SUBSTANCE USE DISORDER AWARENESS IN THE ANESTHESIA PROVIDER, A QUALITY IMPROVEMENT INITIATIVE

Eldridge Lee Coates

A Project Report Submitted to
the Faculty of The School of Nursing at
the University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the
Doctorate in Nursing Practice

Greensboro
2022

Approved by:

Julia Kordsmeier DNP, FNP-C	Project Team Leader
Lori Lupe DNP, CCRN-K, NEA-BC	DNP Program Director

Table of Contents

Dedication and Acknowledgements

I would like to thank my wife, Casey, and my two daughters Eleanor and Adeline for their unwavering support during this journey towards my DNP. I cannot say thank you enough for your time, love, and support throughout this. I thank my mother and father for their lifelong support. Mom, I wish you were here. Words cannot express the gratitude I have for each one of you.

Abstract

Background: Substance use disorder (SUD) is a condition that promotes unnecessary risks for the patient, provider, and employer. This disorder can affect any human regardless of background, education, or race. With rates of SUD as high as 10% within the nurse anesthesia profession, the significance of SUD cannot go unaddressed. Also, stigma associated with SUD for nurse anesthetists exists. In the nurse anesthesia community, there is a need for awareness of SUD and stigma surrounding this disorder. **Purpose:** The purpose of this project was to raise awareness by assessing the stigma of SUD, provide strategies to destigmatize SUD, and promote evidence-based practice guidelines within the nurse anesthesia profession to address SUD. **Methods**: The Perceived Stigma of Substance Abuse Scale (PSAS) was provided to nurse anesthetists before and after an educational session to assess changes in perceived stigma of SUD. **Results:** Analysis of PSAS before and after the education session showed no significant change in stigma. Minor changes to increased trust and stigma reduction were noted in some of the 19 participants. **Recommendations and Conclusions**: While no significant change in stigma related to SUD occurred, all participants received tools such as the American Association of Nurse Anesthetists' policy Addressing Substance Use Disorder for Anesthesia Professionals (2021), along with the most up to date education on the stigma of SUD. Annual education of SUD, promotion of a peer support liaison, and recommendations on raising future awareness of SUD were provided to the facility. **Key Words**: Substance use disorder (SUD), nurse anesthetist, Certified Registered Nurse Anesthetist (CRNA), stigma.

Background and Significance

Substance use disorder is defined as clinically significant impairment from chemicals, drugs or alcohol that lead to health problems, disability, or inability to meet major responsibilities at work, home, school, or other socially important engagements (Substance Abuse and Mental Health Services Administration (SAMHSA), 2020). In 2018, nearly 6% of the American population, approximately 19.7 million people of the estimated 325.1 million people living in the United States suffered from substance use disorder SUD (Substance Abuse and Mental Health Services Administration (SAMHSA, 2018). The estimated cost for substance abuse grows larger nearly every year, and as of 2011 that estimate was at $740 billion dollars annually (National Institute on Drug Abuse (NIDA), 2011). Furthermore, this figure does not consider the lives lost due to burnout or suicide (Answine et. al, 2019). Multiple articles, retrospective studies, and letters to professional editors consistently rate health care providers with SUD in the double-digit percentage.

There is a need within the anesthesia community for SUD awareness (Rupprecht, 2022). Nurse anesthetists are a group of advanced practice nurses that deliver nearly 50 million anesthetics every year and they provide care for patients in a variety of settings. Furthermore, nurse anesthetists care for patients across the lifespan, in urban and rural areas, in outpatient and inpatient settings, military environments, and pain control clinics (American Association of Nurse Anesthetists (AANA), 2022). Given the breadth and depth of the profession, it is understandable that anesthesia is a high stress work environment.

Within the nurse anesthesia profession one in ten providers struggle with SUD (Taylor, 2020). The American Association of Nurse Anesthetists (AANA) noted the need for SUD awareness in 1983 when they formed an ad hoc committee for wellness and peer assistance. This

program developed by the AANA has grown and morphed many times to help aid not only its members who suffer, but also promotes wellness, resources, and educational materials to providers and students alike (Van Pelt et al., 2019; Nigro, 2020; Stone et al., 2016). With this type of high stress working environment and ease of access to controlled substances, it is imperative that anesthesia providers are aware of the possibility of SUD for themselves and their peers. It is for this reason that knowledge and awareness of resources can help in stressful situations, specifically regarding SUD.

The stigma that surrounds SUD appears to be taboo within the profession. It has been noted that individuals feel more stigmatized with the diagnosis of SUD than other medical conditions (Livingston et al., 2012). Also, accountability and the need for awareness typically are not discussed until an event arises (Brummond, et al., 2017; Stone et al., 2016; Taylor, 2020). Unfortunately, a grand stigma surrounding SUD persists (Van Pelt et al., 2019) and since 1999 the percentage of SUD remains as high as 9.8% in the nurse anesthesia profession (Bell et al., 1999). Even though it is commonly recognized by the medical community, government, and legal institutions that drug abuse is a disease just like any other such as diabetes there is still a stigma towards those who have sought treatment and went through recovery in the anesthesia community (Bevilacqua et al., 2009; Volkow et al., 2016). The CRNAs who come back to work are often met with obstacles in regaining trust from colleagues and administration at their place of employment even after successful completion of a recovery program and performing all of the facility requirements for maintaining employment after SUD admission (Carter et al., 2019).

Furthermore, information about the perceived stigma toward CRNAs with SUD is lacking. Inferences had to be garnered from older studies, broader studies with cumulative advanced practice nursing sets, general healthcare providers as the population studied, or even

extrapolated from various data sets that were in some ways similar. Likewise, the number of CRNAs with SUD or receiving treatment for SUD was not provided from the AANA and certain facilities and departments did not disclose their full course of action for those with SUD (Brummond, et al., 2017; Stone et al., 2016; Taylor, 2020).

