Would Not-For-Cause Randomized Drug Testing Reduce the Incidence of Drug Misuse Among Certified Registered Nurse Anesthetists?

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WOULD NOT-FOR-CAUSE RANDOMIZED DRUG TESTING REDUCE
THE INCIDENCE OF DRUG MISUSE AMONG CERTIFIED
REGISTERED NURSE ANESTHETISTS?

by

Katy Gayle Gavin

Abstract of a Capstone Project
Submitted to the Graduate School
of the University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Nursing Practice

December 2015
ABSTRACT

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by Katy Gayle Gavin

December 2015

Healthcare providers have easy access to drugs of various types and strengths, often times highly addictive drugs, all the while working long hours in high stress environments. Studies show that anesthesia providers, among other healthcare providers, are at highest risk for drug misuse. There are numerous ways substance abuse and addiction among anesthesia providers could be decreased significantly or prevented completely including, but not limited to, education, routine mental health evaluations, stress coping through exercise, debriefing sessions, and mentoring. This project focused on prevention through randomized not-for-cause drug testing. After an exhaustive review of the literature was performed, implications for practice and suggestions were summarized in a white paper proposal, which will be presented to key stakeholders to include state and national governing bodies of the nurse anesthesia profession, anesthesia providers, students, and residents.
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Katy Gayle Gavin

A Capstone Project
Submitted to the Graduate School
and the Department of Advanced Practice
at The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Nursing Practice

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December 2015
DEDICATION

First and foremost, I would like to give thanks to God. I would like to sincerely thank my parents, Mike and Demple Gavin, for their unconditional love, endless support, encouragement, and infinite sacrifices. When they told me I could be anything I wanted to be, I believed them. I would not have accomplished my goals if it were not for them. I would also like to thank all my family and friends for their support and encouragement during this incredible journey. I dedicate this work to my beautiful daughters, Mia and Molly. They amaze me, inspire me, and bring more joy to my life than I ever thought possible.
ACKNOWLEDGMENTS

Special thanks go to my committee chair, Dr. Vickie Stuart, and my other committee members, Dr. Michong Rayborn, and Dr. Patsy Anderson, for their advice, encouragement, patience, and support throughout this process. I would also like to thank the brave individuals who have survived the awful disease of addiction and were courageous enough to tell their stories in hopes of helping others who face the same battles.
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CHAPTER I
INTRODUCTION

It is estimated that 10% to 20% of nurse anesthetists will experience some sort of drug misuse during their career, with males practicing six to ten years being at highest risk (Bell, McDonough, Ellison, & Fitzhugh, 1999). As cited by the American Association of Nurse Anesthetists (AANA, 2015), the incidence of drug misuse among anesthesia providers during their life is approximately 10%-17%. Obtaining accuracy of the frequency of substance abuse among anesthesia providers is a difficult task. This is because of the complex issues surrounding this topic, including legal issues, patient safety, and licensure, just to name a few. According to Wright et al. (2012), the extent of the problem is more than likely larger than what is reported. As a matter of fact, impairment while at work is probable, considering almost one out of every ten actively practicing Certified Registered Nurse Anesthetists (CRNAs) misuses a controlled drug (Bell et al., 1999). It is important to determine the most effective ways in which to decrease the risk of chemical dependency among anesthesia providers, ultimately increasing patient safety and improving outcomes, not only for patients, but for anesthesia providers as well.

Problem Statement

There are many factors that influence the development of substance abuse and dependency among providers, including genetics, personality, underlying psychiatric disorders, stress, access to drugs, and attitude, to name a few (Wright et al., 2012). The high estimate of providers misusing drugs is alarming; therefore, preventative efforts and early intervention are imperative in decreasing the number of anesthesia providers
abusing narcotics and other potentially addictive drugs. The impaired provider is not only at risk for causing medical errors resulting in poor patient outcomes, but also at increased risk for death due to overdose, either accidental or intentional. “Attempted suicide or death by suicide or accidental overdose is not an infrequent presentation of addiction” (Saunders, 2006, p. 638). The overwhelming evidence of misuse among anesthesia providers, coupled with the devastating outcomes of such, makes it imperative for a solution to be actively sought.

**Purpose of the Project**

With the high number of anesthesia providers estimated to be misusing drugs, or at increased risk for misusing drugs, impairment on the job is likely, and potentially fatal outcomes for both the provider and/or the patient are plausible. The financial costs associated with an impaired provider are infinite. A randomized not-for-cause drug screening may prevent misusing these highly addictive drugs due to the fact that providers could be randomly tested for drugs at any given time without displaying symptoms of being impaired and without preparation to adulterate the specimen. This could potentially help decrease or possibly alleviate the unfortunate risk of drug misuse among anesthesia professionals, indirectly improving patient safety and outcomes.

According to Wright et al. (2012, p. 126), in 2010, the American Association of Nurse Anesthetists’ model policy for random drug screening recommended “frequent random urine drug screening of small numbers of employees.” However, the current position statement regarding “Substance Misuse and Chemical Dependency” is a “comprehensive for-cause drug testing program” (AANA, 2015, n.p.). Therefore, the purpose of this capstone was to develop a white paper proposal for clinical implications of random not-
for-cause drug screening and suggestions for possible future research. The intention of a white paper is to promote a solution to a certain problem (The Writing Lab, The OWL at Purdue, & Purdue University, 2010). In this instance, the problem is impaired anesthesia providers, and one of the proposed solutions is not-for-cause random drug testing.

