

**The PARTNER Model: An Attachment-Based Practice Model for Providers
Working with Mothers and Infants Impacted by Perinatal Opioid Use Disorders**

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ABSTRACT

There are an estimated 2.5 million people in the United States of America suffering from opioid use disorders. Of the 2.5 million Americans impacted by opioid use disorders, over half are women. One of the most challenging aspects of opioid use disorders occurs in the context of pregnancy. Discourse surrounding the topic of addiction often identifies the root cause of addiction as a moral failing, rather than a pathophysiological disease. This stigma is amplified in the context of pregnancy and perpetuates the false, discriminatory notion that pregnant women with opioid use disorders are knowingly “harming” their babies without regard.

Instead of receiving support, education, and encouragement, pregnant women with opioid use disorders are faced with stigma, judgment, shame, and guilt. These negative interactions ultimately serve as barriers that interfere with the ability for early attachment bond development, a monumentally important piece of newborn development and the most significant contributor to healthy attachment development. These avoidable, institutionally created barriers propagate both short- and long-term risk factors for the mother and infant, both independently and as a dyad.

This dissertation will systematically explore several aspects of perinatal opioid use disorders to develop an evidence-informed practice model for healthcare providers working with pregnant and postpartum women with opioid use disorders. This dissertation will also explore the intersection of perinatal opioid use disorders and attachment theory, which will serve as the framework for the PARTNER model, an attachment-based practice model for providers working with mothers and infants impacted by perinatal opioid use disorders. Composite case vignettes, informed by clinical experience and empirical literature, are integrated throughout this dissertation to illuminate and connect the critical concepts that set the foundation for the PARTNER model.

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CHAPTER I: STATEMENT OF THE PROBLEM

THE PERINATAL OPIOID EPIDEMIC

INTRODUCTION, BACKGROUND, AND SIGNIFICANCE

There are an estimated 2.5 million people in the United States of America suffering from opioid use disorders. Drug overdoses are the leading cause of injury death in the United States. According to the Centers for Disease Control and Prevention, an average of 115 people die from an opioid overdose on a daily basis (Centers for Disease Control and Prevention, 2018). Of the 2.5 million Americans impacted by opioid use disorders, over half are women. Furthermore, women are statistically at higher risk for experiencing the biopsychosocial risk factors that contribute to opioid dependency and addiction (Ait-Daoud, Blevins, Khanna, Sharma, & Holstege, 2017). Over the past 20 years, incidence of opioid overdose amongst women has increased by 400%, in comparison to an increase of 265% amongst their male counterparts (Centers for Disease Control and Prevention, 2018).

One of the most challenging aspects of opioid use disorders occurs in the context of pregnancy. In 2012, a baby with intrauterine opioid exposure was born every 25 minutes. This adds up to an estimated 21,732 babies in one year (Patrick, Davis, Lehman, & Cooper, 2015). This number increased fivefold between 2000 and 2012 and the rates have continued to rise. More than 50 percent of babies born to women who are opioid dependent are diagnosed with and treated for neonatal abstinence syndrome (NAS), a temporary postnatal syndrome characterized by chemical dependency and withdrawal symptoms in infants with intrauterine exposure to certain substances, including opiates

(Galanter, Kleber, & Brady, 2015; Gomella, Cunningham, & Eyal, 2013; Sanlorenzo, Stark, & Patrick, 2018).

The statistical prevalence of perinatal opioid use disorders and NAS is certainly staggering and deserving of societal attention. However, the discourse surrounding these sensitive health issues is less focused on finding a solution and more interested in the shock value of “addicted pregnant women” and their “addicted babies,” a paradigm that only perpetuates stigma and contributes to the problem itself. Decades of research has consistently identified stigma as a significant, problematic component of the rhetoric of opioid use disorders, and addiction in general (Cleveland & Gill, 2013; Cleveland & Bonugli, 2014; Cleveland, Bonugli, & McGlothen, 2016; Dimirci, Bogen, & Klionsky, 2015, Holbrook, 2015; Holbrook & Nguyen, 2015; Howard, 2015; Howard, 2016; Jones et al., 2008; Mattocks, Clark, & Weinreb, 2017; Stengel, 2014; Stone, 2015; Suchman & Luthar, 2000).

Discourse surrounding the topic of addiction often identifies the root cause of addiction as a moral failing, rather than a pathophysiological disease (Ahern, Stuber, & Galea, 2006; Corrigan, 2004; Fraser, Barnes, Biggs, & Kain, 2017; Goffman, 1963; Kelly, Saitz, & Wakeman, 2016; Lloyd, 2013; Major & O’Brien, 2005, Racine, Sattler, & Escande, 2017). This stigma is amplified in the context of pregnancy and perpetuates the false, discriminatory notion that pregnant women with opioid use disorders are knowingly “harming” their babies without regard. Sensationalist language further compounds this stigma. Babies diagnosed with NAS are frequently referred to as “addicted babies” within mainstream media. In reality, babies diagnosed with NAS are not “addicted” (Cleveland, 2013; Cleveland & Bonugli, 2014; Cleveland et al., 2016; Dimirci et al., 2015; Holbrook,

2015; Holbrook & Nguyen, 2015; Howard, 2015; Howard, 2016; Jones et al., 2008; Mattocks et al., 2017; Stengel, 2014; Stone, 2015; Suchman & Luthar, 2000).

These infants experience a physical dependence to the opiate and are treated immediately upon diagnosis within an appropriate hospital setting, as described by the National Library of Medicine. However, suggesting that the infant is “addicted” implies behavioral aspects of addiction disorders that infants simply cannot have developed in the first few weeks of life (Galanter et al., 2015). NAS is a treatable, temporary syndrome (Galanter et al., 2015; Gomella et al., 2013; Sanlorenzo et al., 2018). There is a colossal stigma attached to giving birth to an infant with NAS despite this scientific, evidence-based information. Ultimately, those who most suffer from this social stigma are the mother and infant themselves. Stigma is barrier to the development of early attachment bonding, an vital aspect of early childhood development that impacts how relationships are formed across the lifespan (Cleveland, 2013; Cleveland & Bonugli, 2014; Cleveland et al., 2016; Holbrook, 2015; Holbrook & Nguyen, 2015; Howard, 2015; Howard, 2016; Jones et al., 2008; Stengel, 2014; Stone, 2015; Thigpen & Melton, 2014).

The problematic terminology described above may seem like a simple difference in semantics and undeserving of reevaluation. This misconception, however, vastly undermines the power and influence of language choice, perception, and social stigma (Goodyear-Smith & Buetow, 2001). Empirical research has revealed that women with perinatal opioid use disorders feel judged, stigmatized, embarrassed, and anxious when visiting their babies at the hospital. Common triggers include shaming verbal and nonverbal language of healthcare staff, subjective NAS scoring, and the exclusion of the mother from participating in the treatment plan for both herself and for her baby. Instead

of receiving support, education, and encouragement, they are faced with judgment, coldness, and indifference (Cleveland, 2013; Cleveland & Bonugli, 2014; Cleveland et al., 2016; Dimirci et al., 2015; Holbrook, 2015; Holbrook & Nguyen, 2015; Howard, 2015; Howard, 2016; Jones et al., 2008; Mattocks et al., 2017; Stengel, 2014; Stone, 2015; Suchman & Luthar, 2000).

As a result, these mothers often avoid prenatal care, communication with healthcare providers, and visitation in order to circumvent judgment and stigmatization. This decreases access to medical care, treatment, and the ability to bond with their babies, and unfortunately can serve to affirm the negative perceptions of some healthcare providers. These negative consequences also interfere with the ability for early attachment bond development, a monumentally important piece of newborn development and the most significant contributor to healthy attachment development. Early attachment bonding creates a pathway for the way in which individuals engage in human relationships across the lifespan. These avoidable, institutionally created barriers propagate both short- and long-term risk factors for the mother and infant, both independently and as a dyad (Cleveland, 2013; Cleveland & Bonugli, 2014; Cleveland et al., 2016; Dimirci et al., 2015; Holbrook, 2015; Holbrook & Nguyen, 2015; Howard, 2015; Howard, 2016; Jones et al., 2008; Mattocks et al., 2017; Stengel, 2014; Stone, 2015; Suchman et al., 2000; Thigpen & Melton, 2014).

Healthcare providers across the country are unknowingly doing harm to both the mother and the baby by creating barriers to the development of attachment instead of fostering connections. There is an extraordinarily strong relationship between traumatic childhood experiences (physical, sexual, and emotional abuse and/or neglect) and

substance use disorders. With this information, it becomes abundantly clear that mothers in this position are already predisposed to barriers to healthy attachment development (Felitti et al., 1998; Galanter et al., 2015; Khoury, Tang, Bradley, Cubells, & Ressler, 2010; Torchalla, Linden, Aube, Strehlau, Neilson, & Krausz, 2014; Wilson, 2015). By diminishing the opportunity to provide education and foster healthy attachments between these mothers and their infants, providers are simultaneously, and drastically, increasing risk of harm and perpetuating this cycle. Fortunately, this problem is both changeable and preventable with utilization of evidence-based practices applied to this specific population.

The literature that exists has identified and described these barriers to care, and simultaneously provides recommendations for perinatal opioid use disorders and NAS treatment, many of which require maternal engagement and participation. For example, new research is exploring an alternative treatment approach for NAS that involves consistent caregiver involvement. The literature addresses the influence of stigma and importance of empathy within the context of this population. However, it is elementary in depth and undervalued at best. The information that exists is simply not comprehensive enough to bridge the gap between theory and action. An actual practice model that provides evidence-based guidance on the actual delivery of services to improve outcomes does not exist and is greatly needed. The outcome of this dissertation is the PARTNER model, an attachment-based practice model that fills this crucial gap in the literature.

PRACTICE MODEL AND CASE STUDY RESEARCH APPROACH

This dissertation will systematically explore several aspects of perinatal opioid use disorders to develop an evidence-informed practice model for healthcare providers

working with pregnant and postpartum women with opioid use disorders. This dissertation will also explore the intersection of perinatal opioid use disorders and attachment theory, which will serve as the framework for the PARTNER model.

The literature review is comprised of three sections that provide the foundational context for this model. The first section of the literature review provides an examination of the social history of opioids in the United States of America to gain a stronger, more defined understanding of the etiology and stigma of opioid use disorders. The second section investigates the pathophysiology of opioid use disorders, focusing in on neurobiological, biopsychosocial, and treatment facets. This information is crucial, as it provides the fundamental context required to truly appreciate the unique, extraordinarily arduous facets of perinatal opioid use disorder and neonatal abstinence syndrome. The final section of the literature review examines the pathophysiology of perinatal opioid use disorders and neonatal abstinence syndrome and discusses how the insurmountable influence of stigma drastically impacts this already vulnerable population.

The evidence uncovered in the literature review clearly reveals that the stigmatizing discourse and misinformation surrounding perinatal opioid use disorders serves as a significant barrier to early attachment development, negatively impacting one of the most fundamentally vital aspects of life. The literature also reveals a substantial need for a practice model that serves as guidance for providers toward fostering healthy early attachment development rather than inhibiting it. Rooted in attachment theory, the PARTNER model aims to foster healthy partnerships between the mother and baby, as well as the mother and provider.

Composite case vignettes, informed by clinical experience and empirical literature, are integrated throughout this dissertation. These case vignettes tell the story of Kiana, a 23-year-old black, heterosexual, cisgender woman with a perinatal opioid use disorder. Pertinent elements of Kiana's history are integrated throughout the literature review, illuminating and connecting her story to the concepts that set the foundation for the PARTNER model, and, Kiana's story continues after the introduction of the PARTNER model. The story of Kiana's journey through pregnancy and the birth of her baby, William, brings life and connection to each element of the PARTNER model.

The PARTNER model has been specifically designed with patients like Kiana and William in mind, whose story is similar to many of the women and babies impacted by perinatal opioid addiction. Identifying areas of antiquation and integrating strengths-based interventions emphasizes the importance of promoting attachment between a mother and her infant, provides a person-centered framework from which to work, and fosters insight into and mitigation of socially-constructed barriers that deepen the divide between "us" and "them."

OPERATIONAL DEFINITIONS OF TERMS

The terms and concepts used throughout this dissertation are informed by and derived from definitions from the peer-reviewed literature. Key terms and concepts referenced in the literature review are operationally defined below for clarity and contextual purposes. The operational definitions of new key terms and concepts utilized in the PARTNER model will be integrated into their respective sections.

Opioid refers to an analgesic substance intended to treat moderate to severe pain. The term “opioid” is an umbrella term for both naturally and synthetically produced opiates. Opioids interact with the central nervous system to create a sense of euphoria and immense dopamine rush that the brain cannot recreate on its own, thus contributing to its appeal and likelihood for misuse, abuse, dependency, and addiction (Centers for Disease Control and Prevention, 2018).

There are four **categories of opioids**: 1) natural and semi-synthetic opioid analgesics (including morphine, codeine, hydrocodone, and oxycodone), 2) heroin (crude preparation of diamorphine), 3) methadone (synthetic opioid analgesic), and 4) other synthetic opioids (including fentanyl and tramadol) (Centers for Disease Control and Prevention, 2018).

Opioid misuse refers to the recreational and occasional, but limited, use of an opioid or opioids with the potential for abuse or dependence (Centers for Disease Control and Prevention, 2018).

Opioid abuse refers to recurrent, continued opioid use despite negative consequences, including a marked decline in interpersonal relationships, physical and/or mental health, financial stability, and/or performance at work (Centers for Disease Control and Prevention, 2018).

Opioid dependence refers to the neurological, persistent, involuntary craving for opioid exposure which results from neurochemical changes from consistent opioid exposure and reward circuit activation (Galanter et al., 2015 & Wilson, 2015).