Purpose

The purpose of this project was to raise awareness by assessing the stigma of SUD, provide strategies to destigmatize SUD, and promote evidence-based practice guidelines within the nurse anesthesia profession to address SUD.

Review of Current Evidence

A comprehensive review of the literature was performed to identify studies on SUD within the nurse anesthesia community. Using the advanced search features, a systematic review of the literature was conducted in the CINAHL, Scopus, PubMed, and Google Scholar electronic databases with inclusion of full text, English language, and primary sources published within the last five years. This search used key terms and a combination of CRNA, anesthetist, substance use disorder, diversion, impact of diversion on healthcare system, cost of substance use, organization and diversion, substance use liabilities, reentry, peer support, drug misuse, and substance use identification. These search terms were used to poll the literature within the last five years for peer reviewed articles and original research. Thousands of articles were found with the initial searches, however, most articles pertained to the treatment of patients with SUD, not the CRNA that suffers from SUD, and these articles were excluded. The search was then expanded to include the last ten years and included landmark studies as far back as the 1970's. After the remaining 32 articles were reviewed, three central themes were noted regarding SUD

and stigma: there is a need for awareness, there are barriers to overcome, and SUD needs to be destigmatized.

There is a Need for Awareness

Substance use disorder is a disease that can be treated, and professionals should be made aware. Statistically 10% to 15% of healthcare workers struggle with SUD (Schneider et al., 2017; Van Pelt et al., 2019). The rate of stress and burnout of the anesthesia profession has been documented several times throughout history, and with a coronavirus global pandemic there is a heightened risk SUD could be on the rise (Brooks et al., 2020; Brumond et al., 2017; Carter et al., 2019; Gerber et al., 2020: Stone et al., 2020). Cognizance for SUD among CRNAs should be addressed considering the heightened stress levels and ease of access to controlled substances.

Awareness and accountability need to be raised for all of those involved with the chain of commonly abused drugs which are Drug Enforcement Agency (DEA) scheduled (Garcia & Wagner, 2019; Schnieder et al., 2017). There are typically in any system a series of five events that all drugs in a workplace must go through: drugs must be procured, dispensed, prescribed, administered, and wasted or removed (Brumond et al., 2017; Smeulers et al., 2015). Within this chain, providers including anesthetists, technicians, pharmacists, supply chain coordinators, and delivery personnel must be held accountable (Brumond et al., 2017; Smeulers et al., 2015). For example, schedule II drugs such as fentanyl are secured and under scrutiny. However, schedule IV drugs such as propofol and benzodiazepines are often associated with misuse but not always tracked, especially propofol (Baird, 2021; Frye et al., 2015). Similarly, Schneider et al., 2017 found that propofol was the culprit in up to 41% of SUD in anesthesia providers.

Even if all the steps from procurement to delivery of the agent to the patient were performed correctly, diversion may still occur without proper wasting of a drug (Davidson et al.,

2021; Schneider et al., 2017). Specifically, Davidson et al., (2021) stated that diversion of medications was associated with SUD and awareness for providers was needed. Making sure health systems and teams are aware of all drugs and delivery systems that may be involved with SUD is imperative (Burger et al., 2016; Davidson et al., 2021). Specifically, administration, chief executive officers (CEOs), and directors need to be aware of SUD since institutions such as Mass General and Emory have been fined millions for nurses and other healthcare employees misusing and diverting controlled substances (Burger et. al., 2016). Therefore, it is paramount that providers, systems, and professionals fully appreciate the heightened need of awareness regarding SUD (Burger et. al, 2016; Davidson et al., 2021; Schnieder et al., 2017).

The Barriers to Overcome

There was a cascade of factors that have allowed for SUD: lack of awareness, complacency, stigma, lack of readily available professional and peer resources for providers, and interprofessional collaboration and the overall understanding of SUD as a disorder (Van Pelt et al., 2019). There were systems, education, and resources for treatment available through the AANA that were also not well known (AANA, 2020). Even for continued education requirements, through the Continuing Professional Certification (CPC) which is the governing body the for the recertification of CRNAs, there is no requirements regarding SUD education or mention of SUD in required core modules. Therefore, medical facilities do not have to address SUD or provide education of SUD for certified anesthesia providers.

Within the anesthesia profession there was an extreme ease of access to substances often used for substance abuse. The lack of protocols and standardizations for handling medications are factors that may aid in diversion (Brumond et al., 2017; Schneider et al., 2017). Policies and protocols for addressing SUD developed from peer evaluation and research are imperative

(Taylor, 2020; Tetzlaff et al., 2010). Standing protocols for drugs often used for diversion have been deployed with success, but not yet utilized within the anesthesia community on a large scale. Some standing protocols to address SUD deploy random drug screenings however this practice was perceived by employees as punitive, cost prohibitive by organizations, and not always accurate or fully encompassed substances abused (Bettinardi-Angres et al., 2015; Carter, 2019; Taylor, 2020; Van Pelt et al., 2019).

Barriers to identify and address SUD for CRNA's are numerous and have been widely discussed in the literature. These barriers sometimes seem vague but have been discussed in depth with different positions and unique challenges. Steps have been created to aid the initial and continuing resources for new nurse anesthetists regarding SUD, however this may not be enough, and recommendations are continually undergoing change (Council on Accreditation, 2022). Further, historically a lack of standardized initial and continuing education about SUD among providers has consistently been one of the greatest barriers for change with SUD awareness and stigma (Continuing Professional Certification, 2022).

Ultimately, the goals for SUD are prevention and awareness through education (Hughes & Smith, 1994; Taylor, 2020). However, barriers such as a lack of awareness if SUD occurs or complacency of this condition remain present and delay early detection of the provider suffering with SUD (Stone et al., 2021). After detection of SUD the next step is to align the individual with peer support, and immediately lead them to professional help (AANA, 2021; Stone et al., 2016). Peer support may be solely unreliable however it helps in early support and long-term recovery (Stone et al., 2016; Taylor, 2020; Van Pelt et al., 2019). Both peer and professional support were key in an individual's road to success (Bostic, 2015; Carter et al., 2019; Nigro, 2020; Stone et al., 2016).