Clinical Question

For the clinical question, the population (P) of interest is Certified Registered Nurse Anesthetists; the intervention (I) suggested is not-for-cause randomized drug screening; the comparison (C) is a pre-employment drug screening or for-cause screening if a provider displays symptoms of being impaired; and the outcome (O) is decreasing the risk of chemical dependency and the misuse of drugs among anesthesia providers. The PICO question addressed is: Would not-for-cause randomized drug testing reduce the incidence of drug misuse among Certified Registered Nurse Anesthetists?
CHAPTER II

REVIEW OF LITERATURE

Background and Significance

The disease of addiction may cause otherwise intelligent and rational individuals to do the unimaginable, but often times, these individuals are discreet in their actions. Drug misuse and chemical dependency among anesthesia providers have been an issue for many years. Railroad workers, airline pilots, and commercial truck drivers are among the many professionals required by the United States Congress to submit to random drug testing to reduce the risk to the public. Why then are not anesthesia providers held to the same standard when their primary responsibility is to do no harm to the patient? Arguments could be made for a number of reasons, including financial burdens for the employer, minimal signs and symptoms of impairment among anesthesia providers, and many more. Unfortunately, abuse among anesthesia providers is often not recognized until death, or a near-death overdose has occurred (Wright et al., 2012). Because of this terrifying statistic, it is crucial to develop policies and protocols with regards to drug testing, education, and prevention of abuse.

So, why is death often times the first sign of chemical dependency among anesthesia providers? Is this because the potency of the drugs is so severe that one’s life can be taken quickly? Or is it because the professionals misusing these drugs are so highly educated and protective of their license, reputation, and financial security, they go to great lengths to hide the otherwise obvious signs and symptoms of addiction? It is likely the combination of both of these reasons and more. The anesthesia profession has increased stressors due to many variables, such as the demands of working long hours,
often times in critical, intense situations, and frequently, with minimal sleep. Providers have easy access to powerful drugs, and are at an increased risk of substance abuse due to numerous factors. As a matter of fact, more than any other group, physicians, nurses, and other healthcare providers are at higher risk for misusing drugs (Bell et al., 1999). Of these, anesthesia providers have the highest risk of death due to drug-related causes (Wright et al., 2012).

There is a multitude of research available which shows that anesthesia providers are at an increased risk for chemical dependency, along with other healthcare providers, and workers in non-healthcare professions. This information provides significant strength to this project. An anticipated weakness of the project is a possible resistance to implementation of new policy and procedures possibly due to increased estimated costs. However, many opportunities exist if new policies related to random drug screening are implemented. If drug misuse among providers is decreased, there could be countless lives saved, not only providers who could have potentially overdosed, but patients who could have been under the care of an impaired provider. Financial losses could be avoided due to potential errors of an impaired provider, and financial gains are possible through improved work performance. It may prove difficult to successfully implement preventative measures due to resistance of the stakeholders. Costs may also be a factor threatening the success of the project due to limited funding for implementation of preventative programs such as not-for-cause drug testing.
Anesthesia

In a 2005 study, it was hypothesized that anesthetics which were aerosolized, causing second-hand exposure to anesthetists, caused sensitization to the provider, and ultimately increased their risk for addiction (McAuliffe, et al., 2005). Taking into account the stressors of the profession already put the provider at an increased risk to misuse drugs, the provider increases that risk even more by simply using drugs necessary to perform a successful anesthetic in the majority of procedures; therefore, education, prevention, and early intervention of drug misuse is imperative. As a matter of fact, some would agree that education regarding chemical dependency should be implemented as soon as training begins. In one study, a survey of anesthesia program directors found incidents of substance abuse among anesthesia students, where results included loss of nursing licensure, termination from the program, and even death (Bozimowski, Groh, Rouen, & Dosch, 2014).

As referenced by Saunders (2006), a study performed by the Alcohol and Drug Research Centre in Edinburgh at the request of The Association of Anaesthetists of Great Britain and Ireland revealed a “lack of awareness of schemes to deal with problems of alcohol and drug abuse within hospital trusts” (p. 638). In many cases, providers are not tested for drugs until they are reported by a co-worker for displaying certain signs and symptoms of impairment. According to the American Association of Nurse Anesthetists (AANA, 2015), some of the signs and behaviors to look for include, but are not limited to, isolation and withdrawal from peers, gradual decline in work performance, consistently signing out more narcotics than colleagues, frequent bathroom breaks, desire to take extra call, increased difficulty with authority, elaborate excuses, dishonesty over
trivial/unimportant matters, and patterns of inappropriate drug choices and dosages, among others.

The AANA (2015) emphasizes knowledge of signs and behaviors of an impaired provider is vital; however, the AANA also recognizes that identifying impairment in a colleague is difficult. This may be due to the fact that these changes in behavior may not be abrupt. According to the AANA, as cited in Luck and Hendrick (2004), these behavior changes may occur little by little, over the course of months or years, making them complicated to identify. There are multitudes of ways impaired providers may conceal their addiction from others. Addicts may alter their charting to show certain drugs were given, when in fact, another drug was given, or sometimes, to the detriment of the patient, none were given at all; some addicts may replace their drug of choice with another liquid, leaving the vial as if it had never been tampered with or accessed at all (Bryson & Silverstein, 2008). Anita Bertrand, a Certified Registered Nurse Anesthetist practicing in Houston, stated, “I was absolutely impaired, using narcotics while working…And no one ever noticed;” she even placed an intravenous port in her ankle for easier access to administer her drug of choice (Eisler, 2014). Bertrand stated, “There are so many practitioners working impaired and we have no idea…we’re doing a terrible job addressing this problem” (Eisler, 2014).