Opioid addiction refers to behavioral, cognitive, and cyclical aspects of opioid dependency characterized by repeated periods of preoccupation, craving, intoxication, binging, and withdrawal. (Galanter et al., 2015 & Wilson, 2015).

Opioid withdrawal refers to the physiological symptoms that result from opioid exposure cessation including nausea, vomiting, sweating, chills, diarrhea, and anxiety (American Psychiatric Association, 2013).

Opioid overdose refers to a potentially fatal outcome of excessive opioid use identified by three characteristics: decreased level of consciousness, pupil constriction, and respiratory arrest (Centers for Disease Control and Prevention, 2018).

Opioid use disorder refers to the diagnosis of opioid dependency and addiction. The most current edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) asserts that diagnosis involves “a problematic pattern of opioid use leading to clinically significant impairment or distress, as manifested by at least two [criteria], occurring within a 12-month period” (American Psychiatric Association, 2013, p. 541). Criteria for this diagnosis include persistent desire to use, unsuccessful attempts to stop use, negative impacts on one’s personal life, inability to fulfill obligations, tolerance development, and withdrawal (American Psychiatric Association, 2013).

Perinatal Opioid Use Disorder refers to the diagnosis of an opioid use disorder in the setting of the prenatal and postpartum periods of pregnancy (Galanter et al., 2015).

Neonatal Abstinence Syndrome refers to the diagnosis of observed opioid withdrawal symptoms in infants with intrauterine opioid exposure (Gomella et al., 2013).

Stigma refers to a socially-constructed set of negative beliefs based on assumptions, preconceived notions, and generalizations that contribute to discrimination, exclusion, prejudice, and rejection (Goffman, 1963).

Attachment Theory refers to the psychoanalytic approach to understanding the influence of fundamental early relationship development on interpersonal relationships, emotional salience, and affect regulation throughout the life cycle (Bowlby, 1969).

Attachment Pattern refers to a specific relationship development category defined by certain behavioral characteristics (Ainsworth, Blehar, Waters, & Wall, 1978).

Attachment patterns are developed in infancy and serve as the foundation for how relationships are structured and understood in adulthood. Secure attachment is established from safe, nurturing, and reliable caregivers, and results in a stable, balanced framework for relationships in adulthood. Insecure attachment is developed from dangerous, neglectful, and unreliable caregivers, and results in a chaotic, imbalanced framework for relationships in adulthood.

Attachment Bond refers to the actual, residual adaptive and maladaptive bonds that result from early childhood relationship development (Bowlby, 1969); the “lasting psychological connectedness between human beings” (Bowlby, 1969, p. 194).

CHAPTER II: LITERATURE REVIEW

PART I: THE SOCIAL HISTORY OF OPIOIDS IN THE UNITED STATES OF AMERICA

THE ETIOLOGY OF THE OPIOID EPIDEMIC

Today, there are currently over 2.5 million people suffering from opioid dependence in the United States with approximately 47,600 opioid overdose deaths in 2017 (Centers for Disease Control and Prevention, 2018). The Surgeon General named this crisis as the opioid epidemic, sweeping the nation and the world (U.S. Department of Health and Human Services, 2016). The presence of opioids in America, though substantially increasing in acuity over the past twenty years, is not a recently developed phenomenon. Opioids have been used and incorporated into medical treatment for thousands of years all over the world, but fundamentally caught the attention of Americans in the early 1900s after World War I. Opioids, specifically morphine, were used as a method of pain relief for wounded veterans. The popularity of opioids skyrocketed and became a common method of treatment for just about anything, even the common cold (Heyman, 2015). It was not until the 1920s when the government discovered the powerful addictive nature of opioids. In response to this national problem and to mitigate this issue, Congress passed the Harrison Narcotics Tax Act in 1914. This act strictly limited the use of opium-based substances to licensed medical practice. Later came the Anti-Heroin Act of 1924 which prohibited the importation and possession of opium (Courtwright, 2001 & Heyman, 2015).

Heroin regained moderate popularity in the 1950s as part of pop culture but was generally unfamiliar to or feared by most Americans. It was not until after the Vietnam War in the 1970s that the resurgence of heroin came back to the United States in full force (Courtwright, 2001 & Heyman, 2015). At this point in time, the marked increase in opioid

overdoses led to President Richard Nixon deeming heroin the “public enemy number one” (1971). It was at that time in July 1973 that the Drug Enforcement Agency was created (Courtwright, 2001 & Heyman, 2015).

Attitudes toward opiates shifted significantly in the 1980s, reflected in an article published in the *New England Journal of Medicine* in January 1980 by Dr. Hershel Jick and his graduate assistant, Jane Porter. In this article, Jick and Porter attempted to refute the risk of dependence by explicitly stating that addiction to opioids is “rare in medical patients with no history of addiction” (Porter & Jick, 1980, p. 123). The authors’ motivation in publishing this information remains unclear, but the subsequent sharp increase in opiate prescriptions, dependency, and overdose over the following three decades is irrefutable (Centers for Disease Control and Prevention, 2018 & Haney, 2017).

In the 1990s, the extensive media coverage of cocaine use became prevalent, ostensibly overshadowing the opioid dependence problem. The Centers for Disease Control and Prevention (2018) has identified the 1990s as the first of three overdose waves in the United States. This wave was represented by a steep rise in prescription opioid overdose deaths. Prescriptions for opioids were provided to patients with seemingly no limitations, resulting in huge profits for pharmaceutical companies. When the Joint Commission on Accreditation of Healthcare Organizations integrated pain management into vital sign checks in the early 2000s, prescriptions and abuse increased at an astonishing rate. Based on the prescription and healthcare management regulations in effect at that time, opioids became more accessible than ever with little to no concern for dependency. This cause and effect ostensibly exacerbated the addiction problem itself (U.S. Department of Health and Human Services, 2016).

By the end of 2010, these remarkable changes in opioid access and abuse came to the forefront of the medical community. The Centers for Disease Control and Prevention (2018) marked 2010 and 2013 as the second and third overdose waves, signified by a marked rise in heroin overdose deaths and synthetic opioid overdose deaths, respectively. Since this time, the federal government has implemented prescription drug monitoring programs, as well as stricter guidelines and legal consequences for inappropriate and/or excessive prescribing. Training and education on naloxone, an emergency treatment that counteracts opioid overdose more commonly known by the brand name NARCAN, has been widely expanded as well. Efforts to reduce access and treat dependency have vastly increased, but statistical evidence strongly indicates that something is not working (Centers for Disease Control and Prevention, 2018).

It was not until June 2017 that the New England Journal of Medicine publicly addressed the illegitimacy and irresponsibility of that 1980 article, now commonly referred to simply as “Porter and Jick.” In its response, committee members of the Journal explicitly recognized the original content as empirically unsupported and a contributor to the current opioid epidemic, as it minimized the risk and severity of addiction related to opiates. In addition, the Journal cited lawsuits against pharmaceutical companies that also misrepresented the risk of dependence to doctors and patients (Leung, Macdonald, Stanbrook, Dhalla, & Juurlink, 2017). Shortly after the publication of this 2017 letter, Dr. Jick was quoted in an interview saying the New England Journal of Medicine has “published nearly 400 papers on drug safety, but never before have we had one that got into such a bizarre and unhealthy situation” (Haney, 2017, p. 1). Jick admitted “if I knew then what I know now, I would have never published it” (Haney, 2017, p. 1).

In 2016, a year prior to this response, the first U.S. Surgeon General report on addiction was published. In the preface, Dr. Vivek Murthy, the U.S. Surgeon General at the time, acknowledged the need for not only addiction treatment reform, but a reform of the discourse surrounding addiction as well. Dr. Murthy stipulates that the way in which society approaches addiction conveys a false, stigmatizing message that addiction is a moral failing rather than a chronic illness. In this report, Dr. Murthy stated:

We also need a cultural shift in how we think about addiction. For far too long, too many in our country have viewed addiction as a moral failing. This unfortunate stigma has created an added burden of shame that has made people with substance use disorders less likely to come forward and seek help. It has also made it more challenging to marshal the necessary investments in prevention and treatment. We must help everyone see that addiction is not a character flaw – it is a chronic illness that we must approach with the same skill and compassion with which we approach heart disease, diabetes, and cancer. (p. v)

This stigma imposes shame and creates barriers to treatment, which only works toward perpetuating the opioid epidemic rather than ending it (U.S. Department of Health and Human Services, 2016).

CASE STUDY VIGNETTE

At age 20, Kiana was involved in a motor vehicle accident. She was seen and evaluated in the emergency department of a local hospital, presenting with complaints of neck pain and a headache. Kiana was given a 30-day prescription for Percocet without any education on risk of dependency. Kiana did not know how to evaluate and treat her own pain appropriately at home (i.e. take an over-the-counter analgesic for

lower/moderate pain relief), and Kiana assumed that because she was given this prescription by a physician, it was safe to finish the prescription to the end and take them every day. She thought she was doing what she was supposed to do.

THE STIGMA OF OPIOID DEPENDENCY AND ADDICTION

Despite historical implications, scientific evidence that distinguishes an opioid use disorder as a pathology-driven disease, and empirically identified risk factors associated with opioid use disorders, the stigma surrounding opioid dependency and addiction is palpable.

The concept of social stigma was first explored and defined by sociologist, Erving Goffman. Goffman identified stigma as a phenomenon involving perceptual classification of people as either normal or undesirable based on societally-constructed beliefs. Goffman also identified three groups of people related to a stigma:

- 1) the stigmatized, characterized by individuals or groups who are associated with and impacted by the stigma,
- 2) the normals, characterized by individuals or groups who are not associated with nor impacted by the stigma, and
- 3) the wise, characterized by individuals or groups who are not associated with nor impacted by the stigma, but are fundamentally aware of the stigma and the way in which it impacts the stigmatized (Goffman, 1963).

Empirical research has supported Goffman's theory, with the identification of two subgroups that exist within the wise:

- 1) the active wise, characterized by individuals or groups who work toward and advocate for the deconstruction of a stigma, and
- 2) the passive wise, characterized by individuals or groups who take a more submissive, indifferent stance (Smith, 2012).

Stigma has several detrimental consequences on the stigmatized individuals and groups themselves, including direct effects on self-esteem and mental health and willingness to seek out healthcare and treatment, as well as other harm reduction modalities. The false, unsubstantiated attributes of the stigma are often internalized as reality for the stigmatized, resulting in a decreased sense of self-worth. Stigma generates a destructive sense of external condemnation and fear of poor quality of care, legal ramifications, and judgment from healthcare providers.

This is a significant issue within the societal context of addiction, as these associated schemas and rhetoric further marginalize and shame an already at-risk population. Opioid dependency and addiction is often considered a moral failing with full responsibility placed upon the person suffering. This stigma is particularly damaging, as it directly attacks the integrity, dignity, and value of the person as a human being (Ahern et al., 2007; Earnshaw, Smith, & Copenhaver, 2013; Lloyd, 2013; Racine et al., 2017). Stigma can serve as a profound, biopolitical, institutionally-created barrier and deterrent to healthcare and treatment (Ahern, 2006; Corrigan, 2004; Fraser et al., 2017; Goffman, 1963; Kelly et al., 2016; Lloyd, 2013; Major & O'Brien, 2005; Racine et al., 2017; Woo et al., 2017).

CASE STUDY VIGNETTE

Kiana continued to take the Percocet prescription every day and, as she got closer to the 30-day mark, she noticed the bottle would be finished within a just few

days. Kiana went to her pharmacy to request a refill but was told there were no refills available and that she needed another prescription. Kiana returned to the same emergency department to ask for another prescription, as instructed. Shortly after being evaluated, she overheard some staff members talking about “the drug seeker in bed 10.” She looked at her wristband and noticed that she was in bed 10. They were talking about her.

Rather than assessing for opioid dependency or offering psychoeducation, a physician provided her with another prescription and told her “this is the last one.” Kiana took the prescription, feeling confused, embarrassed, and ashamed. She said to herself “well, I’m not going back there.”

A few days later, Kiana told her best friend, Ann Marie, about what happened. Ann Marie responded in disbelief. “What? That’s crazy! A drug seeker? They’re the ones that gave it to you in the first place! You’re no dope fiend. Have you seen those people?” Kiana thought to herself, “Ann Marie is right, it’s not like I’m one of them.”

PART II: THE PATHOPHYSIOLOGY OF OPIOID DEPENDENCY AND ADDICTION

NEUROBIOLOGICAL INTERACTIONS OF OPIOIDS AND THE BRAIN

The perception of addiction as a moral failing often overshadows the pathophysiology of addiction. To understand the dangerous allure of opioids, the first place to investigate is the brain. The brain is run by neurotransmitters, chemical molecules that send messages all throughout the body. Dopamine, a neurotransmitter naturally produced within the brain, instinctively regulates the brain's reward-motivation system and guides motivational salience. Motivational salience is a cognitive process that influences the way in which potential actions are evaluated, and, therefore, how the individual behaves in response to these evaluations. Cortisol, another naturally-produced neurotransmitter, is responsible for regulating stress. No two brains are exactly alike; there are several genetic and learned factors that contribute to the amount of dopamine and cortisol receptors exist in the brain (Applegate & Shapiro, 2005; Evans & Cahill, 2016; Maguire, 2013; Walter et al., 2015; Wilson, 2015).

Dopamine and cortisol levels are significantly impacted by exposure to opioids. Almost immediately after being consumed, opioids are absorbed in the bloodstream, making their way to the brain and attach themselves to receptors. They flood the limbic system value circuit with dopamine, and cortisol production is reduced. This rush of increased dopamine and decreased cortisol produces a sensation of physical and mental euphoria (Bisaga, Chernyaev, & McLellan, 2018; Evans & Cahill, 2016; Walter et al., 2015; Wilson, 2015).

