study involves audio recording. The researcher will be transcribing the interview recording following the interview. The researcher will transcribe the interview in her home, using headphones. This recording will be available to the researcher, the Institutional Review Board and other representatives of this institution. The recording will be kept, stored, and destroyed as stated in the section above. Because what is in the recording could be used to find out that it is you, it is not possible to be sure that the recording will always be kept

confidential. The researcher will try to keep anyone not working on the research from listening to or viewing the recording.

**Whom can I contact if I have questions, concerns, comments, or complaints?**

If you have questions now, feel free to ask me. If you have more questions about the research, your research rights, or have a research-related injury, please contact:

Primary contact:

Casey Gnann (B.A., M.A.) can be reached at 561-302-9388.

**Research Participants Rights**

For questions/concerns regarding your research rights, please contact:

Institutional Review Board  
Nova Southeastern University  
(954) 262-5369 / Toll Free: 1-866-499-0790  
[IRB@nova.edu](mailto:IRB@nova.edu)

You may also visit the NSU IRB website at [www.nova.edu/irb/information-for-research-participants](http://www.nova.edu/irb/information-for-research-participants) for further information regarding your rights as a research participant.

**All space below was intentionally left blank.**

## **Research Consent & Authorization Signature Section**

Voluntary Participation - You are not required to participate in this study. In the event you do participate, you may leave this research study at any time. If you leave this research study before it is completed, there will be no penalty to you, and you will not lose any benefits to which you are entitled.

If you agree to participate in this research study, sign this section. You will be given a signed copy of this form to keep. You do not waive any of your legal rights by signing this form.

### **SIGN THIS FORM ONLY IF THE STATEMENTS LISTED BELOW ARE TRUE:**

- You have read the above information.
- Your questions have been answered to your satisfaction

### **Adult Signature Section**

I have voluntarily decided to take part in this research study.

_____	_____	_____
Printed Name of Participant	Signature of Participant	Date
_____	_____	_____
Printed Name of Person Obtaining Consent and Authorization	Signature of Person Obtaining Consent & Authorization	Date

**Appendix B: Screening Questions**

1. Are you currently a law enforcement officer employed by the Florida Sheriffs Office?
2. Are you required to carry narcan in the field?

### **Appendix C: Interview Framework Questions**

1. What is your name?
2. What is your age?
3. How long have you been in law enforcement?
4. How long have you worked for the specific department?
5. Can you please describe your thoughts on the policy which requires you to carry and administer narcan in the field?
6. Can you please describe your thoughts on the utilization of harm reduction tactics in law enforcement elements?
7. Have you been in a situation in which you administered narcan?
8. Have you been in a situation in which you wish you had narcan available to administer?
9. Do you have any reservations about using narcan in the field?
10. Do you believe administering narcan is a medical procedure?
11. Have you ever felt in danger when administering narcan?
12. Do you feel law enforcement officers are well equipped to administer narcan in a situation in which paramedics are not present?
13. Does carrying and administering narcan prevent you from focusing on other duties?
14. Does carrying narcan affect your day to day interactions/responsibilities?
15. Do you fear public backlash (given the current climate) if something were to go wrong in the use of narcan?