Another example of how anesthesia providers may be misusing drugs and going undetected is abusing drugs not typically accounted for by the pharmacy, unlike controlled drugs such as narcotics. For example, in a survey of 126 anesthesia residency programs, 18% of the departments had documented accounts of the anesthetic drug, propofol being misused, and seven reports of death due to propofol abuse (Wischmeyer et
al., 2007). In another survey of members of Anesthetists in Recovery, almost one-third admitted to injecting themselves with propofol on at least one occasion (Stocks, 2011). Intravenous drugs are not the only non-controlled drugs of abuse; according to a survey by Wilson et al. (2008), 22% of respondents reported one or more persons abusing inhalational anesthetics, with 26% of those resulting in death. According to this same report, there was no pharmacy accounting of inhalational anesthetics by a majority of the anesthesia departments (Wilson et al., 2008).

Nursing

The incidence of drug misuse among the nursing profession is profound. Looking at one example of the severity at the state level puts the issue into perspective. On average, approximately 300 nurses yearly are disciplined by the Alabama State Board of Nursing for having substance misuse problems, as cited by Monroe, Vandoren, Smith, Cole, and Kenaga (2011). One study found that an estimated seventeen thousand nurses in the United States were identified with substance abuse problems in a one year period (Monroe, Kenaga, Dietrich, Carter, & Cowan, 2013). This is an overwhelming and frightening statistic as these individuals are charged with caring for the public.

In 2012, as cited by New (2014), a nurse received a prison sentence because of her diversion of drugs. This nurse had replaced hydromorphone with normal saline, and by doing so, the nurse caused twenty-five people to become infected with a blood borne pathogen (New, 2014). Some of these patients were in critical condition, some required surgery, and one person lost their life (New, 2014). Ultimately, nurses are threatening the safety of those they care for as well as themselves when they divert drugs. It is vital for governing bodies, from the national level to the individual institution, to have strict
policies and procedures in place to prevent or maximally decrease the incidence of drug misuse.

Medical Professionals

The disease of addiction is not limited to anesthesia providers and nursing staff. Fung and Lange (2011) cited references estimating 6-10% of dentists were chemically dependent. In 2009, an investigation into an outbreak of the hepatitis C virus began in Colorado (Warner et al., 2015). This investigation would eventually reveal that a hepatitis C positive surgical technician was taking syringes of fentanyl from unattended anesthesia carts, self injecting, refilling the same syringe with saline, and then returning the syringe to the cart (Warner et al., 2015). According to Warner et al. (2015), another incident involving an outbreak of hepatitis C in New Hampshire identified a traveling radiology technician as the source.

Hamza and Bryson made a profound statement in their 2012 publication: “Opioid-addicted health care providers are masters of drug diversion. Education does not grant anybody immunity from developing addiction, and in this population, intelligence can be used to cleverly circumvent narcotic accountability and drug substitution” (p. 266). Because of this subtle and manipulative behavior, it is crucial that drug testing protocols be implemented. In a survey of 1,891 medical physicians, over 300 reported being directly aware of a physician associate who was under the influence or not competent to practice medicine (DesRoches et al., 2010). Sixty-seven percent of those with that knowledge stated that the impaired physician was the one to whom they would otherwise report (DesRoches et al., 2010). When faced with these types of situations, many do not report. The top three reasons for not reporting, according to the study by DesRoches et
al. (2010), were thinking that another person had taken care of it, thinking reporting the problem wouldn’t make a difference, and apprehension of retaliation. Knowing that many practitioners recognize signs and symptoms of impairment but still choose not to act, makes it all the more essential to implement randomized drug testing.

Non-Healthcare Professionals

Chemical dependency and drug abuse are not limited to healthcare professionals. The United States Congress implemented an act for mandatory testing of transportation employees with safety sensitive functions after major incidents occurred, such as the Exxon Valdez oil spill, thus bringing much needed public attention to this serious issue (Li, Brady, DiMaggio, Baker, & Rebok, 2010). Consider the results of the random testing performed by the Federal Aviation Administration during 1995-2005. There were over half a million alcohol tests performed, with 601 alcohol violations and over one million drug tests performed, with 7,211 drug violations (Li et al., 2010). These were a small percentage of positives considering the number of individuals tested, but the consequences of not detecting these individuals could have been catastrophic.

Li et al. (2011) also state general aviation, which consists of non-commercial flights, account for more than 90% of all flight accidents and deaths. These general aviation flights are not covered by the mandatory drug-testing programs (Li et al., 2011). Therefore, one could conclude statistics involving drug related aviation accidents do not accurately depict the data. Other transportation employees affected by drug-testing included commercial drivers. They have a significantly higher rate of impairment compared to aviation. In a 2009 study of over sixty-six thousand fatal multi-vehicle
crashes, almost 20% of non-motor carrier drivers tested positive for alcohol in a blood test (Brady et al., 2009).

Drug Testing

According to Eisler (2014), hospitals and other health care facilities rarely perform random drug testing, and there are no state laws that require it. With this knowledge, chemically dependent individuals who misuse drugs may feel they are at a decreased risk of being tested, and ultimately, a decreased risk of being caught misusing. There are many pros and cons of random not-for-cause testing. One of the pros of a randomized screen is there would be a decreased risk of a provider cheating the test when there is no prior knowledge of such a test. According to Cholakis and Bruce (2007), most workplace drug testing is performed prior to the provider beginning work, and this type of testing generally uses a traditional urinalysis; knowing this, drug abusers may stop using detectable drugs in an adequate amount of time before the test, then begin using again after they pass the test. An Internet search of the phrase beat drug test in July 2015 resulted in over thirteen million hits; cheating drug tests has become a real issue. Between May 2004 and April 2005, about 10,000 specimens tested in certified labs were “found to be adulterated, substituted, or invalid” (Bush, 2007, p. 116). This isn’t surprising considering the availability of products to do such.