When exposed to sharp increases in dopamine generated by opioids, the brain identifies, classifies, and retains these preceding actions and behaviors as high reward-

value and, ultimately, high incentive-value. The baseline dopamine that exists in the brain increases. Because the enormous amount of dopamine generated by opioids cannot be duplicated by the brain on its own, the brain essentially becomes trained to crave the dopamine-manufacturing substance. The brain becomes dependent on opioid exposure to function at baseline (Applegate & Shapiro, 2005; Evans & Cahill, 2016; Wilson, 2015).

When these dopamine levels drop below the new, increased baseline threshold, the brain excretes increased cortisol. This action contributes to opioid withdrawal, characterized by symptoms opposite of euphoria. When this occurs, the brain remembers that those actions and behaviors that preceded the opioid ingestion will result in the craved dopamine increase and cortisol decrease. In essence, the brain has been chemically trained to subconsciously associate opioid use with positive neural rewards (Applegate & Shapiro, 2005; Evans & Cahill, 2016; Wilson, 2015).

From the neurobiological perspective, dependency and addiction can be conceptualized as a reward deficit disorder with changes in impulse control and executive functioning (Herron & Brennan, 2015). Opioid dependency can be characterized by the brain's physiological need for opioid exposure to maintain its baseline functioning. Opioid addiction can be characterized by the actions and behaviors that precede the opioid exposure. These actions and behaviors are generally characterized by people, places, and objects and serve as triggers for continued use, cravings, and relapse. Once a dependency and addiction is developed, recovery can be extremely challenging, but it is not impossible. The neuroplasticity of the brain allows for these neural pathways and learned rewards are adaptable and reversible (Evans & Cahill, 2016; Wilson, 2015).

CASE STUDY VIGNETTE

It was two months and two prescriptions since the car accident. Kiana was again almost out of Percocet and was trying to ration what she had left. However, she started noticing that when she stopped taking the Percocet for a couple of days, she felt terrible. She felt like she had the flu with symptoms of nausea, vomiting, insomnia, and night sweats. She thought to herself, "Wow. I must be really messed up from that car accident. I need this stuff." What Kiana didn't realize is that these were not symptoms from the car accident. She was experiencing opioid withdrawal.

Kiana began to wonder how she could get another prescription for Percocet before running out of what she had left. She did not want to feel like this anymore. She considered going to the emergency department, but immediately thought back to the terrible way staff made her feel. Kiana started to subtly ask around to see if anyone she knew had Percocet she could buy. Shortly after her search began, she discovered that a friend of a friend, Walter, was selling Percocet. However, the pills came with a steep price tag.

Walter told Kiana that he could offer her heroin instead, explaining that heroin was "way cheaper" and "way stronger." Kiana took a moment to think it over, but the decision was made before he could even finish his sentence. She bought the heroin and left. She told herself, "It's not like I'm doing it all day, every day. And, I'm working two jobs! This is just temporary until I can get this under control. I'm not one of those people."

BIOPSYCHOSOCIAL RISK FACTORS

In addition to neurobiological implications, there are other biopsychosocial factors and impacts on the learning brain that impact the risk of opioid misuse, abuse, dependency, and addiction. Three of the most empirically significant components include biological factors, adverse childhood experiences, and psychosocial/environmental factors (Ait-Daoud et al., 2017; Applegate & Shapiro, 2005; Berlin, Shanahan, & Appleyard Carmody, 2014; Centers for Disease Control and Prevention, 2018; Covington, 2008; Galanter et al., 2015; Goodman, Milliken, Theiler, Nordstrom, & Akerman, 2015; Herron & Brennan, 2015; Khoury et al., 2010; Maguire, 2013; Torchalla et al., 2014; Wilson, 2015).

BIOLOGICAL FACTORS

Biological influences on risk for addiction include genetics, gender, and neurologic and biochemical factors (Herron & Brennan, 2015; Maguire, 2013). As a demographic characteristic, women are experiencing increases in opioid use disorders at alarmingly higher rates than men, and women are more likely to develop and suffer longer from opioid use disorders. Since 1999, the number of opiate overdose deaths among women has increased by 400%, compared to 265% among men. Statistical evidence also indicates that women progress from initial use to opioid use disorders much more rapidly than men (Centers for Disease Control and Prevention, 2018).

Studies aimed to examine the relationship between women and opioid use disorders is still an underdeveloped area of research. However, the existing research does identify biological and social factors that contribute to the higher occurrence of opioid use disorders in women. Researchers have identified some potential factors that play a role in this dynamic, including hormones and predisposition to some chronic medical conditions.

Lab research has identified some connections between sex hormones and likelihood of opioid dependency. Further research shows women experience higher rates of chronic pain illnesses for which opiate pain medication is prescribed (Ait-Daoud et al., 2017 & Maguire, 2013). From a social standpoint, women are at higher risk than men for experiencing shame and stigma and barriers to financial, medical, and housing resources (Ait-Daoud et al., 2017 & Covington, 2008). Women also experience substantially higher rates of experiencing mental health challenges, internalized and externalized family role identity complexities, and physical and sexual abuse (Covington, 2008).

According to the National Institute on Drug Abuse (2010), there is an extremely high prevalence of comorbid substance use disorders and another mental health diagnosis. More specifically, research reveals that those diagnosed with a mood, anxiety, trauma-related, or stressor-related disorder are at the highest risk of developing a substance use disorder (National Institute on Drug Abuse, 2010). Furthermore, women who experience postpartum depression are at added risk for developing substance use and potential dependency (Ait-Daoud et al., 2017).

There are several challenges that exist within the examination of substance use disorders and mental illness. While research does indicate a significant relationship between mental health and substance use disorders, it is sometimes impossible to determine which problem precedes the other. In some cases, drug use increases symptoms of preexisting mental illnesses that may or may not have already been identified. The fact that substance use can alter brain chemistry makes this distinction even harder to identify. In other cases, drug use occurs after the mental health symptoms manifest. It is also difficult to generalize the extent to which one impacts the other, as the level and intensity

of addiction and mental illness varies so greatly (National Institute on Drug Abuse, 2010). Regardless of epidemiology, risk for both substance use disorders and mental health issues is increased by overlapping external determinants, including psychosocial and environmental factors (Galanter et al., 2015; Herron & Brennan, 2015; Khoury et al., 2010; Torchalla et al., 2014; Wilson, 2015).

CASE STUDY VIGNETTE

Kiana grew up in Philadelphia, Pennsylvania in a modest home with her mother, father, and two younger sisters. Her father worked as a chef in a restaurant and her mother stayed at home. Every so often, her parents struggled to make ends meet, but they were generally able to get by. Kiana's family lived in one of the lower-income neighborhoods in the city, but she often thought to herself that it could "always be worse." Kiana viewed her household with the same mentality, and from the outside looking in, things seemed okay. However, Kiana's home life was chaotic.

Kiana's father struggled with alcohol abuse and bipolar disorder. He viewed asking for help as a sign of weakness, so he never received any kind of counseling or medication management. He often came home from work late at night with the smell of liquor on his breath. Her parents fought frequently, especially when alcohol was involved. Her father was verbally, and sometimes physically abusive toward her, her mother, and her younger sisters. Her parents divorced when she was 15 and she has only seen her father a handful of times since then, but she lived in fear of him for as long as she could remember.

ADVERSE CHILDHOOD EXPERIENCES

Adverse childhood experiences, also referred to as ACEs, are stressful, traumatic events that occur specifically in childhood and have been empirically linked to negative health outcomes, including addiction. The concept of ACEs originates from a longitudinal study conducted by Kaiser Permanente and the Centers for Disease Control, that examined the relationship between traumatic, stressful childhood experiences and health outcomes in adulthood. The ACEs study included a wide variety of stressful and/or traumatic experiences such as witnessing and/or experiencing verbal and/or physical abuse, low self-esteem and self-worth, disruptions within the function of the family system, family history of addiction and/or mental illness, and lack of access to basic needs including food, shelter, and safety (Felitti et al., 1998).

The strong correlation discovered between ACEs and health outcomes was extraordinary, revealing a significant relationship between one's ACE score and negative health outcomes. As an ACE score increases, so does one's risk for physical illness and social and emotional problems. With an ACE score of just 4, individuals begin to face significant challenges, including increased risk for and occurrence of physical illness (i.e. heart disease, obesity, cancer, liver disease), mental illness (depression, anxiety, suicidal ideation, alcohol and substance use disorders), and interpersonal issues (interpersonal violence, intimate partner violence, homelessness, unemployment). The occurrence of multiple ACEs is synergistic, meaning the interaction between each ACE produces a greater combined effect than the sum of each individual ACE effects. This study also revealed that adverse childhood experiences are incredibly common. Approximately 64% of the 17,000 surveyed adults reported at least one ACE occurrence (Felitti et al., 1998). Since that time,

numerous other studies have been conducted amongst a variety of populations with consistent, significant results (Centers for Disease Control and Prevention, 2016).

CASE STUDY VIGNETTE

In high school, Kiana was referred to the school psychologist due to truancy issues. Kiana's evaluation involved an extensive assessment, including the Adverse Childhood Experience (ACE) Questionnaire, which resulted in an astonishing score of 8/10. Kiana was diagnosed with depression and posttraumatic stress disorder and was referred to a psychiatrist and therapist. Kiana was reluctant to follow through with this recommendation but did so anyway to appease her mother.

Kiana saw a counselor for a few months but stopped when she graduated from high school and got a full-time job at a local restaurant. She actually had started to like counseling, but, when left with the decision to prioritize herself or work double shifts to help support her mother and two younger sisters, she chose the latter.

PSYCHOSOCIAL/ENVIRONMENTAL FACTORS

There are empirically significant connections between addiction and trauma experienced in adulthood as well. Psychosocial factors, including interpersonal and environmental influences, have a strong impact on risk for addiction. One of the most impactful influences on risk for addiction is psychological trauma, referring to trauma that meets criteria for acute stress disorders (i.e. posttraumatic stress disorder) and complex trauma (Berlin et al., 2014; Goodman et al., 2015; Herron & Brennan, 2015; Khoury et al., 2010; Maguire, 2013). Trauma is vast and all-encompassing; it refers to the single- or multi-occurrence of a psychologically distressing experience, the way in which that

experience is uniquely and collectively processed, and the short- and long-term impact of the experience. These traumas can include, but are not limited to, physical, sexual, and emotional abuse and/or neglect. (Khoury et al., 2010). Over half of women with addiction, who are already predisposed to risk for addiction based on their gender alone, meet criteria for posttraumatic stress disorder (Goodman et al., 2015). When exposed to trauma, the developing brain produces less dopamine, leaving the brain to seek out external sources of dopamine production (Applegate & Shapiro, 2005).

Environmental influences on risk for addiction include internal and external factors that contribute to stress, alienation, and/or isolation. Examples of external factors include socioeconomic status, minority status, neighborhood/community violence, household dysfunction, and lack of access to resources. Communities with higher rates of crime, violence, and poverty are linked to increased risk for substance experimentation and substance use disorders (Galanter et al., 2015; Herron & Brennan, 2015; Maguire, 2013). However, these statistics are not always the rule. There are many members of impoverished, disenfranchised communities who never experiment with substances or develop an addiction. Internal factors, such as resiliency and individual response to external environmental stressors, also influence risk for addiction (Maguire, 2013).

CASE STUDY VIGNETTE

Shortly after Kiana graduated from high school, she started her new job at a restaurant in the nearby neighborhood. One night, while walking home from a late-night work shift, Kiana was raped at gunpoint. Kiana never talked to anyone about what had happened to her that night. She didn't even want to think about it. She just wanted to pretend it never happened.

A few weeks later, Kiana discovered that she was pregnant. She hadn't been sexually active with any other partners, so she knew the pregnancy resulted from the rape. Kiana only ever disclosed the rape and pregnancy to her best friend, Ann Marie. "I don't want to talk about it, I'm fine" Kiana said. "Just please take me to the nearest abortion clinic and don't mention this to anyone." Over the next few months, Ann Marie made several offers to help Kiana file a police report or find a counselor. Kiana always declined and said she was "completely fine."

OPIOID USE DISORDER TREATMENT APPROACHES

There are many models of and approaches to substance use disorder treatment. This section will review the four umbrella modes of treatment that are specifically geared toward opiate addiction. These methods include detoxification, twelve-step recovery, behavioral treatment, and medication-assisted treatment. These treatment modalities can be used independently of or in conjunction with one another.

DETOXIFICATION

The most common method of treatment for opioid use disorders is detoxification, which involves rapid cessation of use while being monitored in a controlled medical setting, such as a hospital. Despite its widespread utilization, detoxification has been shown to be exceptionally ineffective and has little to no short- or long-term benefits. This is especially evident when detoxification is not immediately followed by another form of treatment. Most of those who complete the detoxification process relapse shortly afterward (Herron & Brennan, 2015 & Galanter et al., 2015).

TWELVE-STEP RECOVERY

Twelve-step recovery, founded in 1935, involves structured, community-based support groups for people with substance use disorders. They are intended to be safe, judgment-free, and facilitated by group members themselves. There are several groupings of twelve-steps that address specific substances, like Narcotics Anonymous. They are generally free of charge, aside from optional donations, and are held in various types of community centers. Group members are entitled to a sponsor, who is typically a member of the group who has maintained sobriety and able to serve as a mentor to newer group members. The twelve-step model functions as a set of principles for leading a moral life, while simultaneously guides participants through the journey of achieving and maintaining sobriety (Herron & Brennan, 2015 & Galanter et al., 2015). Though twelve-step groups are not considered to be treatment and are not recommended to be utilized as the sole source of recovery, they have been shown to be successful in aiding recovery (Fiorentine & Hillhouse, 2000).