Some barriers and hurdles to overcome with regards to SUD may not be noticed initially. Many anesthesia providers do not realize the level of stress associated with the profession. Visible signs of deterioration of the CRNA and stress are key components of SUD that are often overlooked (Answine et al., 2019; Davidson et al., 2021). In addition to peer support, a reduction of stress in the work environment may also help lead to a reduction in SUD (Gerber et al., 2020; Stone et al., 2016). One recommendation is the use of Mindfulness Based Stress Reduction to aid in cognitive restoration, coping mechanisms, and intellectual stability (Gerber et al., 2020). Acknowledging and accepting that stress exists in the anesthesia system was key in mindfulness (Gerber et al., 2020). Also, leaders should increase their awareness of the connection between stress and SUD so CRNAs can reach for help when needed (Chippas & McKenna, 2011). When assistance is needed for SUD, CRNAs should be embraced in a supportive work culture (Answine et al., 2019: Gerber et al., 2020).

SUD Needs to be Destigmatized

An aura of stigma that surrounds SUD and appears to be unique when comparing SUD to other diseases exists. The use of protocols developed to address stigma related to SUD for healthcare workers was identified (AANA, 2021; Stone et al., 2016; Taylor, 2020). One example was The Substance Abuse and Misuse Identification and Prevention (SAMIP) protocol which focused on three primary goals (Taylor, 2020). These goals were early identification of high risk individuals for abuse or misuse, early treatment of CRNAs identified of abuse or misuse, and education for staff and providers regarding stigma surrounding substance abuse (Stone et al., 2021; Van Pelt et al., 2019). Other recommendations included the importance of ad hoc committees on the matter of SUD awareness and treatment, transparency of resources and policies within the workplace and urine drug screening (UDS) for early detection (Taylor, 2020).

Furthermore, there was a need to not only educate those directly involved with anesthesia but the supporting and ancillary networks as well.

Reducing stigma of SUD needs to occur within the anesthesia network and the population at large. A broad interprofessional effort to increase education on this topic is needed to reduce stigma associated with SUD (Brummond et al., 2017; Rupprecht, 2022; Taylor, 2020; Van Pelt et al., 2019). The AANA has a platform for SUD awareness and decreasing the associated stigma which can be built upon to continue to reach CRNAs (AANA, 2021). With these ideas and systems in place, strengthening the continuing education of CRNAs is vital to reach, educate, and support those that suffer from SUD (AANA, 2022; Stone et al., 2020; Van Pelt et al., 2019).

Gaps in the Literature

Gaps in the literature tend to be cyclical, meaning that it was noted that awareness within the anesthesia community was more plentiful right after critical events dealing with SUD. There is also literature that was empirical in nature which makes it difficult to find root cause and promote change within anesthesia systems that have been similar in practice for decades. Furthermore, it was very difficult to find statistics based solely on CRNAs and SUD. While it was easier to find statistics on SUD in healthcare workers, it was important to identify and focus specifically on the anesthesia provider subset because of their unique education, ease of accessibility to a gamut of drugs, and ability to the administration of the drug without check or balance. There were no other providers that complete this chain of diagnosing a problem, obtaining a drug, administering a drug, and wasting a drug independently more routinely than an anesthesia provider.

Theoretical Framework

The ACE STAR model was used to guide the implementation of this evidence-based project and fit for knowledge development, awareness promotion, prevention, and the annual awareness training session for SUD. The ACE STAR model is a common theoretical framework that aids in the transition from evidence to practice. Within the ACE STAR model there are five points which were used to promote evidence-based change in the anesthesia community: discovery, summary of evidence, translation, implementation, and evaluation. The first part of the ACE STAR model is discovery. Throughout this phase, a large preliminary review to acknowledge gaps in the literature related to SUD awareness was completed. Furthermore, discussions with providers took place to target a specific area for improvement.

The second part within this framework was a summary of the evidence and extended upon the first point by looking deeper into the literature not only on SUD, but other research that supports its development and surrounds the topic of SUD. Within the literature there was a need noted specifically looking to break the stigma that surrounds SUD. Also, this project was bolstered by communication with national experts within the nurse anesthesia community on SUD. Furthermore, I looked to assess common SUD policies within the literature and local organizations, and how national recommendations from various professional associations influence the current practice of CRNAs.

The third part of the model was the translation period. With the knowledge garnered from the multifactorial analysis of SUD, an education session was offered to CRNA's to raise awareness of SUD and assess the stigma of SUD. The final phase of the ACE STAR model is implementation. Within this phase, I added to the very basic annual education regarding SUD for the nurse anesthesia community within a level one hospital system. An updated presentation with

resources was provided to the director of anesthesia and directing board of supervisors to allow for continued growth and support of SUD within the facility. Finally, in the evaluation stage, an assessment of perceived stigma and knowledge of SUD was administered following the education session.

Methods

The Plan, Do, Study, Act (PDSA) is a proven common model used for quality improvement in many settings. This model consists of four steps: plan, do, study, act (Deming, 2021). This model seemed ideal for this quality improvement initiative due to its cyclical ability to continually keep evolving, assessing, reevaluating, and morphing into further initiatives on this specific topic of SUD and CRNAs.

Plan

During the planning phase, evidence from the literature was reviewed which found an unchanged level of substance abuse in anesthesia providers. Unfortunately, substance abuse and lack of improvement has been ongoing since 1999 (Bell, 1999). Also, a lack of awareness regarding SUD in the anesthesia provider population was evident. Furthermore, there were many factors regarding barriers that need be addressed (e.g. complacency, stigma, lack of peer resources, and interprofessional collaboration). With further inquiry, stigma associated with the diagnosis and lack of knowledge of SUD was noted as contributing factors for this ongoing problem (Zgierska et al., 2021).