There are numerous products available to alter results of drug screens, not only for urine, but other bodily specimens as well. There are shampoos available for hair samples, mouthwashes for oral fluid samples, and for blood, there are “whole body cleansers” (Bush, 2007, p. 116). Because of these products readily available on the market, random drug screening may be more appropriate in detecting drug abuse.
Random drug screening may not only help with prevention, it may also benefit those who have already been chemically dependent. There are improved outcomes of recovery when random drug screening is performed among recovering physicians, seemingly due to the repercussions of not passing the drug screen (Fitzsimons, Baker, Lowenstein, & Zapol, 2008). It is important to monitor these individuals in the recovery process, not only with random drug screening, but also with routine mental screening. In a study of health care professionals with substance abuse disorders by Domino et al. (2005), the presence of a co-existing psychiatric illness significantly increased the likelihood of relapse. These individuals are at an increased risk for reverting back to drug diversion, and therefore would benefit greatly from random drug screening.

The financial burdens are more than likely one of the top negative aspects associated with drug testing, as it can result in significant costs to the employer. However, random testing can identify individuals who may not necessarily exhibit the classic signs and symptoms, and may ultimately save lives and dollars. In a study analyzing over 15,000 households, findings suggested that drug-testing programs deterred some potential drug-using employees, but may also decrease morale and discourage productive employees (French, Roebuck, & Alexandre, 2004). Drug testing programs which deter potential drug users can also come at a cost. To put an exact number on the cost, of course, is nearly impossible due to the variables and considerations. In 2006, however, the effectiveness and benefit-cost ratio was analyzed in a transportation company with a peer-based substance abuse program (Miller, Zaloshnja, & Spicer). The findings in this particular situation showed an estimated $1,850 savings per employee in avoided injury costs due to the program. Therefore, in
this instance, the peer-based program in conjunction with random testing proved to be
cost-effective in the workplace (Miller, Zaloshnja, & Spicer, 2006).

A few variables to consider when it comes to cost-benefit of an impaired
anesthesia provider would be the costs of medications redirected from the patient, the
cost of unfavorable outcomes of a patient if the impaired provider made a medical error,
costs of lost labor from days off of work, and the costs of the drug testing just to name a
few. Bryson and Silverstein (2008) quoted costs from a laboratory in New York state
charging $32.50 to test for fentanyl in a urine sample, and $290 to test for propofol in a
urine sample; the cost for testing hair samples can be over a thousand dollars. However,
with the short half-lives of many commonly abused drugs, hair analysis is often time the
best choice for detecting chronic drug misuse (Kintz, Villain, Dumestre, & Cirimele,
2005). Costs for the employer are not only incurred through testing, however, chemical
dependency costs businesses in other ways. The cost to a business on average is about
$10,000 per drug user due to decreased productivity, missing work with greater than ten
absences, and increased insurance rates (Cholakis & Bruce, 2007). As for healthcare
facilities, the Centers for Medicare and Medicaid Services (2004) can terminate services
if a diversion case involving patient harm leads to Immediate Jeopardy.

According to a report published in 1999 by the Institute of Medicine, operating
rooms were one of the places within a hospital where high error rates were most likely to
occur. This not only resulted in an estimated total national cost between $17 billion and
$29 billion per year, but perhaps more importantly, in the loss of human lives. The
impairment of the anesthesia provider significantly increases the risk for a compromise in
patient safety and error in the operating room (Wright et al., 2012). Of all healthcare
providers found misusing drugs, anesthesia providers have the highest risk of death due to drug-related causes (Wright et al., 2012). The costs associated with addicted anesthesia providers are high for all parties involved, including the provider, the patient, the employer, the patient’s families, and even colleagues of the impaired provider.
CHAPTER III

CONCEPTUAL AND THEORETICAL FRAMEWORK

Analysis of the Nursing Process Theory and Capstone Fit

The explanatory theory is a middle-ranged theory designed to build knowledge; it “identifies how the properties and components relate to one another and accounts for the functions of the discipline” (Purnell, 2011, p. 526). This theory was utilized to explain not only the association of risk factors of chemical dependency to the profession of anesthesia, but how random drug testing may decrease that risk. Furthermore, as a doctoral prepared anesthesia provider, the intent was to provide knowledge to other anesthesia providers of the signs and symptoms to look for in an impaired anesthetist in a collaborative effort to further decrease risks of chemical dependency to anesthetists. I also provided knowledge of what the literature shows and provided implications of practice, as well as suggestions for further research, to the key stakeholders in the form of a white paper analysis.
CHAPTER IV

METHODOLOGY

Target Outcome

The primary objective of this capstone project was to determine if a not-for-cause random drug testing protocol would be beneficial in reducing the number of anesthesia providers who misuse drugs, and/or decrease the risk for those who are not actively misusing. The target outcome was to develop a white paper/policy proposal and eventually present to key stakeholders who could ultimately implement a policy change for drug testing among anesthesia providers. Results of the project are to be presented to those who could benefit from this knowledge. An exhaustive review of literature was performed to answer the PICO question, “Would not-for-cause randomized drug testing reduce the incidence of drug misuse among Certified Registered Nurse Anesthetists?” Research not only focused on the literature of the target population, but it also observed the literature related to drug misuse among other healthcare providers and employees in professions outside of the healthcare industry. Once this data was gathered and analyzed, a set of best practice guidelines and future research recommendations were established. In the form of a white paper analysis, these are to be presented to key stakeholders, such as state and national governing bodies, anesthesia providers, and students, for consideration.