BEHAVIORAL TREATMENT

Behavioral treatment for substance use disorders involves theoretically-rooted, evidence-based psychotherapy and are delivered in a combination of inpatient, outpatient, group and individual settings. Most behavioral treatment approaches utilize Prochaska and diClemente's model of change as its foundation, which identifies five stages of addiction recovery. These five stages include:

- 1) Precontemplation, which involves no concrete intention to take action within the foreseeable future;

- 2) Contemplation, which involves intention to take action within the foreseeable future (approximately six months or less);
- 3) Preparation, which involves intention to take action in the immediate future (approximately one month);
- 4) Action, which involves making specific, measurable, observable changes in behavior; and
- 5) Maintenance, which involves actively working to prevent relapse (Herron & Brennan, 2015).

The theoretical approaches with the strongest evidentiary support include motivational interviewing, cognitive behavioral therapy, relapse prevention, and solution-focused therapy. Group and family treatment approaches are also very well-supported. Behavioral treatment programs can be especially beneficial for those who have a comorbid mental illness that contributes to challenges in maintaining sobriety (Herron & Brennan, 2015 & Lewis, 2014).

MEDICATION-ASSISTED TREATMENT

The DSM-5 identifies maintenance therapy, also referred to as medication-assisted treatment, as one specifier of the opioid use disorder diagnosis. This additional specifier is used “if the individual taking a prescribed agonist medication such as methadone or buprenorphine and none of the criteria for opioid use disorder have been met for that class of medication (except tolerance to, or withdraw from, the agonist)” (American Psychiatric Association, 2013, p. 541).

Medication-assisted treatment programs are evidence-based and involve a combination of medication and, in some cases, behavioral treatment intervention.

Medications used for medication-assisted treatment are either full agonists or partial agonists. Full agonists attach to receptors in the brain to the fullest extent without a ceiling effect. The presence of full agonist molecules correlates directly to the neurological effects. Partial agonists attach to receptors in the brain as well, but at only about 50 percent. Partial agonists have a ceiling effect, meaning that once the drug attaches to the receptor to its fullest extent, the addition of more agonist molecules has no effect (Bisaga et al., 2018; Herron & Brennan, 2015).

The three medications used in medication-assisted treatment programs for opioid use disorder management include:

- 1) methadone, a full agonist
- 2) buprenorphine, a partial agonist
- 3) naltrexone, an antagonist.

These three medications were not developed or introduced as treatment options until the mid-1960s. Though they are different prescriptions, they behave similarly to one another in the opioid use disorder treatment process. Methadone, buprenorphine, and naltrexone interact with the nervous system and can reduce pain but lack the chemical compound that contributes to euphoria. Methadone and buprenorphine are most often dispensed at clinics, where the patient may also receive group and/or individual counseling to help treat the behavioral aspect of the addiction while their physical dependency is addressed with the medication (Bart, 2012). Naloxone (also known as NARCAN) is a short-term antagonist that is primarily used in the acute setting of an overdose to reverse the effect of the opioid, rather than as an ongoing, maintenance medication (Herron & Brennan, 2015).

CASE STUDY VIGNETTE

Kiana was able to keep her heroin use a secret until she had her first overdose shortly after she turned 23 years old. Kiana had tried to stop using heroin cold turkey the week before, managing to go four days without using until the cravings and withdrawal symptoms felt out of control. On the verge of relapse, she called Walter and bought double the amount of heroin she was used to taking in hopes of immediately reversing the gut-wrenching withdrawal.

Kiana had seen the horror of several friends' overdoses, but in this moment, the urge to use seemingly drowned out this entire thought process as she injected the heroin into her arm. The cravings and withdrawal were overwhelming and ostensibly took over her body. And then, everything went dark.

When Kiana woke up, she was laying in the ground surrounded by paramedics. Kiana felt disoriented and everything was blurry, but she immediately knew what happened. She realized she had just overdosed. When the paramedic told her he just gave her NARCAN, Kiana started sobbing and apologizing. The paramedic could tell this was her first overdose and he assured her that she'd be able to get help when they got her to the hospital. But, the Kiana heard nothing he said. The sound of the paramedic's voice was muffled by her deafening thoughts. "I'm one of them, I'm one of them."

PART III: THE PATHOPHYSIOLOGY OF PERINATAL OPIOID USE DISORDERS

PERINATAL OPIOID USE DISORDERS

Paralleling the general population, there has been a marked increase in incidence of perinatal opioid use disorders. Although there are no statistics available that directly measure incidence of perinatal opioid use disorders directly, hospitals saw an increase in opioid-exposed infants from 1.5 cases per 1,000 births in 1999 to 6 cases per 1,000 births in 2013 (American College of Obstetrics and Gynecology, 2017). Opioid use disorders become significantly more complicated during pregnancy due to several factors including differences in treatment options and barriers to care, both concrete and socially-constructed in nature. Perinatal opioid use disorders have unique challenges and considerations in terms of the prenatal and postpartum periods, as well as differential experiences and needs for the mother and the baby (American College of Obstetrics and Gynecology, 2017; Tauger, 2017; Wendell, 2013).

Intrauterine substance exposure occurs when a pregnant woman has consumed a substance that passes the placental wall and blood-brain barrier of the fetus. The amount of fetal exposure and incidence of withdrawal is dependent on the amount and frequency of substance use, as well as the physiological makeup of the placenta and fetus itself (Galanter et al., 2015; Gomella et al., 2013; Hudak & Tan, 2012). As previously mentioned, evidence-based research indicates that opioid dependence can be successfully treated with abstinence-oriented treatment and medication-assisted treatment programs. For pregnant women, however, abstinence-oriented treatment programs are not medically recommended due to risk of relapse and mortality. Though acute opioid withdrawal is uncomfortable for adults, there are no risks of fatality. The risk of fatality to the fetus,

however, is extremely high (American College of Obstetricians and Gynecologists, 2017). These treatment limitations are also accompanied by barriers. Access to medication-assisted treatment can be challenging depending on geographical location, insurance coverage, and willingness and capacity for providers to treat addiction during pregnancy. This is especially challenging for women who seek out initiation of treatment during pregnancy (American College of Obstetricians and Gynecologists, 2017).

Infants exposed to methadone or buprenorphine are at risk for the same symptoms, but at a decreased level (Behnke, M. & Smith, V., 2013; Shaefer, Peters, & Miller, 2015). Research has consistently shown lower severity of symptoms and length of treatment for NAS among babies with intrauterine buprenorphine exposure in comparison to babies with intrauterine methadone exposure (Jones et al., 2005 & Jones et al., 2008). Naloxone, though safe to prescribe in general, is not prescribed to pregnant women due to lack of evidence that supports safety to the fetus (Jones et al., 2008).

CASE STUDY VIGNETTE

After arriving at the emergency department, the medical team told Kianna they needed to complete a full workup and run some routine labs, including a urine drug screen, complete blood count (CBC), and, because Kiana is a female, a pregnancy test. Kiana laid on the stretcher in the room by herself for a few hours, reflecting back on the time she was given that very first Percocet prescription in this exact same emergency room three years ago. She told herself that this is her rock bottom; this was her wake-up call. She decided she was going to muster up the courage to ask the doctor for help when she came back with the test results.

However, the conversation about getting treatment that she had played out in her head came to an abrupt halt when she was told her pregnancy test is positive. Countless thoughts and questions started speeding through her mind. Within an instant, Kiana froze on one question – what’s going to happen to the baby?

NEONATAL ABSTINENCE SYNDROME (NAS)

Neonatal abstinence syndrome occurs when an infant with intrauterine substance exposure is born dependent on the substance exposed and starts to show symptoms of withdrawal after birth. NAS can be caused by many licit and illicit substances aside from opioids and their agonists, including alcohol, caffeine, and SSRIs. Approximately 60-90% of infants exposed to opioids in utero are diagnosed with and treated for NAS (Galanter et al., 2015 & Gomella et al., 2013). The American Academy of Pediatrics recommends that babies with exposure to opioids or opioid-like substances remain in the hospital for at least five postpartum days to monitor for NAS (Hudak & Tan, 2012).

The onset of withdrawal symptoms can range from immediately after birth to several days after birth, hence the American Academy of Pediatrics’ recommendation for extended admission for monitoring. Infants with suspected NAS are typically evaluated using the Modified Finnegan’s Scoring System for Neonatal Withdrawal, a scoring system comprised of subjective and objective withdrawal observations (Finnegan, Connaughton, Kron, & Emich, 1975). The occurrence of three consecutive scores of seven or greater is indication for treatment (Gomella et al., 2013; Hudak & Tan, 2012; Schaefer et al., 2015).

PHARMACOLOGICAL TREATMENT

Pharmacological treatment for NAS involves administration of a like drug, one that interacts with the same receptors as the drug of exposure. For instance, infants with intrauterine exposure to opiates are often treated with morphine, an opiate that acts on the same receptors. In some cases, other drugs like phenobarbital or clonidine are used in conjunction with the like drug to manage exacerbated withdrawal symptoms. Medication is administered and titrated based on withdrawal symptoms as indicated by the Modified Finnegan's Scoring System for Neonatal Withdrawal, which involves both subjective and objective observations (Gomella et al., 2013 & Kraft, Stover, & Davis, 2016).

Infants treated for NAS have an average hospital length of stay of 21 days, whereas the average length of stay for an otherwise healthy newborn is up to three days. This extended length of stay in the neonatal critical care setting is incredibly expensive and a drain on medical resources. National hospital expenses for NAS treatment (adjusted to reflect inflation) increased from \$190 million in 2000 to \$720 million in 2009 (Patrick et al., 2012). As an effort to mitigate these rising healthcare costs, new empirical research is being generated to measure the efficacy of non-pharmacological treatment approaches in addition to the preexisting pharmacological approaches.

NONPHARMACOLOGICAL TREATMENT

Although analgesics are the current standard of care for NAS treatment, there are also nonpharmacological methods that can be implemented as well. The most thoroughly researched approaches include breastfeeding, bonding, swaddling, and cuddling, low-stimulus environments, and increased family involvement, primarily the parent(s) of the baby. Several empirical research studies suggest that incorporating these

nonpharmacological factors into treatment planning leads to a remarkable decrease in withdrawal symptoms, length of hospital stay, and hospital costs (Boucher, 2017; Gomella et al., 2013; Grossman, Lipshaw, Osborn, & Berkwitt, 2018; Holmes et al., 2016; Howard et al., 2017; MacMullen, Dulski, & Blobaum, 2014; Maguire, 2014; Newman et al. 2015; Patrick et al., 2016; Pritham, 2013; Short, Gannon, & Abatemarco, 2016; Velez & Jansson, 2008).

Despite the benefits of breastfeeding on neonatal abstinence treatment outcomes, breastfeeding and co-occurring opioid use, both prescribed or illicit, is contraindicated. However, there are no known contraindications of breastfeeding and co-occurring methadone and/or buprenorphine use (American College of Obstetricians and Gynecologists, 2017).

OUTCOMES FOR INTRAUTERINE OPIOID EXPOSURE

Infants with opioid exposure in pregnancy, including methadone and buprenorphine, have an overall strong prognosis in terms of physical and behavioral outcomes in the infancy period. Intrauterine opioid exposure has minimal, if any, influence on fetal growth, congenital anomalies, or neurological outcomes (Behnke et al., 2013). Aside from withdrawal, the two short-term risks identified by the literature included an increased risk for sudden infant death syndrome and strabismus, a treatable misalignment of the eyes. In terms of neurodevelopment, infants with intrauterine opioid exposure generally catch up to their non-exposed peers by one to two years of age, with the vast majority functioning within the normal range of mental and motor development by five to six years of age (Gomella et al., 2013; Logan, Brown, & Hayes, 2013; Maguire et al., 2016).

Infants with intrauterine opioid exposure, including methadone and buprenorphine, also have an overall strong prognosis in terms of physical and behavioral

outcomes across childhood, adolescence, and adulthood. Intrauterine opioid exposure has minimal, if any, influence on long-term physical development, behavior, cognitive and executive functioning, speech and language development, academic achievement, or predisposition to opioid dependency and/or addiction later in life (Behkne et al., 2013). Current research suggests that the environment in which the child grows up has a more significant impact on outcomes. Infants who are raised in nurturing, supportive, stable homes with access to resources are more likely to reach the positive neurodevelopmental outcomes than their counterparts who are raised in neglectful, inconsistent, and unstable home environments. Early infancy and childhood attachment development between infants and their caregivers decreases this risk. These social and family protective factors also decrease risk for opioid use, dependency, and addiction later in life as well (Herranz, 2014; Logan et al., 2013).

CASE STUDY VIGNETTE

Kiana has wanted to be a mother for as long as she could remember. Her first sister was born when she was seven, and the second was born when she was nine. Her earliest memories include being her mother's "big sister helper," handing her mother diapers and choosing which of her favorite books she'd read to "her" baby before bedtime. She spent every summer taking her sisters to the park and the community pool, always taking on the role of "the mommy" when they'd play make-believe.

The idea of being "mommy" came to light again about a year ago when Kiana met her boyfriend, Matthew. They talked about getting married and starting a family one day. They even talked about their favorite baby names – William, meaning "protector," for a boy or Briana, meaning "strong," for a girl. They both knew, however,

that these dreams would have to remain dreams until Kiana addressed her addiction. Kiana knew what it was like to grow up in a house filled with addiction and chaos. She always dreamed of giving her children a better life than the one she lived herself.

THE STIGMA OF PERINATAL OPIOID USE DISORDERS

The stigma that exists toward opioid dependency and addiction is monumentally amplified in the setting of perinatal opioid use disorders. Empirical research consistently identifies stigma, guilt, and shame as the biggest challenge for mothers with prenatal substance use disorders. Unfortunately, there is very limited research on stigma and pregnancy in terms of substance use disorders. The standing research does indicate that stigma exists amongst mothers who give birth to an infant with NAS due to opioid, methadone, and buprenorphine exposure, but it is very preliminary in nature and provides little direction for change.