Do

After IRB approval from the university and organization, an email was sent to approximately 117 CRNAs about a SUD education session and assessment of stigma associated with SUD. This invited education session occurred during a scheduled staff meeting in the nurse

anesthesia department. The setting for this education session occurred at a large, academic level one trauma center in the south eastern United States. Approval to administer the PSAS was obtained from the creator of the scale (Appendix A). The education session and a pre and post questionnaire of the PSAS (Appendix B) was provided to those that attended (Luoma, 2010). This questionnaire directly measured the amount of stigma and knowledge gap found within this professional community. The PSAS questionnaire was completed using a paper format and no personal identifiable information was gathered. Privacy was maintained and the participants were asked to fill out their first initial, day of birth, and first word of their current street name. Demographic information added to the PSAS questionnaire included length of time in clinical practice, identified sex and age of the participant. The initial PSAS questionnaire was given to assess for baseline stigma of SUD.

The 60-minute SUD education program was conducted immediately after the pre PSAS questionnaire. The SUD education program included current AANA recommendations and guidelines for SUD awareness (e.g., "Addressing Substance Use Disorder for Anesthesia Professionals "(AANA, 2021)), treatment, stigma of SUD, and current resources available to CRNA's at a level one trauma center. The PSAS questionnaire was administered again immediately after the SUD education program to assess change in associated stigma regarding those with SUD for participants.

The sample was a convenience sample of nurse anesthetists of varying ages, ethnicities, sexes, and practice duration. The inclusion criteria were CRNA's with a current license to practice, CRNA's employed by the hospital system, and CRNA's who chose to complete the education session and pre and post PSAS questionnaire. Exclusion criteria were CRNA's outside

of the hospital network umbrella, student registered nurse anesthetists, anesthesia residents, and physician anesthesiologists.

Study

In the study phase of the PDSA, analysis of data to further understand perceived stigmas associated with SUD was completed. After reviewing findings from the PSAS questionnaire, comparisons between the pre and post PSAS questionnaire provided information regarding associated stigma to share with the project site's anesthesia director and board of supervisors. This information provided insight for future continuing education needs for CRNAs.

Data Analysis

Demographic data and data from the PSAS were collected from each participating CRNA. Data compiled from the paper questionnaires of the PSAS was exported to SPSS for analysis. All data was protected on a password protected computer and accessed viaBox.uncg.edu. This data did not include any protected health information (PHI) or personal identifiers. For demographic data, mean, standard deviation (SD), frequency, and percentages were calculated for sample demographic characteristics. The PSAS scale is a reliable tool to aid in the measurement of perceived stigma. A paired T-test was used to compare the pre and post PSAS questionnaire to determine if awareness and stigma of SUD had changed after the education session. At the completion of the project, all paper copies of the PSAS questionnaires were securely shredded onsite by the clinic shredding service provider.

Results

Of the invited 117 participants, 29 CRNA's attended the education session and 19 CRNA's completed both the pre and post PSAS resulting in a 16% response rate. Females made up 58% and males composed 42% of the respondents to the questionnaire, (see Table 1).

Table 1.

Demographic Information

Length of Practice	**n**	**%**
0-4 years	8	42
5-9 years	4	21
10-14 years	1	5
15-19 years	0	0
Over 20 years	6	32
Sex		
Female	11	58
Male	8	42
Other	0	
Prefer not to answer	0	
Years of age		
20-29	4	21
30-39	8	42
40-49	2	10.5
50-59	3	16
Over 60	2	10.5

Ages ranged from 20 to 29 years old (21% of respondents), 30 to 39 years old (42% of respondents), 40 to 49 years old (10.5% of respondents), 50 to 59 years old (16% of respondents), and over 60 years old (10.5% of respondents). Years of experience as a CRNA ranged from 0 to 4 years of experience (42% of respondents), 5 to 9 years of experience (21% of respondents), 10 to 14 years of experience (5% of respondents), and providers with over 20 years of experience (32% of respondents). After results were gathered from the PSAS questionnaires, responses were analyzed using SPSS statistical analysis platform to find the paired Chi-square and Cramer's V. After analysis was completed, no significant change in the stigma associated with SUD after the education session was noted. However, the participants did have a slight variance towards a perceived increase of trust in a person with SUD when referring to the response of PSAS questionnaire questions four (see Figure 1) and five (see Figure 2). Questions

four and five related directly to the participants acceptance and trust regarding a person with SUD. Regarding questions four and five, there seemed to be a slight increase in acceptance and trust towards an individual who had been treated for SUD after the education presentation.

Figure 1

PSAS question four: Most people would willingly accept someone who has been treated for substance use as a close friend