Population

During the literature review process several populations were studied. The main population of focus with this capstone project was Certified Registered Nurse Anesthetists. Other populations studied were professions who affected the general public
such as nursing, other healthcare providers, and transportation entities. Although the study results were centered on anesthesia providers, the findings could be potentially implemented in all areas of healthcare and other professions, given that chemical dependency is a disease that does not discriminate.

Methods

An extensive and thorough literature review was conducted. Literature was obtained from the following databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL), American Association of Nurse Anesthetists online research, Medline, Google Scholar, Academic Search Premier, and PubMed. After the results were compiled, a white paper proposal of best practice guidelines for drug testing for prevention of chemical dependency was developed. These guidelines can be utilized by stakeholders, including state and national governing bodies for nurse anesthetists, anesthesia providers, students, and the families of providers.
CHAPTER V

IMPLICATIONS

Anesthesia providers do not have a set of best practice guidelines established with regards to not-for-cause random drug testing. Evidence shows anesthesia providers are at the highest risk for chemical dependency than any other healthcare provider, and on-the-job impairment could have devastating and fatal outcomes for both the patient and provider. Established guidelines for random drug testing have the potential to significantly decrease the risk for addiction as well as decrease the number of on-the-job impaired providers and improve patient outcomes. This research could also set the foundation for future research related to drug testing. This, in turn, could ultimately improve patient safety and patient outcomes, decrease costs, and save lives. If successful, these policies could potentially be implemented into other areas of health care as well, including physicians, nursing, radiology, and other ancillary staff. After thorough review of the literature, a white paper analysis was developed for presentation to stakeholders including state and national governing bodies, anesthesia providers, students, residents, and families of providers.

Evidence-based practice will be used to facilitate change. For this capstone project, Stetler’s model of Evidence Based Practice was the applied model. This model involves five steps which include preparation, validation, comparative evaluation/decision making, translation/application, and evaluation (Ciliska et al., 2011). The first phase consisted of recognizing and establishing a superior need, which in this case was the prevalence of impaired anesthesia providers. The next phase involved an exhaustive review of the literature and assembling evidence related to the need. After
that, the data was evaluated, and key points were noted and determined to be essential in providing evidence to implement change. Subsequently, the evidence was compiled and a white paper analysis was developed. Once this analysis is submitted to key stakeholders mentioned, if change is implemented, an evaluation of the recommendations will take place.

Barriers

There could potentially be several barriers faced when attempting to present this capstone project to key stakeholders. Resistance to change policies may be a factor. Another possible issue would be the perceived costs of implementing programs for randomized drug testing. There may also be arguments against random drug testing due to the potential of unfair testing procedures and protocols. Through support of the literature and cost benefit analysis, prospective obstacles may be avoided when presented to the stakeholders, which will include state and national governing bodies, anesthesia providers, and students.

Implications for Practice

If these guidelines and recommendations are implemented, and demonstrate success in decreasing addiction risks, identifying impaired anesthetists, and preventing addiction, then it is hopeful that the future generation of anesthesia providers will experience a decreased incidence of drug misuse. Furthermore, with the combination of education and drug testing data, which would be obtained from implementation in the anesthesia profession, similar drug testing programs among other disciplines of nursing and healthcare could develop. The process of random drug testing, as we know it could potentially change. The cost benefits of different types of testing for certain drugs could
be researched further. Urine sampling may no longer be the norm, and oral fluid or hair samples may be the new samples of choice with randomized drug screening for healthcare providers and other disciplines. Further research may also be implemented as a result of this white paper proposal, including further studies related to the risk factors associated with chemical dependency, implementation of programs counseling high-risk individuals, addiction education during anesthesia school, and randomized drug testing during school just to name a few. The potential changes could significantly improve work performance, decrease medical errors related to impaired providers, and improve patient safety and outcomes in all areas of healthcare.

There are endless possibilities for future implications for practice and further research. Bryson and Silverstein cited a study performed in 1990 of a report of 180 cases of substance abuse among anesthesiology residents, where thirteen died as a result of relapse (2009). Individuals who have a prior history of abuse have an increased risk of relapse and the risk increases further with each relapse (Domino et al, 2005). According to a study by Wright et al. (2014), random drug testing was noted to be a “definite deterrent to using” (p. 72). Perhaps, randomized drug testing for those in recovery should be more frequent than what is currently required.

Other possible implications to consider would be policy changes at various levels. According to the Re-Entry Recommendations and Resources of the American Association of Nurse Anesthetists (AANA, 2015), a monitoring program of a minimum of five years is recommended as part of recovery. One suggestion based on the current literature would be for mandatory randomized drug testing for the remainder of the individual’s career in anesthesia, and on a more frequent basis than the non-recovering
provider. Another recommendation to consider would be permanently revoking licensure if individuals are caught misusing drugs while in recovery. This would alleviate the risk of relapse, and perhaps even death of the provider.

Other policy changes may include the pharmacy department protocols at the institutional level. One study suggests using an analysis of unusual drug transactions to detect diversion of drugs (Epstein, Gratch, & Grunwald, 2007). Other considerations are having policies in place to handle discrepancies, validating and identifying controlled medications returned to pharmacy, and frequently auditing charts. One way of validating and identifying medications is through a refractometer. Refractometers are a reasonably priced and practical technique of drug diversion recognition which can be done on-site with instant results (O’Neal, Bass, & Siegel, 2007). Depending on the institution size and staff, policy implementations may differ, but it is critical to have some form of drug diversion policy in place to reduce the incidence of misuse among providers.
CHAPTER VI

FULFILLMENT OF THE EIGHT ESSENTIALS OF THE DOCTORAL EDUCATION FOR ADVANCED NURSING PRACTICE

The DNP Essentials Encompassed

Essential I. Scientific Underpinnings for Practice (Chism, 2013)

Essential one was met by identifying successful ways to decrease risks of chemical dependence encountered by nurse anesthesia providers through drug testing strategies. This project also met this essential by encompassing sciences of therapeutics, psychosocial sciences, and human biology; it focused on how providers interact with their environment in normal life situations and in critical events (AACN, 2006).