Across the literature, these women have reported feeling ostracized and misunderstood, consistently being met with misconceptions and prejudicial mindsets. This research consistently reveals that pregnant and postpartum women with opioid use disorders experience judgment, indifference, stigmatization, embarrassment, and anxiety when interacting with healthcare providers. They experience shaming verbal and nonverbal language of healthcare staff, subjective NAS scoring, and the exclusion of the mother from participating in the treatment plan for both herself and for her baby. They also describe fears surrounding child protective service involvement, particularly surrounding the secretive nature of mandated reporting procedures, the sharing of medical information, and lack of transparency in the discharge planning process. The power and

influence of language choice, perception, and social stigma becomes the focus forefront, rather than attachment and bonding between the mother and the infant (Cleveland, 2013; Cleveland & Bonugli, 2014; Cleveland et al., 2016; Dimirci et al., 2015; Goodyear-Smith & Buetow, 2001; Holbrook, 2015; Holbrook & Nguyen, 2015; Howard, 2015; Howard, 2016; Jones et al., 2008; Mattocks et al., 2017; Stengel, 2014; Stone, 2015; Suchman & Luthar, 2000).

The existing research, in fact, corroborates these experiences. The literature reveals that health care providers acknowledge having negative, judgmental thoughts and feelings toward pregnant and postpartum women with opioid use disorders. They also report experiencing heightened stress when working with this population due to maternal defensiveness, difficulty with engagement, and concern for the baby's wellbeing (Fraser et al., 2007; Maguire, Webb, Passmore, & Cline, 2012; Murphy-Oikonen, Brownlee, Montelpare, & Gerlach, 2010).

It has become clear that there is a cyclical relationship between the perceptions of both the mothers and the providers. It is emotionally grueling for a mother to watch her infant experience withdrawal. Many women in this position feel tremendous guilt and blame themselves for being the cause of their baby's distress. Unfortunately, many of these women are further hindered by limited coping skills to help them process the situation. At this point, maladaptive coping mechanisms come into play, including defensiveness, disengagement, and decreased or lack of visitation. In turn, healthcare providers are perceiving these behaviors indifference and lack of maternal investment in the baby, impacting the way in which they interact with these women and how they include them in medical care planning. And so the cycle continues, as these mothers feel further ostracized,

judged, and discouraged from interacting with their infants (Cleveland, 2013; Cleveland & Bonugli, 2014; Cleveland et al., 2016; Dimirci et al., 2015; Holbrook, 2015; Holbrook & Nguyen, 2015; Howard, 2015; Howard, 2016; Jones et al., 2008; Mattocks et al., 2017; Stengel, 2014; Stone, 2015; Suchman & Luthar, 2000).

Unfortunately, these recurring patterns of stigma and misconception become the foundation of a socially-constructed barrier to early attachment development. The combination of these challenges and deterrents results in reduced or complete lack of visitation by the mother. This is detrimental to the mother and infant both independently and as a dyad. The mother misses out on the opportunity to develop the attachment bond and learn her child's feeding and soothing preferences. Even when she does visit, her interactions may be more depressed or anxious, which negatively influences attachment, bonding, and maternal confidence (Cleveland, 2013; Cleveland & Bonugli, 2014; Cleveland et al., 2016; Dimirci et al., 2015; Holbrook, 2015; Holbrook & Nguyen, 2015; Howard, 2015; Howard, 2016; Jones et al., 2008; Mattocks et al., 2017; Stengel, 2014; Stone, 2015; Suchman & Luthar, 2000).

Without regular visitation and interaction with the mother, the infant is unable to develop a secure attachment. Infants who lack secure attachment to their caregiver, the mother in this case, are likely to be more irritable and cry more often than those infants who have had the opportunity to develop that secure attachment. This increases the risk of maternal stress which can be a potential trigger for substance use relapse and child abuse or neglect. This cycle also prevents the utilization of the efficacious nonpharmacological treatment approaches, all of which involve bonding and attachment development (Kim, Fonagy, Allen, & Strathearn, 2014; Parolin & Simonelli, 2016; Suchman & Luthar, 2000).

This comprehensive review of the literature has identified stigma as the biggest inhibiting factor to bond-development between mother and baby. These psychosocial factors and the corresponding benefits directly coincide with the principles of attachment theory and the development of secure attachment with a caregiver. The following chapter will thoroughly describe attachment theory, which is arguably the most renowned and empirically-supported philosophy of human relationship development and explore the way in which it relates to mothers and infants impacted by opioid use disorders.

CASE STUDY VIGNETTE

“Oh my God, I’m pregnant,” Kiana repeated to herself. An ultrasound revealed that Kiana was about 12 weeks into her pregnancy. As Kiana lowered her head in utter shock and disbelief, her eyes were immediately drawn to the track marks on her arms. She quickly crossed her arms across her chest to conceal the proof that she’s “one of those people.” Kiana silently wondered what the doctor thought of her as she stood in front of her, wearing her neatly pressed white lab coat and expensive-looking black leather flats.

Kiana’s mind started to wander into the foreshadowing of coming back to this very hospital, six months from now, to give birth to her baby. She imagined the nurses whispering soul-crushing comments about her being undeserving of motherhood. She imagined being restricted from visiting her baby in the NICU, never getting to hold or breastfeed her firstborn child. She imagined a child protective services worker taking her baby from her arms while the staff stared at her with disdain. What was once a lifelong dream has now become shrouded in fear.

CHAPTER III: THEORETICAL FRAMEWORK

THE INTERSECTION OF PERINATAL OPIOID USE DISORDERS AND ATTACHMENT THEORY

Attachment theory focuses on the active, ongoing dynamics of interpersonal relationships between human beings (Ainsworth, 1964). Psychoanalytic theory concentrates on both healthy and maladaptive aspects of the human personality and interrelationships. Attachment theory examines how we develop, internalize, and function within these relationships (Bowlby, 1969). The theory of attachment is not just philosophical in nature; there are several indications of neurobiology that support humans' biologically-driven instinct to cultivate social relationships and interactions (Bowlby, 1957). Evidence shows that there are neurological connections to attachment theory, including autonomic responses, which regulate heart rate and respiration, and hypothalamic-pituitary-adrenal axis activity, which regulates stress (Bowlby, 1969). The way in which a person experiences and internalizes attachment relationships is neurologically catalytic. Furthermore, these memories become the hardwiring for interpersonal connections and bonds (Applegate & Shapiro, 2005).

The empirical research uncovered has revealed that incorporating psychosocial factors like breastfeeding, bonding, swaddling, cuddling, and family involvement improves outcomes for infants with intrauterine opioid exposure. The literature also reveals that additional psychosocial factors, like nurturing, supportive, stable homes with social and family protective factors, provide further improved short- and long-term physical and behavioral outcomes for these infants and their families. Each of these factors, though individually beneficial, are all linked by an extremely significant common denominator. They are all components of early attachment development.

EARLY ATTACHMENT DEVELOPMENT

Early attachment development, though inherently a natural part of the child rearing process, does require intentional interactions to occur between the baby and primary caregiver. Bowlby defines attachment behavior as “any form of behaviour that results in a person attaining or maintaining proximity to some other clearly identified individual who is conceived as better able to cope with the world” (Bowlby, 1988, page 26-27). There can be multiple attachment relationships between the infant and caregivers. Generally speaking, the principal attachment figure is the mother, as she is the closest possible figure to the birth itself. Subsidiary attachment figures include many other human beings who interact with the infant. These figures are distinct from the primary attachment figure and generally come in the form of playmates and substitute or short-term caregivers. These figures, though they can be fleeting in nature, are also an integral part of the infant’s attachment development. These figures exist outside of the safety nest created by the primary attachment figure and provide the infant with the opportunity to explore and test limits. At any point in which the infant becomes startled, hurt, or uncomfortable with the subsidiary figure, he will instinctively seek out and retreat to the primary caregiver (Bowlby, 1969).

Although there are certainly many instances where the non-maternal caregiver can develop a strong primary bond with the infant, there are certain hormonal aspects of the mother/infant relationship that make this bond occur more easily than with another caregiver (Bowlby, 1969). Oxytocin, a powerful maternal hormone that acts as a bonding neurotransmitter within the brain, is triggered within the mother when the infant engages with or touches the mother (Klaus & Kennell, 1976). Eye contact between the infant and

mother is most successful when within 12 inches of each other's faces, as this is the proximity in which an infant's vision can clearly identify the mother's face (Klaus & Kennell, 1976).

The generation of oxytocin is just one of several hormonal bonding interactions that occur within the mother/infant relationship. Klaus and Kennell (1976) identified and described nine bonding interactions that are initiated by the mother, including touch, eye contact, high-pitched voice, entrainment, time, lymphocytes (breastmilk nutrient), bacterial nasal flora, odor, and heat. Klaus and Kennell (1976) also identified and described six interactions that are initiated by the infant, including eye contact, cry, oxytocin (maternal hormone), prolactin (hormone that encourages breast milk production), odor, and entrainment. The increase in oxytocin is especially significant, as elevations in oxytocin during bonding have been clinically shown to increase maternal euphoria, love, and attachment to the infant (Klaus, 1998).

The importance of identifying the mother/infant relationship is not intended to diminish the relevance or worth of other primary attachment figures, but rather to emphasize the value of the maternal role regardless of the mother's imperfections. This is especially important to consider in the context of early attachment bonding between mother/infant dyads impacted by opioid use disorders. The infant loves, desires, and craves the mother no matter what. She is always important, and she is always needed.

Eye contact, physical contact, and verbal contact are all key elements of attachment development between the mother and infant (Bowlby, 1977). To develop a strong attachment bond, these activities must be consistent and reliable. Consistency is predictable and inherently safe. During generally healthy, uncomplicated pregnancies,

infants consistently receive nutrition through the umbilical cord without interruption. Continuing that consistency in feeding while infants are still too small to provide for themselves makes them feel safe (Bowlby, 1969). Once consistency is established, the infants feel safe knowing that they are likely to receive the same response from the same stimulus in the future. For example, infants know that they will be picked up and fed when they cry (Bowlby, 1958).

Although there are several generalizable infant cues (i.e. cries when hungry), each infant communicates differently than the other. Neonatal abstinence syndrome can play a significant role in this attachment development and the way in which babies interact with their attachment figures. Symptoms of NAS directly impact the way in which the baby eats, sleeps, and cries. Infants initially utilize crying as a form of expression, but eventually crying becomes the infant's primary mode of communication with the mother (Bell & Ainsworth, 1972; Bowlby, 1969). This is the infant's primary and initial form of communication with the mother. The infant's cry initiates physiological responses within the mother that induce breastmilk production. A mother can develop an incredibly strong bond with her child as she learns to speak her child's language (Klaus & Kennell, 1967 & Tronick, 1989).

Holding the infant close to the chest fosters the feeling to security by mitigating the infant's fear of openness. The infant can safely and confidently explore the world around him while feeling his mother within reach. Kangaroo Care, which originated in Bogota, Colombia as a necessary means to compensate for shortage in equipment, involves skin to skin contact in the critical care setting (Johnson, 2013). Kangaroo Care creates the

desirable heat, scent, eye contact, touch, prolactin, oxytocin, as described by Klaus and Kennell (1976).

Primary object sucking and clinging theory, also developed by Bowlby, asserts that infants have an instinctual need to suck for nutrition and cling for affection. These needs can be observed in infant behaviors when the infant exhibits the rooting reflex, which refers to the way in which an infant seeks to find an object that touches his or her face, especially near the mouth (Bowlby, 1969). Production of prolactin, a protein-based bonding hormone that enables a mother to produce breastmilk, is triggered within the mother when the infant engages with or touches the mother (Klaus & Kennell, 1967). Though breastfeeding is not specifically required to develop a strong attachment bond, it is ideal. Breastmilk has substantial nutritional benefits and contains lymphocytes and docosahexaenoic acid (DHA) omega-3 fats (Klaus & Kennell, 1967; Andreas, Kampmann, & Le-Doare, 2015). These nutrients promote neurodevelopment and reduce risk for affective and developmental disorders (Liu, Leung, & Yang, 2014; Andreas et al., 2015).

THE IMPACT OF ATTACHMENT DEVELOPMENT ACROSS THE LIFESPAN

Bowlby posited that attachment development was a very black and white process: either the attachment bond existed, or it did not. Ainsworth further elaborated upon this concept and noted that there are specific intervals of attachment bonds that exist, which she identified as attachment patterns, or styles, in the 1950s. Attachment patterns, or styles, refer to infant behaviors that correlate to the way the infant experiences a relationship with an attachment figure. Attachment patterns are developed in infancy and are often strong indications of attachment pattern development in adulthood (Ainsworth et al., 1978; Bowlby, 1969).

ATTACHMENT PATTERNS IN INFANCY

Behaviors of attachment patterns in infancy are indicative of two things: the behaviors through which the infant signals the mother's attention and the infant's attainment and maintenance of the desired contact (Bell & Ainsworth, 1972). Based on Ainsworth's discoveries, infants ultimately develop one of three attachment styles: secure, anxious-avoidant, anxious-resistant (Ainsworth et al., 1978).

Of note, it is important to consider four factors prior to making a determination regarding a child's attachment style: the location of the primary attachment figure, the location of any subsidiary attachment figures, the physical environment, and the child's medical status. Any individual or combination of these factors can vastly impact the behavior of an infant and may not be indicative of an attachment pattern (Bowlby, 1969). Ainsworth identified one specific category for secure attachment and three distinct categories of insecure attachment: anxious-resistant, anxious-avoidant, and disorganized-disoriented (Ainsworth et al., 1978).