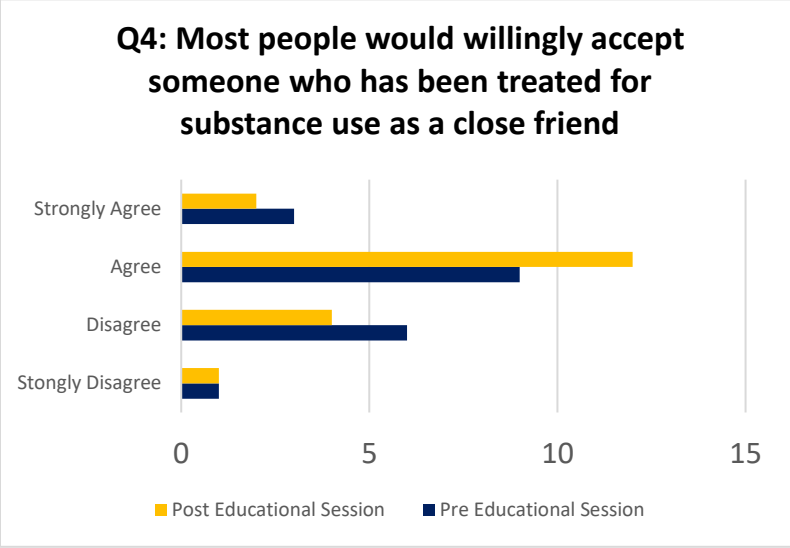
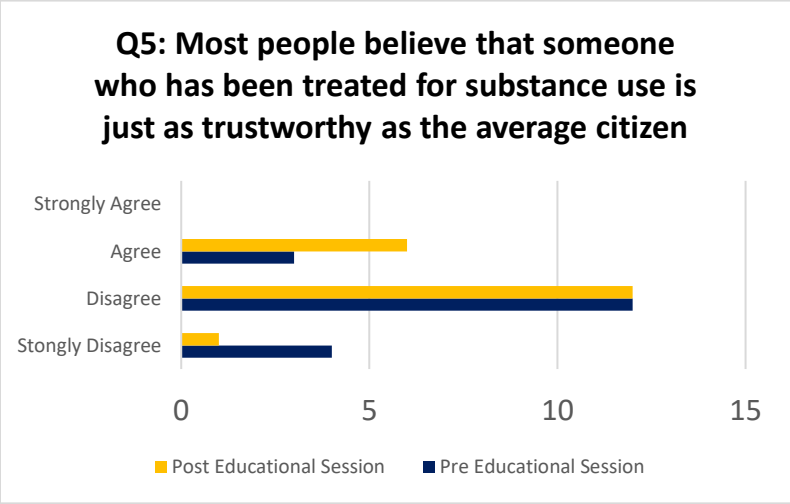


Figure 2

PSAS question five: Most people believe that someone who has been treated for substance use is just as trustworthy as the average citizen



Barriers for completion of this project included lack of "buy-in" from the participants. Provider engagement was low (e.g. 117 participants invited, 29 showed up, and only 17 completed questionnaires). Alternatively, stakeholder engagement from a facility and administration level was one of the greatest strengths of this initiative. This initiative was well planned, and therefore aided in execution of the education session and assessment of stigma with the PSAS. The planning phase was one of the greatest strengths of this initiative.

Discussion

The purpose of this project was to raise awareness by assessing the stigma of SUD, provide strategies to destigmatize SUD, and promote evidence-based practice guidelines within the nurse anesthesia profession to address SUD. The lack of change in knowledge and stigma after this education session in the CRNA community was not surprising. While no significant change in perceived awareness of stigma relating to SUD was found it was noted that some may

have had an increase in trust of those with a history of SUD. The lack of change in stigma reflects the little change noted with regards to SUD over the past two decades (Bell et al., 1999; Taylor, 2020). In addition to education and evaluation of resources for CRNAs that should be completed annually, providers should be aware of peer and professional resources (Stone et al., 2016). The literature has demonstrated that stigma regarding SUD is difficult to overcome, thus supporting the need for continued education for providers and organizational leaders (AANA, 2021). As this education session is adapted and presented on an annual or semiannual basis, it is important to keep CRNA's abreast of the need of awareness of SUD, ways to overcome the barriers surrounding SUD (e.g. interprofessional collaboration, stress reduction, use of protocols, & education), and reduction of the stigma associated with SUD.

This 60-minute education session with an assessment of perceived stigma demonstrated similar results to previous studies of the thoughts, attitudes, and feelings of stigma towards SUD (Davidson et al., 2021). Presentation of facts and truth bring understanding. Understanding ushers in enlightenment and awareness. Awareness in hope will produce change, and thus this grass roots movement may produce a better, safer, and more productive environment for patients, providers, and healthcare systems alike. Implementing and reinforcing substance use awareness in anesthesia training, continuing reeducation during recertifications, protocols, and creating and cultivating an environment of trust and access will be key in decreasing the events and deleterious outcomes associated with SUD (Stone et al., 2016; Taylor, 2020; The Joint Commission, 2019). Also, the AANA has a platform for SUD awareness and decreasing the associated stigma that can be built upon to continue to reach CRNAs (AANA, 2021). Finally, continual reevaluation and adaptation of SUD education will be the key to progress and change.

The impact of SUD is felt beyond the individual suffering from this disorder. There is a ripple effect with regards to those who suffer from SUD. The implications go beyond the individual suffering from SUD to the employer, coworkers, patients, and family. The employer is at risk for losing a trained and profitable professional, reputation, managing potentially diverted drugs, possible litigation from patients, and the system productivity decreases (Burger et al., 2016; SAMSHA, 2017). The provider suffering from SUD risks lost wages and revenues, jeopardizes patient safety outcomes, limitations on future employment opportunities, and professional repercussions. The patients under care from the professional that suffers from SUD are at a heightened risk too for exposure or complications from an impaired individual. Furthermore, there is a high cost for rehabilitation and reentry for return to practice (Burger et. al, 2016; Carter et al., 2019). The effects of SUD can continue throughout the lifetime of the person with the disorder and many people they meet while suffering. The societal impact of SUD is overwhelming and needs to be addressed. There are many challenges that each provider must overcome, and the thought of overcoming SUD alone may be daunting. Even an AANA past President Janet Stewart overdosed in 2002 (AANA, 2022).

Furthermore, institutional guidelines behind SUD tracking and treatment may be vague. The thoughts behind this are multifactorial. Organizations do not want a tarnished reputation by employing unsafe professionals and actions by employers may be viewed as punitive in nature. Also, organizations may not want the person suffering from SUD to be aware of the exact course of discipline either because it may aid the person suffering from SUD to avoid treatment or curtail disciplinary measures. Many systems have limited experience with this or have outdated protocols to address this problem.