Essential II. Organizational and Systems Leadership for Quality Improvement and Systems Thinking (Chism, 2013)

According to the American Association of the Colleges of Nursing (AACN), Doctorate of Nursing Practice (DNP) graduates must be adept in quality improvement practices and in establishing and maintaining changes, not only at the institutional level, but at the policy level as well (2006). Essential two focused on quality improvement and systems thinking by decreasing the risk for chemical dependency, by providing specific drug testing policy recommendations, and ultimately improving patient outcomes.

Essential III. Clinical Scholarship and Analytical Methods for Evidence-Based Practice (Chism, 2013)

Essential three was met through an integrated literature review and analysis of evidence-based guidelines which helped to establish a white paper proposal for a best practice policy change. By incorporating knowledge gained from other disciplines
regarding chemical dependency, connections were made, and meaning was given to a series of isolated data and facts, which might not have been connected otherwise. This further advanced the understanding of drug testing policies among the anesthesia profession (AACN, 2006).

Essential IV. Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care (Chism, 2013)

Information systems and technology was utilized by accessing databases to gather research to complete the literature review.

Essential V. Health Care Policy for Advocacy in Health Care (Chism, 2013)

Essential five was addressed through advocating for wellness of the healthcare providers, thus, ultimately improving patient safety and outcomes as a result. In addition, by educating stakeholders regarding patient outcomes and potential policy changes, this essential was met (AACN, 2006).

Essential VI. Interprofessional Collaboration for Improving Patient and Population Health Outcomes (Chism, 2013)

Collaborating with other healthcare providers through debriefing and educating them on the signs and symptoms of impaired colleagues, there is a potential to ultimately improve patient outcomes by decreasing the risk of impaired providers. Through effective communication and in developing guidelines regarding random drug testing, essential VI was addressed (AACN, 2006).
Essential VII. Clinical Prevention and Population Health for Improving the Nation’s Health (Chism, 2013)

The AACN cites Allen, et al., stating “clinical prevention is defined as health promotion and risk reduction/illness prevention for individuals and families” (2006). By providing guidelines for drug testing and recommendations for preventing the risk for chemical dependency, essential seven was fulfilled.

Essential VIII. Advanced Nursing Practice (Chism, 2013)

According to the AACN, DNP graduates should base their practice on the application of multiple sciences and should exhibit distinguished assessment skills (2006). This essential was met due to the fact that the project covers a multitude of sciences, including psychosocial, behavioral, cultural, economic, and nursing sciences.
APPENDIX A

IRB EXEMPTION LETTER

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

COLLEGE OF NURSING
Systems Leadership & Health Outcomes Department
118 College Drive #5095 | Hattiesburg, MS 39406-0001
Phone: 601.266.5462 | Fax: 601.266.5927 | nursing@usm.edu | www.usm.edu/nursing

September 8, 2015

To Whom It May Concern:

The doctoral capstone project submitted to IRB by Katy Gavin has been reviewed by Bonnie Harbaugh, PhD, RN, who is a College of Nursing representative of The University of Southern Mississippi Institutional Review Board. The project is writing and presentation of a white paper analysis that does not involve human subjects. Since the capstone project does not use human subjects, this project does not require IRB Approval.

If Ms. Gavin’s project changes to include Human Subjects, she will notify her doctoral capstone project advisor, Dr. Vickie Stuart, and apply for IRB approval.

Sincerely,

Bonnie Lee Harbaugh, PhD, RN
USM IRB Member
College of Nursing Representative

Professor and Chair
Department of Systems Leadership and Health Outcomes
College of Nursing
The University of Southern Mississippi
Bonnie_Harbaugh@usm.edu
601-266-5250
## APPENDIX B