Securely attached infants will explore new surroundings with curiosity and interest while occasionally looking back at the mother for support. This infant will develop strong coping methods and adaptability to unfamiliar, uncomfortable situations. Secure attachment is developed from two factors – the mother's responsiveness to the infant's signals and the nature and quality of the time spent between the mother and the infant. A mother who quickly picks up her crying infant, but then does not engage with him may develop a weaker attachment bond with her child when compared to a mother who quickly picks up her crying infant and then subsequently engages with him through eye contact and speech. The quality of the time spent together is very important. This is not just about

blindly responding to the child's needs or enabling behavior, it's about developing this sense of closeness that makes the infant feel safe and secure. Allowing the child to "cry it out" is an ineffective way to teach the infant to self-soothe. Infants develop a secure attachment when engaged with primary attachment figures who are sensitive and loving (Ainsworth et al., 1978; Bowlby, 1977). Other psychoanalytic disciplines may refer to similar developmental outcomes as strong ego, basic trust (versus mistrust), mature dependence, the true self, and internalization of the good object (Bowlby, 1977).

Infants who develop secure attachment with the primary caregiver(s) are generally easier to soothe and exhibit less intense reactions to stressful stimuli, as they have been forded with predictability and safety. The mutually experienced increase in oxytocin levels fosters a close, loving bond as well as a decrease in occurrence of postpartum depression (Klaus & Kennell, 1967). These infants are also more likely to explore their surroundings, thus stimulating neurodevelopment and meeting developmental milestones (Bowlby, 1969).

Ainsworth identified three distinct categories of insecure attachment: anxious-resistant, anxious-avoidant, and disorganized-disoriented. Anxious-resistant attachment patterns are characterized by ambivalence toward attachment entities and surroundings. Infants who develop anxious-resistant attachment styles will express significant emotional distress when the mother leaves, only to ignore her upon engagement. The infant may pay more attention to a subsidiary attachment figure than the primary. The infant's behavior toward the primary attachment figure seesaws from clingy to irate in response to perceived neglect (Ainsworth et al., 1978; Mirick & Steenrod, 2016). Infants develop anxious-resistant attachment when in the care of a primary attachment figure who is

emotionally unavailable and unresponsive is experienced as insensitive and even rejecting (Tracy & Ainsworth, 1981; Bowlby, 1969). Infants who develop anxious-resistant attachment styles may end up developing transient attachment, which involves fleeting interest in other humans and surroundings. In some cases, these infants stop attaching to other humans and cultivate a self-centered, preoccupation with material objects, like candy, food, and toys that provide them with pleasure and self-regulation (Bowlby, 1969).

The anxious-avoidant infant, on the other hand, does not show any particularly protesting behaviors when the primary caregiver leaves the infant's sight. However, when the primary caregiver returns, this infant will simply show disinterest in her presence. The infant's response is neither angry nor excited in nature. Sometimes, specific efforts to ignore the mother (such as turning the head away, using the arms to push off the mother) are noticed. Infants develop anxious-avoidant attachment when in the care of a primary attachment figures who is insensitive and inconsistent (Ainsworth et al., 1978; Mirick & Steenrod, 2016).

The final attachment pattern, disorganized-disoriented, was not originally included in Ainsworth's literature. She identified and added this attachment style later in order to accurately identify more extreme, inexplicable attachment behaviors. These behaviors include perceived inability to function within the environment in the context of the caregiver. Infants who develop disorganized-disoriented attachment are consistently alternating between seeking attachment, attention, and bonding with the caregiver and freezing, avoiding, and sometimes even lashing out against a caregiver without necessarily having a specific invoking stimulus. These infants regularly exhibit contradictory behaviors

due to inconsistent, unpredictable interaction with the caregiver (Ainsworth et al., 1978; Mirick & Steenrod, 2016).

ATTACHMENT PATTERNS IN ADULTHOOD

On the other hand, infants unable to develop secure attachment struggle with interpersonal relationship difficulties as adults. In the 1980s, Cindy Hazan and Phillip Shaver extended this research to adults and found significant similarities in attachment patterns between adults and children (Hazan & Shaver, 1994). As the child makes his way into adulthood, he or she may exhibit behavioral and/or social difficulties (Flores, 2005). They experience greater challenges with developing healthy platonic and romantic relationships and engaging in intimacy with peers. Secure attachment development can be hindered by abuse, neglect, trauma, and poor caregiver consistency and reliability. Adults who struggle with attachment development may exhibit overwhelming, maladaptive, irrational behaviors as a way of demanding love and attention while simultaneously playing a resentful, extreme caretaker role. In rare cases, sociopathology can arise from extreme attachment issues (Bowlby, 1977).

Infants who developed secure attachment to a primary caregiver generally transition into becoming well-adjusted adolescents and adults and have the ability to fulfill the natural human desire to develop trusting relationships. Securely attached adolescents and adults are cooperative, empathetic, and easily engaged with others. Well-adjusted adults are also characterized by having established coping skills and are successful with affect regulation (Bowlby, 1977). Research indicates that infants who were breastfed, and engaged during breastfeeding, are less likely to internalize feelings of anxiety, depression, and other somatic symptoms as adults (Liu et al., 2014).

Three distinct categories of insecure attachment in adulthood: dismissive-avoidant, anxious-preoccupied, and fearful-avoidant. Dismissive-avoidant adults often feel as though achieving and maintaining relational independence is more important than developing closer, more intimate relationships. They have a strong self-perception and a lower value perception of others (Hazan & Shaver, 1994).

Anxious-preoccupied adults are characterized by opposite relational worldviews. They perceive themselves to have a lower self-value, while others are perceived more positively with a higher value. These adults find that they crave extremely intimate relationships with others, and often become disheartened when this need is not met (Hazan & Shaver, 1994).

Fearful-avoidant adults experience a combination of the dismissive-avoidant and anxious-preoccupied attachment patterns. Adults with this attachment style are often unsure of how they want to experience relationships and are further confused by how to determine or achieve their desired relational goal. This fluctuating and alternating approach to relationships with others can often inhibit the creation of healthy, stable relationships in general.

Life experiences that contribute to fearful-avoidant adult attachment styles can often be associated with complex trauma (Hazan & Shaver, 1994). When the need for self-regulation, security, and predictability is not met, the insecurely attached person looks to compensatory measures. This unconscious search for compensatory measures can manifest in several different ways, including addiction. The addiction, however, ultimately provides the opposite of self-regulation, security and predictability. It is an attempt to self-repair that always fails. It is rare to meet a person with substance dependency who does

not also have some form of attachment trauma history (Flores, 2005; Parolin & Simonelli, 2016).

MATERNAL/INFANT ATTACHMENT DEVELOPMENT IN THE HOSPITAL SETTING

As previously mentioned, early attachment development, though an inherently natural part of the child rearing process, does require intentional interactions to occur between the baby and primary caregiver. These interactions are especially challenging in the hospital setting, which can act as a barrier to attachment itself. Hospitals are generally sterile, uncomfortable environments where medical treatment and sanitation is, logically, prioritized over relaxation and coziness. In many cases, curtains between patients are the extent to which privacy exists. There are limited options for personalized bonding or free range of motion, pushing away from an attachment-fostering atmosphere.

As empirical evidence continues to support the significant relationship between early attachment bonding and physical, mental, and interpersonal health outcomes, researchers are beginning to explore new approaches to cultivating these bonds. For example, an adaption of child-parent psychotherapy (CPP), an attachment-based psychotherapeutic intervention, is currently being piloted in a NICU setting in a California-based study. This pilot program aims to evaluate the efficacy of this NICU-specific adaption of CPP in improving infant/parent bonds (Lakatos, Matic, Carson, & Williams, 2019).

These types of studies, although incredibly important and vital to improving infant/parent relational outcomes, fail to address the specific needs of mothers and infants impacted by opioid use disorders, a remarkably stigmatized, vulnerable population. The way in which a mother develops a relationship and bonds with her infant with NAS has its own unique challenges. Infants being treated for NAS also have difficulties communicating

effective cues to their caregivers, making it more challenging than usual to console them. The sound of their cries, for example, is very different than other newborns. Their cries are louder and higher pitched. They are also much more difficult to console (MaGuire et al., 2016).

Though the attachment styles identified by Ainsworth have clear differences, they may be difficult to appropriately identify in the baby being treated for NAS. For example, because symptoms of NAS resemble behaviors linked to insecure attachment, such as irritability, agitation, and excessive crying, it may be difficult to identify how the infant's attachment to the mother is developing during NAS treatment. Even if a mother visits her infant every day to support a secure attachment, the benefits of her efforts may not be evident until after the baby's course of treatment is finished. Representations and relationships with attachment figures in childhood persevere into adulthood. Consequently, the internalization of these relationships ultimately becomes the self-model (Bowlby, 1977). By diminishing the opportunity to provide education and foster healthy attachments between these mothers and their infants, providers are simultaneously, and drastically, increasing risk of harm and perpetuating this cycle. The need for an evidence-informed approach like the PARTNER model is evident.

CHAPTER IV: METHODOLOGY

PURPOSE AND SIGNIFICANCE

The purpose of this dissertation is to develop an original, multidisciplinary practice model for providers working with mothers and infants impacted by opioid use disorders. A thorough review, synthesis, and critical analysis of the literature has revealed that there are several treatment approaches for pregnant and postpartum women with opioid disorders, as well as infants diagnosed with NAS. The literature review has also revealed that maternal engagement, support and care, all of which are empirically shown to improve outcomes for both the mothers and infants themselves, are consistently being obstructed by barriers to care. The most commonly identified barriers to achieving these improved outcomes are sociocultural constructs including stigma, judgment, and exclusion. These psychosocial factors do not coincide with the disease-model approach of medicine and are substantially hindering the delivery of quality, unbiased care.

Effective treatment approaches and barriers to care have been clearly identified in the existing literature, but a missing piece to this complex puzzle remains: how can providers work with pregnant and postpartum women and their infants in a way that reduces stigma and fosters attachment? The PARTNER model bridges this gap in the literature in an innovative, practical, and approachable way. It embraces the humanistic side of this delicate relationships that does not exist in the medical treatment models guiding healthcare practices. The current literature, as well as this identified gap in the literature, support the need for a practice model that provides guidelines for providers. The PARTNER model has been designed to guide providers in providing ethical, humanistic, attachment-focused care to mothers and infants like Kiana and William.

PRACTICE MODEL AND COMPOSITE CASE STUDY DESIGN

The PARTNER model takes all the aforementioned factors into consideration and equips healthcare providers with the education and guidance needed to not only create a partnership between the mother and the infant, the mother and providers as well. The PARTNER model is comprised of seven key elements of attachment-focused care, including:

1. **Person-Centered**
2. **Attachment-Informed**
3. **Risk Reduction**
4. **Trauma-Informed**
5. **Neutrality**
6. **Empowerment**
7. **Reinforcement**

This model has been designed to provide guidance to providers working pregnant and postpartum women with opioid use disorders. “Providers” include licensed professionals working in a healthcare setting including, but not limited to, physicians, nurse practitioners, physician assistants, psychologists, registered nurses, and clinical social workers (Code of Federal Regulations, 2012).

This model has been developed based on the review, synthesis, and critical analysis of the current literature along with the integration of relevant practice knowledge, theory, and research. Each element is derived from evidence-based practices with modifications to meet the unique needs of this unique population. There are no other constraints in terms of gender identity, race, age, or socioeconomic status. However, there are recommendations for consideration of these factors incorporated into the model.

Composite case vignettes, informed by clinical experience and empirical literature, have been incorporated throughout this dissertation. These case vignettes tell the story of Kiana, a 23-year-old black, heterosexual, cisgender woman with a perinatal opioid use disorder. Pertinent elements of Kiana's history have been integrated throughout the literature review, illuminating and connecting her story to the concepts that set the foundation for the PARTNER model. Kiana's story continues after the introduction of the PARTNER model, picking back up from where it stopped at the end of the literature review.

The story of Kiana's journey through pregnancy and the birth of her baby, William, brings life and connection to each element of the PARTNER model. The PARTNER model has been specifically designed with patients like Kiana and William in mind, whose story is similar to many of the women and babies impacted by perinatal opioid addiction. Identifying areas of antiquation and integrating strengths-based interventions emphasizes the importance of promoting attachment between a mother and her infant, provides a person-centered framework from which to work, and fosters insight into and mitigation of socially-constructed barriers that deepen the divide between "us" and "them."

CHAPTER V: PRACTICE MODEL AND CASE STUDY

INTRODUCTION TO THE PARTNER MODEL

This chapter will provide a layout of the PARTNER model including an overview, key elements, significance, and application to practice. The following chapter will include a case study that provides examples of how each of the elements should be integrated into healthcare provider practice. The PARTNER model is comprised of seven key elements of attachment-focused care, including:

1. **Person-Centered**
2. **Attachment-Informed**
3. **Risk Reduction**
4. **Trauma-Informed**
5. **Neutrality**
6. **Empowerment**
7. **Reinforcement**

All of these elements are intended to be integrated simultaneously and seamlessly into care. The model emerged from an understanding of risk factors for opioid use disorder, barriers to prenatal/postnatal care, and ways to address these issues with a focus on fostering attachment not just by developing a partnership between mother and baby, but also between mother and the care providers. Each element has a common goal of educating, reducing stigma, and fostering attachment. These components can certainly be applied to anyone with a history of addiction, but this model is specifically designed for pregnant and postpartum women currently struggling with addiction, as it specifically addresses the unique needs of this population as uncovered in the literature.