Evaluating the past two decades, it is unfortunate to note the lack of change within the landscape of SUD. It remains paramount that the anesthesia community maintains its focus on education, prevention, early detection, and treatment of SUD (AANA, 2021). Focusing efforts on awareness, increasing resources available, interprofessional collaboration, and destigmatizing SUD will lead to a brighter, safer, and more productive future for all people involved (Stone et al., 2016; Taylor, 2020; Van Pelt et al., 2019). Developing foundational knowledge and equipping anesthesia providers with the necessary resources will make them more aware of their surroundings, colleagues, and situations with regards to SUD. Furthermore, CRNAs should be aware and comfortable with aiding or directing a colleague with SUD to resources. It is my hope that this project can inspire providers to destigmatize SUD, overcome barriers such as lack of readily available resources and interprofessional collaborations, and understand the necessity of SUD awareness and treatment.

Act

The final phase of PDSA is the "Act" phase. The act phase is where "the plan is either adopted, adapted, or abandoned based on the evaluation of the data in the prior step. The learning from one cycle should guide the cycles that follow (Christoff, 2018, p. 199)." Within this phase the PSAS results were reviewed to determine next steps for the organization. As expected, little change was noted regarding stigma in this population. Further educational resources regarding SUD in the form of updates, resources available, annual continuing education, AANA updates, was provided to the project site. These resources will be readily available and easily obtainable by the CRNA's. Furthermore, results were shared with the director of anesthesia and the board of managers. The author also recommended that the current SUD and drug diversion online modules within the system were currently inadequate and should be updated. Information was

given for recommendation on annual updates, and future change ideas to guide leadership in the education of SUD for CRNAs. Also, the recommendation was given to have a site SUD liaison that works directly with management and the facilities employee assistance program (EAP). These changes will be implemented system wide and aid as a vital resource for the anesthesia community at large.

Conclusion

Updated annual education, evaluation of resources for CRNAs, and direct support from leadership should be considered based on the results of this project and the unchanged stigma noted within the results of the PSAS questionnaire (Sexton et al., 2021). With the information from this quality improvement initiative, and the information left with core personnel at the facility, it is my hope that this initiative will continue to grow and adapt to aid the nurse anesthesia community. Most of the participants in this project were less than 40 years old with less than five years of experience and had not witnessed nor personally known anyone with SUD. Anecdotally, the perception in the group seemed to be that SUD did not occur as much as literature stated as noted by questions and comments during the education session. Moving forward a questionnaire that had more detailed questions on personal experience or interactions with those known to have SUD should be considered. Identifying personal experience with SUD in the workplace was lacking in the PSAS questionnaire. Inclusion of questions related to personal experiences or interactions with others with SUD may be helpful to address stigma and barriers to seeking resources and treatment for CRNAs. Also, seeking a private setting may be helpful as well to facilitate open communications during future education sessions. Furthermore, creating smaller groups for education sessions related to SUD is needed to promote open dialogue on this sensitive subject. Following the education session, participants asked thoughtful

questions and others reached out individually regarding personal struggles or witnessed struggles of others with SUD. Further evaluation of system wide resources and planned annual education sessions must be continued. Lastly, barriers such as interprofessional collaboration, education, stress reduction and ease of access to resources should be further explored.

Recommendations for Future Practice

Throughout this quality improvement initiative, the need for awareness, aid to overcome barriers, and support to reduce the stigma of SUD is now more imperative than ever. Continued education within the current practicing anesthesia workforce with focus study areas on SUD during recertification are recommended. Employer related support, education, peer support liaisons, and culture change will also affect the perception of SUD. However, the most beneficial change may be seen within the grass roots of new nurses matriculating into anesthesia programs. If awareness of stigma associated with SUD can be identified, overall care of patients and those providing care can be improved. If nurses matriculating into anesthesia programs receive this important education and awareness of SUD early on, they may be more likely to be aware of the disorder within themselves or others and seek needed early assistance and treatment. Finally, there is a clear connection between SUD and stigma associated with individuals suffering in silence. Anesthesia providers should be aware and comfortable with assisting a colleague with SUD to access resources for help. When stigma is addressed, CRNAs can promote a safe work environment for patients, employees, and employers alike.

References

American Association of Nurse Anesthetists (AANA) (2021, May). *Addressing Substance Use Disorder for Anesthesia Professionals*. https://www.aana.com/docs/default-source/practice-aana-com-web-documents-(all)/professional-practice-manual/addressing-substance-use-disorder-for-anesthesia-professionals.pdf?sfvrsn=ff0049b1_10

American Association of Nurse Anesthetists (AANA) (2022, January 20). *Certified Registered Nurse Anesthetist Fact Sheet.* https://www.aana.com/membership/become-a-crna/crna-fact-sheet#:~:text=Practice%20Settings%3A%20CRNAs%20practice%20in,ophthalmologists%2C%20plastic%20surgeons%2C%20and%20pain

American Association of Nurse Anesthetists (AANA) (2022, April 7). Jan Stewart in Memoriam. https://www.aana.com/practice/health-and-wellness-peer-assistance/about-health-wellness/wellness-and-substance-use-disorder-education/jan-stewart-memorial-wellness-lecture-series/jan-stewart-in-memoriam

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.).

Answine, J. F., Lu, A. C., & Levy, T. S. M. (2019). Burnout, wellness, and resilience in anesthesiology. *International Anesthesiology Clinics*, *57*(3), 138–145. https://doi.org/10.1097/AIA.0000000000000235

Baird, C.R. (2021). Substance use disorder in anaesthetists: A personal perspective. Anaesth Intensive Care, 49(1), 12-22.

Bell, D. M., McDonough, J. P., Ellison, J. S., & Fitzhugh, E. C. (1999). Controlled drug misuse by Certified Registered Nurse Anesthetists. *AANA Journal*, *67*(2), 133-40.