**LITERATURE REVIEW TABLE**

<table>
<thead>
<tr>
<th>Author/Date</th>
<th>Study Type</th>
<th>Sample</th>
<th>Methodology</th>
<th>Conclusions</th>
</tr>
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<tbody>
<tr>
<td>Bell, D. M., McDonough, J., Ellison, J.S., &amp; Fitzhugh, E.C. (1999)</td>
<td>Quantitative</td>
<td>n=1709 actively practicing CRNAs</td>
<td>Mailed surveys to AANA members; Chi-square test</td>
<td>Addiction education should be mandatory in anesthesia schools; most CRNAs feel their colleagues who successfully complete rehab should be permitted to re-enter the profession; however, after a relapse, most believe re-entry should be denied.</td>
</tr>
<tr>
<td>Bozimowski, G., Groh, C., Rouen, P., &amp; Dosch, M. (2014)</td>
<td>Cross-sectional retrospective study</td>
<td>n=47 program directors n=23 of the 47 with complete data</td>
<td>Electronic survey mailed to program directors asking for current data and data within the previous five years</td>
<td>Substance abuse among SRNAs is of concern; future research would be useful. Some limitations, include limited analysis due to descriptive data; response rate of 21.7%, and possible missing, undocumented, or overlooked incidents of substance abuse.</td>
</tr>
<tr>
<td>Study Authors</td>
<td>Study Design</td>
<td>Sample Size</td>
<td>Study Details</td>
<td>Findings</td>
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<tr>
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<tr>
<td>Brady, J.E., Baker, S.P., DiMaggio, C., McCarthy, M.L., …, &amp; Li, G. (2009)</td>
<td>Quasi-experimental design</td>
<td>n=66,138 crashes</td>
<td>Study involved pre- and post-implementation time periods of mandatory alcohol testing programs including motor carrier &amp; non-motor carrier drivers</td>
<td>Results indicate implementation of mandatory alcohol testing programs associated with 23% decrease in alcohol involvement in deadly crashes by motor carrier drivers.</td>
</tr>
<tr>
<td>DesRoches, C.M., Sowmya, R.R., Fromson, J.A., Birnbaum, R.J., Iezzoni, L., Vogeli, C., &amp; Campbell, E.G. (2010)</td>
<td>Quantitative</td>
<td>n=1891</td>
<td>Survey of physicians to determine experiences, beliefs, and readiness to report colleagues who were under the influence or incompetent to practice</td>
<td>More than half of respondents indicated they agreed with need to report, but most who had knowledge of impaired colleagues did not report for various reasons.</td>
</tr>
<tr>
<td>Domino, Hornbein, Polissar, Renner, Johnson, …, &amp; Hankes (2005)</td>
<td>Retrospective cohort</td>
<td>n=292 chemically dependent health care professionals</td>
<td>Information retrieved from database of treatment facility over a ten year period</td>
<td>Risk of relapse with substance use increased in major opioid use, a co-existing psychiatric illness, or family history of substance use disorder. Presence of more than 1 risk factor &amp; previous relapse increased chances of relapse further.</td>
</tr>
<tr>
<td>Authors</td>
<td>Design</td>
<td>N</td>
<td>Data Analysis and Record Audit</td>
<td>Graphical Approach Used to Find Outliers, &amp; Manual Audits of Transactions Assessed Drug Diversion</td>
</tr>
<tr>
<td>-----------------------------</td>
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<td>------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Epstein, R.H., Gratch, D.M., &amp; Grunwald, Z. (2007)</td>
<td>Data analysis and record audit</td>
<td>n=2 cases where diversion was known, using data mining approach, trends were identified</td>
<td>Graphical approach used to find outliers, &amp; manual audits of transactions assessed drug diversion</td>
<td>Identifying unusual drug transactions (frequent transactions on patients after surgery or obtaining drugs off site of procedure) using automated drug dispensing machines is useful in drug diversion detection</td>
</tr>
<tr>
<td>Kintz, P., Villain, M., Dumestre, V., &amp; Cirimele, V. (2005)</td>
<td>Case Control</td>
<td>n=4 cases of anesthesiologists addicted to fentanyl derivatives</td>
<td>Requested testing for anesthesia agents in four legal cases, hair samples were taken. Three cases were suspected of addiction, the fourth was post-mortem.</td>
<td>Usually, blood and/or urine collected at inadequate times &amp; not useful to document impairment; hair testing should be used as complement to increase window of drug detection. Collection of the sample is non-invasive, can be done under close supervision, &amp; storage at room temperature.</td>
</tr>
<tr>
<td>Li, G., Baker, S.P., Zhao, Q., Brady, J.E., Lang, B.H., …, &amp; DiMaggio, C. (2011)</td>
<td>Retrospective ten year study</td>
<td>n=4977 post-accident drug tests n=1,129,022 random drug tests</td>
<td>Case-control analysis</td>
<td>Aviation employees much less likely to use illicit drugs than other transportation modes &amp; the general workforce. However, study limited to employees of major airlines, commuter air carriers, &amp; air taxis.</td>
</tr>
<tr>
<td>Study Authors</td>
<td>Study Type</td>
<td>Sample Size</td>
<td>Findings</td>
<td></td>
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</table>
n=1,129,922 random drug tests  
n=2284 for-cause alcohol tests  
n=2015 for-cause drug tests | Positive Predictive Values  
More difficult to detect a person under the influence of illicit drugs than a person under the influence of alcohol based on physical appearance, body odor, behavior, & job performance. Limited accuracy of suspected alcohol & drug violations is due in part to low prevalence of alcohol & drug use in aviation employees. |
n=128 nurses per board | Prevalence of nurses with recognized substance use problems= 17,085. Prevalence of nurses enrolled in disciplinary monitoring programs= 12,060. Limitations of convenience samples include recruitment bias & limited generalization. |
Warner, A.E., Schaefer, M.K., Patel, P.R., Drobeniuc, J., Xia, G.,..., Thompson, N.D. (2015) Patients were identified through health records at the facilities where the tech was employed, and were contacted with a letter informing them of their potential exposure to hepatitis C. n=5970 patients were identified who could have possibly been exposed. Pairwise genetic distances of nucleotide quasi-species sequences were estimated with the DNADIST program in the PHYLIP package. Differences in the distributions of the HVR1 genetic distances were compared using the ANOVA program. 18 confirmed cases of hepatitis C transmission due to diversion of surgical technician. The technician was sentenced to 30 years in prison.