THE PARTNER MODEL IN ACTION

Throughout the PARTNER model analysis, vignettes from Kiana's composite case study are incorporated to illustrate how the elements of the PARTNER model are implemented in practice. To reintroduce Kiana, she is a 23-year-old black, heterosexual, cisgender woman with a perinatal opioid use disorder. Kiana currently lives in Philadelphia with her mother and two younger sisters and works long, late-night hours at a restaurant. She has several risk factors linked to substance use disorders, including a family history of alcohol abuse, mental illness, and domestic violence, all of which contribute to Kiana's ACE score of 8/10. Kiana has also been diagnosed with depression and has experienced sexual violence in adulthood.

Kiana was first introduced to opiates at age 20, when she was given a prescription for Percocet after getting into a car accident. Without having any education on opioid risks, she took the Percocet prescription every day for two months. Unfortunately, a handful of missed opportunities helped to create a pipeline to addiction. Kiana never got psychoeducation on the risk of opioids or an evaluation for opioid dependency. Kiana was met with stigma and judgment rather than support and unbiased care. It was only a matter of weeks before Kiana became physically dependent and behaviorally addicted to opioids. Eventually, Kiana transitioned from Percocet to heroin.

Three years after being introduced to opiates, Kiana experienced her first overdose. She was treated with NARCAN and brought to the hospital for an evaluation and workup. It was during this emergency department visit that Kiana found out she was 12 weeks pregnant. Kiana's story continues from here, at which time she is treated by providers who are working from the PARTNER model approach. By integrating the PARTNER model

approach into their practice, Kiana's healthcare providers are able to meet Kiana where she is, identify her strengths, and help her develop an early attachment bond with her baby by meeting her where she is and providing her with person-centered, unbiased, ethical medical care.

P: PERSON-CENTERED

The first element of the PARTNER model is *person-centered*. A *person-centered* approach is characterized by the establishment of equal partnership between the provider and the patient that is rooted in genuine empathy for individually lived experiences. Equal partnership is the foundation of the person-centered approach. It requires providers to view the patient as an individual person with individual needs, leaving behind the one-size-fits-all mentality. This approach is vital to this practice model, as it supports the overarching goal to educate, destigmatize, and foster attachment as equal partners in planning rather than from an imbalanced power approach. The provider and patient still have their unique roles within the relationship, but it is more collaborative in nature than a traditional directive healthcare approach. When working from this framework, providers act as guides or coaches in informed healthcare decision-making. This also requires providers to acknowledge the power dynamics that exist within the patient/provider relationship, which can often act as barriers to developing this equal partnership. The benefits of creating this partnership can also surpass pregnancy, as it can open an ongoing doorway to developing and maintaining a safe, comfortable relationship with health care systems in general.

Person-centered care also requires providers to respect and appreciate the patient's world, free from judgment or stigmatization. The empathy involved in person-centered

care goes beyond understanding feelings; it requires a capacity for deeper understanding and acceptance of the patient's lived experiences from the patient's individual life paradigm. Through this approach, providers can capture a patient's true narrative by allowing the patient to guide and process the narrative themselves. It is a holistic approach that requires providers to meet the patient's needs in a way that is applicable to the patient's uniquely lived experiences.

CASE STUDY VIGNETTE

Kiana was brought to the hospital after overdosing on heroin. She is laying on a stretcher in an emergency department room, feeling ashamed, embarrassed, and completely overwhelmed. She has just been told that she is pregnant, approximately 12 weeks' gestation. Per hospital protocol, Kiana is admitted to the maternal/fetal medicine unit for withdrawal monitoring and treatment, which involves medication-assisted treatment initiation. Allison, a licensed clinical social worker, has been consulted to meet with Kiana and complete an initial assessment using the PARTNER model to guide her approach.

Allison knocks on the door, asking permission to enter the room and sit in the open chair next to Kiana's stretcher. Allison introduces herself and reviews her role as the perinatal clinic social worker. Allison explains to Kiana that she is here to meet with her, provide support, and talk through some questions to determine how she can be the most helpful. Allison explains that she is going to ask Kiana several questions. "Kiana, if at any point you feel overwhelmed or uncomfortable, just let me know. I know you've had a really tough day, so we will move at whatever pace feels the most

comfortable for you. We can take a break or stop at any time. Does this sound okay with you?"

At this point in the interaction, Kiana feels anxious and ashamed. However, Allison's empathic understanding approach helps to put her at ease. Allison is using a person-centered approach to engage Kiana and lay the groundwork for the development of an equal partnership between Kiana and her healthcare providers. She is showing respect for Kiana's physical and mental space by asking for permission to enter the room and putting the control of the assessment pace in Kiana's hands.

Throughout the assessment, Kiana reveals clinically significant aspects of her life that have been empirically identified as risk factors for opioid dependency. Allison is engaged in active listening, providing empathic validation while assessing for Kiana's needs. Allison also discusses pregnancy options (parenting, adoption, and termination) without making any assumptions, practicing from a collaborative, rather than authoritative, approach. Kiana shares that she would like to move forward with the pregnancy and parent her baby but does not know where to start.

Allison introduces the opportunity to help connect Kiana to an ob/gyn for prenatal care and medication-assisted treatment programs, discussing all of the options with her. Kiana expresses interest in initiating this type of treatment. Allison asks Kiana, "We've talked about a few different programs. Based on what you've told me about you, I think the buprenorphine clinic that specializes in perinatal health would be great for you. What do you think?" Again, by taking this approach, Allison practicing from a collaborative, rather than authoritative, approach. She is creating an equal partnership with Kiana and is giving her autonomy in evaluating her

healthcare decisions. Kiana agrees to starting buprenorphine medication-assisted treatment management with the perinatal addiction clinic. Allison provides a warm handoff to both the perinatal addiction clinic and outpatient ob/gyn clinic teams.

A: ATTACHMENT-INFORMED

The second element of the PARTNER model is *attachment-informed*. An *attachment-informed* approach involves integrating support, psychoeducation, and engagement that fosters relationship building between providers and the patient, as well as the patient and the baby. The empirical research uncovered has revealed that incorporating psychosocial factors like breastfeeding, bonding, swaddling, cuddling, and family involvement improves outcomes for infants with intrauterine opioid exposure. The literature also reveals that additional psychosocial factors, like nurturing, supportive, stable homes with social and family protective factors, provide further improved short- and long-term physical and behavioral outcomes for these infants and their families. Each of these factors, though individually beneficial, are all linked by an extremely significant common denominator. They are all components of early attachment development.

Although there are several generalizable infant cues (for example, crying when hungry), each infant communicates differently than the other. Neonatal abstinence syndrome can play a significant role in this attachment development and the way in which babies interact with their attachment figures. Symptoms of NAS directly impact the way in which the baby eats, sleeps, and cries. Infants initially utilize crying as a form of expression, but eventually crying becomes the infant's primary mode of communication with the mother. This is the infant's primary and initial form of communication with the mother.

The infant's cry initiates physiological responses within the mother that induce breastmilk production. A mother can develop an incredibly strong bond with her child as she learns to speak her child's language. Eye contact, physical contact, and verbal contact are all key elements of attachment development between the mother and infant. To develop a strong attachment bond, these activities must be consistent and reliable. Consistency is predictable and inherently safe. This is an important consideration when working from an attachment-informed framework to foster partnership between the mother and her baby, as well as the mother and her providers.

CASE STUDY VIGNETTE

Kiana presents to the ob/gyn clinic office for her first prenatal care visit. Kiana looks around and sees several other pregnant women in the waiting room. Kiana wonders to herself, "Do I even belong here? Do I even deserve to be a mom?" Kiana timidly approaches the front desk to start the check-in process. Terrie, the ob/gyn practice manager, greets her with a warm smile.

"Hi Kiana, thank you so much for coming to see us today. How are you feeling?" "I'm okay, thanks," Kiana responds. Kiana still feels hesitant but notices a sense of relief. "We have some paperwork for you to fill out," Terrie says. "Take your time, no rush. If you have any questions, just let me know. I'm here to help." Terrie acknowledges the imbalanced power dynamic that exists between healthcare providers and patients. She is engaging Kiana from an attachment perspective, utilizing a nurturing, supportive approach.

After her paperwork is completed, Kiana is greeted by Beth, one of the ob/gyn office nurses. Beth walks Kiana back to the patient room and completes her vitals. Beth

asks Kiana if she has any questions or concerns that she would like to address during her visit today. Kiana has more questions than she can count, but she quietly responds, "I'm not really sure." Beth recognizes that this is a stressful, intimidating situation for Kiana. To normalize Kiana's feelings, Beth responds, "That's okay. I don't know any new moms-to-be who know exactly where to start. There's so much to think about! Why don't we start with what to expect for this visit?" Beth provides Kiana with an overview of the first prenatal care visit. Like Terrie, she is engaging Kiana from an attachment perspective, utilizing a nurturing, supportive approach.

Shortly after Beth leaves the room, Dr. Ziegel knocks on the door, asks permission to enter the room. "Hi Kiana, it's so nice to meet you. My name is Dr. Ziegel, but everyone calls me Jenny," she says. During Jenny's evaluation and assessment, she asks Kiana some questions about her opioid use disorder history and the newly initiated medication-assisted treatment management. Kiana states has been working well for her thus far, but Jenny notices Kiana appears visibly upset. Jenny asks, "What's going through your mind, Kiana?" Kiana replies, "What's going to happen to my baby?"

Jenny takes the time to answer all of Kiana's questions. Jenny explains the different ways in which opiates and buprenorphine interact with the baby in utero, reassuring Kiana that the baby is safer with the medication assisted treatment. Jenny provides education on neonatal abstinence syndrome, explaining the diagnosis and treatment process. Jenny also provides education on mandated reporting laws, explaining that the hospital is legally required to notify child protective services of any unprescribed opioid use during pregnancy. Jenny also emphasizes the impactful role of maternal engagement and attachment bonding activities in the NAS treatment

process. By doing this, Jenny is laying the groundwork for early attachment bond development. Jenny is thoroughly explaining all aspects of the perinatal opioid dependency, but discusses these sensitive topics using supportive, unthreatening, approach. The goal is to foster inclusion and partnership rather than fear and disconnection. Jenny is letting Kiana know that she is not only deserving of being a mother, but she is needed and an important part of the baby's treatment team.

R: RISK REDUCTION

The third element of the PARTNER model is *risk reduction*. Engaging in a risk reduction approach involves working together, with the patient, toward the establishment of safety and improvements rather than perfection. Risk reduction involves realistic, sustainable goal setting with realistic, individualized expectations, as well as identifying and mitigating barriers to achieving these goals. Goal-setting can include, and is not limited to, discussions surrounding treatment, parenting, child protective services. These goals can, and likely will, evolve throughout the pregnancy and postpartum periods. By guiding the patient through the thought process of goal-setting, providers can help set the patient up for successful outcomes. A patient's goals should be augmented by psychoeducation to ensure informed decision-making. This is especially important when discussing harm reducing practices in blood borne infectious diseases and overdose prevention.

Again, risk reduction works toward establishing safety and improvements rather than perfection. This is important for the provider to consider as well, not just the patient. Research shows that providers can expect some degree of noncompliance and inconsistency in care planning with people who suffer from addiction (Tkacz, Severt, Cacciola, & Ruetsch, 2011). Providers should respect, acknowledge, and appreciate any

preexisting and ongoing challenges of a patient's lived experiences. Providers should also respect patient's right to disclose sensitive information and accept that patient may not always be forthcoming, especially given the context of the heavy stigma surrounding pregnancy and addiction. Maintaining realistic expectations supports the person-centered approach and reduces occurrence of stigma, as it recognizes and respects each individual patient's abilities, strengths, and needs. A patient's care planning noncompliance is not indicative of flawed character or moral failing and should be approached accordingly.

Identifying and mitigating barriers to care is an essential component of this process, as barriers to care often contribute to health care noncompliance. Barriers to care, such as lack of transportation, medical insurance, housing, and other resources are significantly more likely to be lost to care than those patients who have their basic needs met. In cases where barriers do not have an identifiable or viable solution, providers should consider referring out to external agencies for ongoing case management support. It may not be possible to mitigate all barriers to care, but again, the aim should be toward improvement, not perfection.

CASE STUDY VIGNETTE

Kiana returns to the ob/gyn office next prenatal appointment. Kiana is greeted by her doctor, Jenny, with a warm smile. "It's so great to see you again, Kiana. Thank you for coming to see us today." After her prenatal exam and labs are completed, Kiana anxiously shares with Jenny that she experienced a brief relapse last week. Kiana is terrified and embarrassed to admit this, as she does not want anyone to think she does not love her baby. However, the consistently nonjudgmental engagement Kiana experiences with her healthcare team helps her feel more comfortable sharing

this. Jenny acknowledges and commends Kiana for her bravery in sharing this information.

Jenny is well-versed in opioid use disorders and understands that relapse is an anticipated, commonly experienced aspect of the recovery process. Jenny approaches her practice with an aim for improvement, not perfection. Jenny also practices from a disease-model approach, making sure to emphasize to Kiana that this relapse is part of the process, not a moral failing or character flaw.

Jenny provides Kiana with some brief supportive counseling, motivational interviewing techniques, and psychoeducation on the opioid addiction recovery process. Jenny also reviews some additional risk reduction information, including education about needle sharing and needle exchanges. Her goal is to keep Kiana and her baby as safe as possible. Jenny also asks some questions to assess for access to basic needs and barriers to care, uncovering that Kiana is having a hard time navigating WIC program benefits. Jenny offers to send a referral to local non-profit agency that provides case management supports to pregnant women with opioid use disorders, which Kiana accepts.