Bettinardi-Angres, K., & Garcia, R. (2015). A consistent approach to treatment and reentry for crnas with substance use disorder. Journal of Nursing Regulation, 6(2), 47–51. https://doi.org/10.1016/S2155-8256(15)30388-4

Bevilacqua, L., & Goldman, D. (2009). Genes and addictions. *Clinical pharmacology and therapeutics*, *85*(4), 359–361. https://doi.org/10.1038/clpt.2009.6

Bostic, A. (2015). Peer support: An evolving model of care. *AANA NewsBulletin*. 69(5), 26-27.

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The lancet*, *395*(10227), 912-920.

Brummond, P. W., Chen, D. F., Churchill, W. W., Clark, J. S., Dillon, K. R., Dumitru, D., Eschenbacher, L., Fera, T., Fortier, C. R., Gullickson, K. K., Jurakovich, K., Kent, S., Keonavong, J., Marchese, C., Meyer, T., Murdaugh, L. B., Ogden, R. K., Jr., O'Neal, B. C., Rough, S., Smith, J. S. (2017). ASHP Guidelines on Preventing Diversion of Controlled Substances. *American Journal of Health-System Pharmacy*, *74*(5), 325+. https://link.gale.com/apps/doc/A581024688/AONE?u=gree35277&sid=AONE&xid=559e7fe4

Burger, G., Burger, M. (2016). Top 5 things hospital CEOs need to know NOW about drug diversion. Becker's Hospital Review. Accessed January 20, 2021. https://www.beckershospitalre- view.com/hospital-management-administration/top-5-things-hospi- tal-ceos-need-to-know-now-about-drug-diversion.html

Carter, T., McMullan, S. P., & Patrician, P. A. (2019). Barriers to Reentry Into Nurse Anesthesia Practice Following Substance Use Disorder Treatment: A Concept Analysis. *Workplace Health & Safety*, *67*(4), 189–199. https://doi.org/10.1177/2165079918813378

Chipas, A., & McKenna, D. (2011). Stress and burnout in nurse anesthesia. *AANA journal*, *79*(2), 122–128.

Christoff, P. (2018). Running PDSA cycles. Current Problems in Pediatric and Adolescent Healthcare. Vol 48, pp 198-201. https://doi.org/10.1016/j.cppeds.2018.08.006

Continuing Professional Certification (CPC) Program: 4 Core Modules are Required for 4 year Check In. National Board of Certification and Recertification for Nurse Anesthetists. Accessed March 21, 2022. https://www.nbcrna.com/continued-certification/core-modules

Council on Accreditation. Supporting quality assessment and improvement in nurse anesthesia. https://www.coacrna.org/wp-content/uploads/2022/02/Standards-for-Accreditation-of-Nurse-Anesthesia-Programs-Practice-Doctorate-revised-January-2022.pdf. Accessed February 20, 2022.

Davidson J.E., Ye G., Parra M.C. (2021). Job-Related Problems Prior to Nurse Suicide, 2003-2017: A Mixed Methods Analysis Using Natural Language Processing and Thematic Analysis. J of Nursing Regulation. 12(1), 28-39.

Deming, W. (2021). PDSA Cycle. Retrieved January 16, 2021, from https://deming.org/explore/pdsa/

Fry R.A., Fry L.E., & Castanelli D.J. (2015). A retrospective survey of substance abuse in anesthetists in Australia and New Zealand from 2004 to 2013. Anaesth Intensive Care, 43(1), 111- 117

Garcia R.S. & Wagner D. (2019). Special report: The roles of the anesthesiologist, pharmacist, and nurse in detecting and preventing opioid diversion and misuse. Pharm Pract News.

Gerber, B., Scriba, J., Geissler, A. *et al. (2020)* Pilot study on subjectively and objectively

measurable stress reduction in everyday life in a university anesthesia department through an intervention program based on Mindfulness-Based Stress Reduction (MBSR). *Anaesthesist* 69, 623-631. https://doi.org/10.1007/s00101-020-00802-w

Hughes T.L. & Smith L.L. (1994). Is your colleague chemically dependent? *Am J Nurs.* 94(9), 30-35.

The Joint Commission. (April 15, 2019). Quick Safety Issue 48: Drug diversion and impaired health care workers. https://www.jointcommission.org/resources/news-andmultimedia/newsletters/newsletters/quick-safety/quick-safety-48-drug-diversion-andimpaired-health-care-workers/

Luoma, J. B., O'Hair, A. K., Kohlenberg, B. S., Hayes, S. C., & Fletcher, L. (2010). The development and psychometric properties of a new measure of perceived stigma toward substance users. *Substance use & misuse*, *45*(1-2), 47–57. https://doi.org/10.3109/10826080902864712

NIDA. (2011). *Cost of Substance Abuse.* https://www.drugabuse.gov/drug-topics/trends-statistics/costs-substance-abuse#supplemental-references-for-economic-costs

NIDA. (2020, July 13). *Drug Misuse and Addiction.* https://www.drugabuse.gov/publications/drugs-brains-behavior-science-addiction/drug-misuse-addiction

Nigro Jr, T. M. (2020). Comprehensive reentry policy for student registered nurse anesthetists with substance use disorder. *Aana Journal*, *88*(4).

Rupprecht N. (2022). The Impaired Anesthesia Provider: Strategies to Prevent, Recognize, and Treat Substance Use Disorder within the Workplace. *AANA journal*, *91*(1), 64–70.

Schneider, D., Ponto, J., & Martin, E. (2017). Propofol Disposal in the Anesthesia Setting: Overcoming Barriers. *AANA journal*, *85*(6), 417–423.