Wilson, J.E., Kiselanova, N., Stevens, Q., Lutz, R., Mandler, T., Tran, Z.V., & Wischmeyer, P.E. Quantitative study n=106 surveys completed from anesthesia departments Anesthesia department chairs responded to online surveys. 22% of anesthesia departments responding to surveys reported abusing inhalational anesthetics. 26% found misusing had fatal outcomes. Weaknesses: uncertain recall of incidences including inhaled anesthetics, departments that did not respond to survey may have had incidences of misuse, & respondents may not have included cases occurring before they arrived to department.
<table>
<thead>
<tr>
<th>Authors</th>
<th>Methodology</th>
<th>Sample Size</th>
<th>Data Collection</th>
<th>Findings</th>
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<tr>
<td>Wischmeyer, P.E., Johnson, B.R., Wilson, J.E., Dingmann, C., Bachman, H.M., ..., Henthorn, T.K. (2007)</td>
<td>Descriptive</td>
<td>n=93</td>
<td>Descriptive analysis of emailed surveys</td>
<td>Took into account propofol abuse among all anesthesia personnel within the departments including attendings, residents, and CRNAs. Data may not be accurate for several reasons including propofol not being routinely tested in urine drug screens, and many case reports discovered propofol abuse only after death or when the individual was found unconscious.</td>
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<td>Wright, E.L., McGuinness, T., Schumacher, J.E., Zwerling, A., &amp; Moneyham, L.D. (2014)</td>
<td>Qualitative Inquiry</td>
<td>n= 6</td>
<td>Participants were recruited through online advertising; data were collected through semistructured individual telephone interviews</td>
<td>All participants agreed continual involvement in a Twelve-Step program was vital to their recovery. The need for trigger management was also an important factor. All participants agreed random urine drug screening was a deterrent to using.</td>
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APPENDIX C
CITI TRAINING

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)
RESEARCHERS, FACULTY, STUDENTS AND IEEE MEMBERS CURRICULUM COMPLETION REPORT

Katy Grin (ID: 4087312)
December 2015
293 Witherspoon Rd
Hattiesburg, MS 32402
United States

Institution
University of Southern Mississippi
Expiration Date
02/22/2019

RESEARCHERS, FACULTY, STUDENTS AND IIE MEMBERS ENGAGING IN RESEARCH INVOLVING HUMAN SUBJECTS REG:
Researcher, Faculty, Student
Component Tag B
Stage 1/1
ID No. 02/22/2015
Reference ID
12345678

REQUIRED MODULES

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Participant Signature

Priya Gandhi, Ph.D.
Professor, University of Miami
Director, Office of Research Education
CITI Program Coordinator
COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)
COMMON COURSE FOR USM GRADUATE STUDENTS CURRICULUM COMPLETION REPORT
Printed on 02/16/2016

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INSTITUTION
University of Southern Mississippi

EXPIRATION DATE
02/16/2019

COMMON COURSE FOR USM GRADUATE STUDENTS

COURSE TAG E: RC3/R1
PASSED ON: 02/16/2014
REFERENCE ID: 0238630

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Pamela Blankenship, Ph.D.
Program Coordinator
CITI Program, University of Miami
COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)
SERT FACULTY, STUDENTS AND STAFF AT THE UNIVERSITY OF SOUTHERN MISSISSIPPI (BASIC COURSE)
CURRICULUM COMPLETION REPORT

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University of Southern Mississippi

RETIREMENT DATE
02/22/2019

SERT FACULTY, Graduate and Staff at the University of Southern Mississippi (Basic Course)

COMPLETION DATE: 02/03/2014
REF ID: 1230992

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P.D. Bickel
Director, Office of Research Education
CITI Program, Coordinating Center
COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)
CONFLICT OF INTEREST MINI COURSE CURRICULUM COMPLETION REPORT
Printed on 02/16/2014

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EXPIRATION DATE
02/15/2019

CONFLICT OF INTEREST

COURSE TAG:

PASSED ON:
02/15/2014

REFERENCE ID
2320950

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Paul A. Brandt, Ph.D.
Professor, University of Miami
Director, Office of Research Education
CITI Program Co-Founder
SOUTHERN MISS
NURSE ANESTHESIA PROGRAM
DOCTOR OF NURSING PRACTICE

Random Not-For-Cause Drug Screening to Improve Patient Safety,
Decrease Errors in the OR, & Save Money!

Katy Gavin, SRNA, BSN

BACKGROUND

- More than any other group, anesthesia providers have the highest risk of death due to
drug-related causes (Wright, McGuiness, Moneyham, Schumacher, Zwerling, &
Stullenbarger, 2012)
- Error rates are higher in operating room than any other place in the hospital (Institute of
Medicine, 1999)
- Addiction among healthcare providers affects the safety of patients and the general
public
- 10-20% of CRNAs will misuse drugs in their career (Bell, McDonough, Ellison, & Fitzhugh,
1999)

PURPOSE AND METHODS

- Purpose: to determine if random drug screening would decrease the risk of drug misuse
among anesthesia providers.
- An extensive literature review was performed looking at a variety of professions who do
and do not have random drug screening implemented, and comparing the outcomes.

RESULTS AND COST BENEFITS

- Random drug testing found throughout the literature to decrease incidence of drug
misuse
- Miller, Zaloshnja, & Spicer estimate $1,850 savings/employee with random drug screening
- Cholakis and Bruce state drug use cost businesses $10,000/drug user due to decreased
productivity, missing work, and increased insurance rates
IMPLICATIONS AND CHANGE PROPOSAL

- Randomized drug testing should begin during anesthesia programs and continue throughout the professional lifetime.
- For individuals in recovery, random drug testing should occur more frequently than the non-addicted provider, at least during the first 5-10 years.
- Considerations of work restrictions for the professional lifetime (i.e. not working alone for the duration of the anesthesia career).
- No relapse tolerance could be considered.
- Costs for drug testing after testing positive could be absorbed by the provider to decrease the costs to the employer.
- Future research should be directed at types of drug screening performed, wellness programs, drug diversion detection programs, and continued education requirements for substance abuse.

October 2015
REFERENCES