T: TRAUMA-INFORMED

The fourth element of the PARTNER model is *trauma-informed*. Practicing from a trauma-informed approach involves the establishment safety between the patient and the provider through connection and authenticity. Safety is the cornerstone of attachment development. Creating a sense of basic safety is necessary for patients to feel comfortable with engaging with their healthcare providers. Successfully establishing safety is heavily

dependent on the patient's individual trauma history and attachment style, but providers can continuously work toward creating physical and emotional safety within the patient/provider relationship (Sanders & Hall, 2018). Patients need to feel physically safe within the immediate space between themselves and the providers. Patients also need to feel emotionally safe within the patient/provider relationship. Emotional safety can be established through the use of clear, calm communication, as well as mindfulness of verbal and non-verbal language. Patients need to feel safe simply being themselves.

To develop this kind of close relationship with a patient, it is ethically imperative that the relationship is authentic, genuine, and trustworthy. Providers should take the time to learn their patient's preferences, strengths, needs, and values and integrate these factors into care planning. This approach also requires implementation of cultural considerations, which aids in solidifying the respect for individual life and identity. Within the context of this authentic relationship, patients learn to trust their providers, which results in stronger engagement and relationship-building. Establishing an authentic relationship promotes transparency, respect, and humane care.

CASE STUDY VIGNETTE

Kiana presents to the hospital for her scheduled induction of labor. Kiana first meets with her nurse, Kerry, who notices that Kiana is visibly nervous. Kiana is looking down at her hands, fidgeting, and avoiding eye contact. Kerry greets Kiana with warmth, kindness, and reassurance. Kerry understands the importance of building an authentic, genuine rapport with Kiana to foster trust and safety.

Kerry introduces herself and utilizes light, appropriate humor to help put Kiana at ease. "The labor induction process can take several hours sometimes. If you get

bored and I'm not in another patient's room, I'd be happy to provide you with a special 'Karaoke Kerry' performance." Another nurse, Bobbi, chimes in and says, "Trust me, you don't want to hear any of that – 'Karaoke Kerry' is not as talented as she thinks she is." Kerry and Kiana share a laugh together, which helps Kiana feel more comfortable and connected to her unfamiliar surroundings.

Kerry begins with the routine intake evaluation, starting with less stressful screening questions, like smoking cigarettes. "Kiana, do you smoke cigarettes or use any tobacco products? If so, how often?" Kiana quietly responds that she does smoke cigarettes, about four to five times per week. Kerry responds by offering to get Kiana a nicotine patch to use during her admission, which Kiana declines for now. Kerry tells Kiana, "If at any point you feel like you need one, just let us know. The labor induction process can be stressful and take a long time. I'm here to support you through this process, so please do not hesitate to use the call bell to let me know if you change your mind. Kerry is aware that hospitalizations come with several stressful stimuli that can contribute to traumatic experiences. Kerry reminds Kiana throughout her labor induction, "Whatever you need, I'm here for you."

Kerry moves forward with the intake process and reviews Kiana's medication-assisted treatment management. Kiana still feels a bit nervous, but Kerry's warmth and humanistic approach to care helps to put Kiana at ease. Kerry answers all of Kiana's questions with transparency. This is especially important in regard to toxicology screenings, NAS monitoring, and child welfare involvement. Kerry is also sure to ask if there will be any visitors who are unaware of Kiana's recovery. Kiana explains that her mother and boyfriend are aware, but her two younger sisters are not.

She asks that no one mentions this in front of them. Kerry assures Kiana that this information will be noted in her chart and included in all handoffs, further fostering safety and respect.

N: NEUTRALITY

The fifth element of the PARTNER model is *neutrality*. Neutrality is characterized by fully objective, nonjudgmental care and is maintained through self-awareness and self-evaluation. All patients have the right to objective healthcare that is free from judgment, prejudice, and bias. This is especially important for providers working with pregnant and postpartum women with opioid use disorders, as the stigma they experience is amplified. This marginalized group of postpartum women endure all the standard postpartum challenges while simultaneously drowning in disapproval and judgment that is so brazenly conveyed by others, especially hospital staff members. There is concrete, measurable weight and influence in the way in which a patient believes he or she is perceived by a person in an authoritative position. Providers are inherently viewed as powerful. Internalized feelings of guilt and shame are amplified by the judgment and stigma imparted on them by providers. Providers have an ethical responsibility to develop and maintain self-awareness to mitigate implicit bias and countertransference. When faced with any internal challenges that could compromise the integrity and neutrality of their work, providers should seek consultation.

CASE STUDY VIGNETTE

After several hours of labor induction, Kiana gives birth to a healthy baby boy named William. William was immediately placed on Kiana's chest, initiating early

attachment bonds straightaway from birth by promoting skin-to-skin Kangaroo care. Kiana's nurse, Bobbi, taught her how to swaddle the baby and provided her with breastfeeding education and support. Kiana and William are being given objective, unbiased treatment that all mothers and babies deserve.

Kiana's providers are mindful of their language choice. During morning rounds, the team identifies that Kiana is on medication-assisted treatment, which requires an extended admission for William to monitor for NAS symptoms. They never refer to Kiana as a "drug mom" or "Subutex mom." They never refer to William as a "drug baby" or a "Subutex baby." The team prioritizes destigmatizing, person-first language. The team consistently respects Kiana's wishes in regard to who can be present during sensitive discussions.

The postpartum hospital social worker, Danielle, stops by Kiana's room to introduce herself and congratulate Kiana on the birth of her baby. "Hi Kiana, my name is Danielle. It's so nice to finally meet you. I'm one of the postpartum social workers that works with Allison. I'm not sure if you remember her; you met her a few months ago." Kiana remembers Allison, the social worker who helped her get connected to the perinatal addiction medicine and ob/gyn clinics. Kiana remembers Allison's kind, nonjudgmental demeanor. Through the use of warm handoffs, Kiana's provider team is able to preserve and build upon these connections and relationships.

Danielle continues, "Allison is off until Wednesday, but she let me know you were scheduled for induction this week. She's so bummed about missing you, but she will be back before you leave. I don't want to interrupt your bonding time with William now, so I will come back tomorrow. Is there any particular time that you'd prefer?" By

integrating these aspects of neutrality and connection into her care, Kiana's healthcare providers have created a safe space where she can truly enjoy her first moments of motherhood with humanity, dignity, and respect, free from bias and judgment.

E: EMPOWERMENT

The sixth element of the PARTNER model is *empowerment*. Empowerment is characterized by the promotion of self-worth and autonomy. To truly empower patients, providers first need to recognize and break down influences of stigma to promote worthiness of self. The stigma of addiction as a moral failing can permeate into the patient's belief in their deservingness of motherhood. At the most basic level of humanity, the patient still has the right to be a person.

The way in which providers work toward creating a sense of empowerment in patients needs to be individualized and person-centered, especially in the context of perinatal opioid use disorders. In order for patients to experience a sense of empowerment, providers should provide proactive psychoeducation and tools to promote autonomous and informed decision-making. This is especially important in the transparency mandated reporting laws and policies, as well as potential child welfare outcomes. The education, support, and encouragement needs to be applicable and appropriate for each individual patient's situation and circumstances. For example, the ability to safely breastfeed the baby may not be possible for some patients depending on active opioid use and/or contraindicated medications. In this type of situation, providers should identify other ways to empower the patient without shaming or diminishing self-worth.

CASE STUDY VIGNETTE

The following day, Danielle returns to meet with Kiana. Danielle is aware that although she briefly met with Kiana yesterday, she needs to continue to establish rapport with Kiana. Danielle engages with Kiana, giving Kiana the opportunity to process her feelings about her pregnancy, labor, and first childbirth experience.

Danielle connects with Kiana over the baby's name, sharing that her best friend's name is William.

Danielle's assessment covers several areas, including evaluating for access to basic needs, infant preparedness, social supports, and postpartum/newborn psychoeducation. Danielle also reviews clinical assessment information, including mental health history, postpartum depression screening, intimate partner violence, substance use history, and mandated reporting laws. Kiana is already aware of mandated reporting laws and required child protective services report. She remembers having this discussion with Jenny during one of her prenatal care visits.

Kiana shares with Danielle that she feels well-prepared for this process, but she is still afraid. Kiana discloses feelings of shame and guilt. She reveals to Danielle, "I feel like I'm a bad person and a bad mom. William deserves better than me. It's my fault that he has to go through withdrawal. I know what that feels like, and I can't believe my mistakes are causing my baby to feel that way. I don't want anyone to think I don't love my baby."

Danielle recognizes Kiana's addiction and child protective service involvement is not new information, but this information has new context now that the baby has been born. Danielle gives Kiana the space to talk through and process these feelings,

while utilizing supportive counseling and cognitive-behavioral techniques to work toward mitigating the cognitive distortions. Danielle works together with Kiana to reframe her thoughts, highlighting Kiana's growth, protective factors, and resilience.

Most importantly, Danielle reassures Kiana that she is an integral part of William's care team, reminding her that maternal engagement and early attachment bond development is scientifically shown to positively impact NAS treatment outcomes and early childhood development. By doing this, Danielle is working toward restoring Kiana's self-worth and empowering her to be an active participant in William's care.

R: REINFORCEMENT

The seventh and final element of the PARTNER model is *reinforcement*.

Reinforcement is characterized by repetition and consistency. Patients regularly do not retain most of the information they receive from their healthcare providers. This is especially evident in the setting of stressful stimuli, which directly impacts memory function. Stressful stimuli can also activate maladaptive self-defense mechanisms, self-destructive cognitive distortions, and denial. When faced with unpleasant circumstances, patients may also subconsciously pick certain pieces of information to remember or ignore to appease the ego. Providers should be willing to review education and information in various formats to meet their patient's needs. The process of repetition should be approached with patience, anticipation, and empathy.

Providers should also be providing consistent information with a united approach to care. This practice is integral to this model, as it fosters trust and reduces ambiguity. Consistency is especially important when discussing sensitive topics including infant

withdrawal monitoring protocol, NAS, and child protective service involvement. Providing consistent information is not only ethically imperative, but it aids in reducing ambiguity for the patient. Consistency can be cultivated through wraparound support approaches and warm handoffs to ensure continuity of care.

CASE STUDY VIGNETTE

It is the discharge day for Kiana, but William's admission continues for NAS monitoring. Kiana knows this day was going to come, but it still doesn't feel real. After Kiana is formally discharged from the hospital, William is transferred to the nursery, where he will remain for at least the next two days. William may need to stay for longer, depending on his withdrawal symptoms. Kiana returns to her mother's home to unpack her bags and take a shower but returns to the hospital shortly afterward to stay by William's side. When Kiana arrives at the nursery, she feels overcome with doubt, asking herself, "Do I even belong here? Do I even deserve to be a mom?"

Moments after entering the nursery, Kiana is greeted by William's nurse, Steph. "Hi Kiana, my name is Steph and I'll be taking care of William with you today. You're just in time for rounds! This is Robert, the attending pediatrician." Robert turns to Kiana, extending his arm and gesturing to Kiana to come join the discussion. Steph and Robert are aware of how intimidating this environment can feel. They know Kiana has been educated on the benefits of early attachment bonding, but they are reinforcing this message to engage her as an active, important member of the baby's treatment team.

Steph, Robert, and other members of the team include Kiana in the care planning discussion during rounds. They review William's newborn delivery notes and his treatment plan, consistently using person-first, destigmatizing language. Robert reviews NAS scoring protocol with Kiana, showing her the Modified Finnegan NAS Scoring Sheet as they discuss William's scores over the past 24 hours. Robert knows Kiana has been educated on the NAS scoring process. However, he also understands the benefit of repetition, especially considering the significant stimuli exposure Kiana has experienced over the past few days.

Steph reviews Kiana's breastfeeding plan, pausing every so often to create the opportunity for equal partnership discussion and questions. Feeling comfortable as a member of the care team, Kiana asks, "Is it definitely safe for me to breastfeed with the Subutex?" Steph knows Kiana has been educated on the efficacy and safety of breastfeeding while taking Subutex, but she also recognizes the importance of reinforcement and conveying consistent messages. Steph provides her with reassurance, validation, and offers to bring in one of the lactation consultants for ongoing breastfeeding support.

At the end of rounds, the team asks Kiana if she has any other questions. Kiana replies, "Is it okay to hold him?" Robert picks William up out of his hospital crib and hands him to Kiana with a warm smile. He says to her, "William is such a lucky boy to have you as his mom."

CHAPTER VI: CONCLUSION

CONCLUDING STATEMENT

The need for an evidence-informed approach like the PARTNER model is evident. The PARTNER model is the first research-informed, systematically developed practice model designed to specifically address the unique needs of mothers and babies impacted by the perinatal opioid epidemic. It is intended to be as comprehensive as possible, but it is not a finite, independent solution this macro-level problem. There are countless potential combinations of demographics, risk factors, and comorbidities that could impact the way in which the PARTNER model is integrated into practice.

Future recommendations include the development of a structured curriculum to educate providers on each of the elements of the PARTNER model and how to effectively integrate them into clinical practice. Future recommendations also include both short-term and longitudinal evaluation of the PARTNER model, with possible areas of focus including changes in mother/infant bonding, maternal engagement in care, NAS treatment outcomes, and a length of stay cost/benefit analysis.

Though the efficacy of the PARTNER model has not yet been empirically measured, it is a clinically valuable and innovative approach that fills a deep, destructive gap in current practice in working with mothers and infants impacted by perinatal opioid use disorders. The value and impact of early attachment bonding cannot be underestimated. Early attachment bonding creates a pathway for the way in which individuals engage in human relationships across the lifespan. Continuing the current practices of alienating, ostracizing, and stigmatizing pregnant and postpartum women with opioid use disorders will only perpetuate this cycle of separation, disconnection, and fear.

By integrating the PARTNER model into the standard of care, healthcare providers can help mothers and infants, like Kiana and William, by working toward breaking down the socially-created barriers of stigma and fear that interfere with early attachment bonding, an essential aspect of human development that deserves to be regarded as a basic human right.

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