Sexton, J. B., Adair, K. C., Profit, J., Bae, J., Rehder, K. J., Gosselin, T., Milne, J., Leonard, M., & Frankel, A. (2021). Safety Culture and Workforce Well-Being Associations with Positive Leadership WalkRounds. *Joint Commission journal on quality and patient safety*, *47*(7), 403–411. https://doi.org/10.1016/j.jcjq.2021.04.001

Stone L., Rice J.A., & Garcia R. (2021). Addressing Substance Use Disorder and Diversion in the Healthcare Environment. American Nurse Journal.16(2), 1-5.

Stone, L., Quinlan, D., Rice, J. A., & Wright, E. L. (2016). The Evolution of a Peer Assistance Network for Nurse Anesthetists' Substance Use Disorder. Journal of addictions nursing, 27(3), 218–220. https://doi.org/10.1097/JAN.0000000000000138

Substance Abuse and Mental Health Services Administration (SAMHSA). (2020, April 30). *Mental Health and Substance Use Disorder. https://www.samhsa.gov/find-help/disorders#:~:text=Substance%20use%20disorders%20occur%20when,work%2C%20school%2C%20or%20home.*

Substance Abuse and Mental Health Services Administration (SAMHSA). (2018, September 14). *2017 NSDUH Annual National Report.* https://www.samhsa.gov/data/report/2017-nsduh-annual-national-report

Substance Abuse and Mental Health Services Administration (SAMHSA). (2016). *Impact of the DSM-IV to DSM-5 Changes on the National Survey on Drug Use and Health*. Substance Abuse and Mental Health Services Administration (US). https://www.ncbi.nlm.nih.gov/books/NBK519697/

Smeulers, M., Verweij, L., Maaskant, J. M., de Boer, M., Krediet, C. T., Nieveen van Dijkum, E. J., & Vermeulen, H. (2015). Quality indicators for safe medication preparation and administration: a systematic review. *PloS one, 10*(4), e0122695. https://doi.org/10.1371/journal.pone.0122695

Taylor, L. (2020). Substance Abuse and Misuse Identification and Prevention: An Evidenced-Based Protocol for CRNA's in the Workplace. *AANA Journal, 88(3),* 213-221.

Van Pelt, M., Meyer, T., Garcia, R., Thomas, B. J., & Litman, R. S. (2019). Drug diversion in the anesthesia profession: how can anesthesia patient safety foundation help everyone be safe? report of a meeting sponsored by the anesthesia patient safety foundation. *Aana Journal*, *87*(1), 1–4.

Zgierska, A. E., Miller, M. M., Rabago, D. P., Hilliard, F., McCarthy, P., Cowan, P., & Salsitz, E. A. (2021). Language Matters: It Is Time We Change How We Talk About Addiction and its Treatment. *Journal of addiction medicine*, *15*(1), 10–12. https://doi.org/10.1097/ADM.0000000000000674

Appendix A: PSAS questionnaire permission to use from original author

To Whom it May Concern: Feel free to use the Perceived Stigma of Substance Abuse Scale (PSAS) in your research. If you have any questions about the scale, please email me. I would also ask that you let me know about any results you obtain using the scale and/or send me a copy of any articles that you publish that contain the scale. There is little research being conducted on stigma in addiction and so I like to try to help facilitate new research and keep abreast of what's happening. The appropriate reference is listed below. Please also note that there was a minor error in the original publication that stated that the measure was scored using a 7-point Likert scale. The measure was actually scored using the 4-point Likert scale as used in the measure below.

Regards,

Jason B. Luoma, Ph.D.
Licensed Psychologist in Oregon
Director, Portland Psychotherapy Clinic, Research, and Training Center Business phone: 503-281-4852
Email: jbluoma@portlandpsychotherapyclinic.com

The scale and publication can be obtained at:

http://www.portlandpsychotherapyclinic.com/training/publications

Appendix B: PSAS questionnaire with demographics.

Street name:_____ Day of birth:_____

PSAS questionnaire with demographics

Demographic information

1. Length of practice

   A = 0-4 years

   B = 5-9 years

   C = 10-14 years

   D = 15-19 years

   E = Over 20 years

2. Sex that you identify most likely with

   A = Female

   B = Male

   C = Other

   D = Prefer not to answer

3. Years of age

   A = 20-29

   B = 30-39

   C = 40-49

   D = 50-59

   E = Over 60

PSAS questionnaire

Please read each statement carefully and circle the number below the item that indicates the degree of your agreement or disagreement with each statement. Please use the scale below, and please do not omit any item.

4. Most people would willingly accept someone who has been treated for substance use as a close friend.

   1=Strongly disagree 2=Disagree 3 = Agree 4=Strongly agree

5. Most people believe that someone who has been treated for substance use is just as trustworthy as the average citizen.

   1=Strongly disagree 2=Disagree 3 = Agree 4=Strongly agree

6. Most people would accept someone who has been treated for substance use as a teacher of young children in a public school.

   1=Strongly disagree 2=Disagree 3 = Agree 4=Strongly agree

7. Most people would hire someone who has been treated for substance use to take care of their children.

   1=Strongly disagree 2=Disagree 3 = Agree 4=Strongly agree

8. Most people think less of a person who has been in treatment for substance use.

   1=Strongly disagree 2=Disagree 3 = Agree 4=Strongly agree

9. Most employers will hire someone who has been treated for substance use if he or she is qualified for the job.

   1=Strongly disagree 2=Disagree 3 = Agree 4=Strongly agree

10. Most employers will pass over the application of someone who has been treated for substance use in favor of another applicant.

    1=Strongly disagree 2=Disagree 3 = Agree 4=Strongly agree

11. Most people would be willing to date someone who has been treated for substance use.

    1=Strongly disagree 2=Disagree 3 = Agree 4=Strongly agree

Used with permission from Dr. Luoma. Luoma, J. B., O'Hair, A. K., Kohlenberg, B. S., Hayes, S. C., Fletcher, L. (2010). The development and psychometric properties of a new measure of perceived stigma toward substance users. Substance Use and Misuse, 45, 47-57.