

**Barriers Faced by Nurse Anesthetist Entrepreneurs Wishing to Implement an Office-
Based Anesthesia Practice**

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April 30, 2017

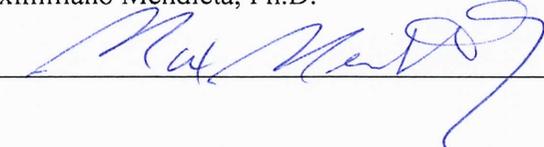
Presented to the Faculty at the University of Michigan-Flint

In partial fulfillment of the requirements for the

Doctor of Anesthesia Practice Program

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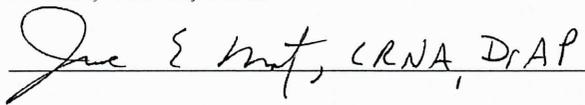
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ABSTRACT

Purpose: Certified Registered Nurse Anesthetists (CRNAs) are highly trained anesthesia professionals with a minimum of seven calendar years of nurse anesthesia education and clinical experience, who safely administer more than 40 million anesthetics in the United States every year. CRNAs may encounter barriers to full practice authority that limit their ability to practice anesthesia to the full scope of training and experience, and to meet the needs of the patients they serve. The removal of practice barriers remains a high priority requiring legislative changes at various levels of government. State regulatory restrictions of practice, and the requirement of physician supervision, may restrict nurse anesthetist entrepreneurs wishing to establish an office-based anesthesia practice (OBA). The purpose of this project was to determine what barriers exist for the CRNA when implementing an OBA practice, and develop a practice guide for CRNA entrepreneurs wishing to establish an OBA practice.

Methods: An extensive literature review informed the formulation of a descriptive survey instrument to gather data on the barriers experienced by CRNAs when transitioning into autonomous OBA practices. The questionnaire was distributed online using Qualtrics® via social media venues, Facebook and Yahoo, to groups of CRNAs in autonomous OBA practices, yielding a sample size of 86 CRNAs. The survey data was analyzed to determine the perceived barriers encountered by CRNAs administering anesthesia in the physician office setting.

Results: The analyses of the survey results revealed the following three primary barriers; (1) state statutes prevent CRNAs from practicing to the full extent of their education and training, (2) fair reimbursement for CRNA services by third party payers, and (3) challenges related to other disciplines' recognition of the CRNA scope of practice. Of the 86 participants surveyed, 90% perceived state statutes to be the greatest barrier to OBA practice.

Conclusions: Barriers to CRNA OBA practice are complicated and multi-factorial. CRNAs need to continue advocating for patient safety in physician office settings, and obtain support from federal and state governments, health insurers, healthcare professionals, and consumers of health services. This may assist in overcoming barriers faced by CRNAs establishing autonomous OBA practices. Continued research aimed at outcome data related to CRNA effectiveness and quality in providing anesthesia independently at an office location, is necessary to aid in the successful reduction of the perceived barriers to practice. As a conclusion of this project the author intends to publish a guide to assist CRNAs considering establishing an OBA practice, to overcome some of the barriers identified in this project.

Data Sources: ProQuest, Medscape, PubMed, Cochrane Library, CINAHL, and Google Scholar.

Keywords: Certified Registered Nurse Anesthetist (CRNA), nurse anesthetist entrepreneurs, office-based anesthesia practice, barriers faced by nurse anesthetists.

I. INTRODUCTION

Certified Registered Nurse Anesthetists (CRNA) are a valuable resource in office based anesthesia (OBA) practice.¹ Utilizing CRNAs to the full extent of their education and training may benefit patients by offering easy access to safe, high quality, and cost-effective anesthesia care with increased patient satisfaction.² With an increase of office based surgical procedures,³ CRNAs may have an opportunity to satisfy the increased demand for anesthesia services, by opening independent OBA practices.

There are several advantages to office-based anesthesia for surgical procedures including: convenience for the surgeon and patient; lower operating cost when compared with hospital and ambulatory surgical centers (ASCs) settings; patients perceive greater personal attention and privacy; surgeons perceive greater ease of scheduling, consistency in nursing personnel; efficiency, and reduced overhead costs.^{4,5} Data suggests that nosocomial infection rates are lower in office-based settings when compared with hospital settings.⁵

When administered by qualified professionals, anesthesia is a safe and effective means of alleviating pain during nearly every type of medical procedure. Nationally, CRNAs have been administering anesthesia to patients for over 150 years.^{6,7} According to the American Association of Nurse Anesthetists (AANA), approximately 40 million of all anesthetics given to patients in the United States (US) annually, are administered by CRNAs.⁶ In some states, CRNAs are the sole anesthesia providers in nearly 100% of rural hospitals, ensuring that healthcare facilities in these medically underserved areas are able to offer obstetrical services, surgical services, pain management services, and trauma services in a safe manner.⁵ Numerous anesthesia outcome studies have shown that there is no significant difference in the quality of care provided by CRNAs when compared to that of physician anesthesiologists.⁸

Growing consumer demand and cost considerations have shifted health care delivery from in-hospital to outpatient settings including physicians' offices. This has resulted in OBA becoming an expanding area of practice for anesthesia providers in the United States.⁹ The complexity and volume of procedures performed in physician offices continues to increase with over 12 million office-based procedures performed in 2013.⁹ This increase is mainly due to economic realities of health care reimbursement, decreased cost, improved provider/patient access, and convenience. In most states, surgeons can perform surgery in their offices without facing stringent regulations, such as accreditation certificate of need, which are required for hospitals and ASCs.^{9,10}

Office-based anesthesia has become an important subspecialty in the field for nurse anesthesia. As a result, the AANA developed standards for office-based anesthesia in 2013 that addressed the CRNAs' responsibilities toward different aspects of perioperative care in a physician office setting.¹¹ With the introduction of advanced technology, surgical procedures carried out in office locations have become more complex and invasive. Technology in its broadest sense is now more important than ever in the practice of surgery in physician offices. This technology can be as wide reaching and universal to medical practice as the computerized medical record or digital radiography, or as specific as a new type of laparoscopic instrument, or new stent for the management of cardio-vascular disease.¹²

CRNAs are educated and trained to provide anesthesia services for all cases and patient populations. Increased patient acuity and procedure complexity, demand the presence of an independent licensed anesthesia provider to offer full services that include both pre-anesthetic and postanesthetic patient care.¹⁰ This process resulted from improvement and quality care initiatives that strongly encourage surgeons to focus solely on the procedure, instead of dividing

attention between the surgical procedure and the administration of anesthesia.¹³ Nurse anesthetists are educated to identify patients whose pre-existing medical conditions may pose perioperative complications or require surgical interventions that are beyond office resources. Attention is thus shifted to focus on referral for hospital based care to ensure better patient outcomes.¹⁰

Market forces are currently driving the cost-effectiveness portion in the health care equation. Millions of previously uninsured Americans are now entering the health care market with the implementation of the Affordable Care Act (ACA). ACA is the most comprehensive health care reform legislation enacted in the United States since Medicare and Medicaid were introduced in 1965.¹⁴ The ACA requires health insurance coverage for all American citizens. The Congressional Budget Office (CBO) estimated that the law would decrease the number of uninsured people by 12 million in 2015, and by 26 million by 2017. CBO further projected that 25 million people will have gained coverage through the exchanges, and 13 million more people are projected to have coverage through Medicaid and Children's Health Insurance Program (CHIP) following the introduction of the ACA.¹⁵ In July 2014, a study published in The New England Journal of Medicine estimated that 20 million Americans would have gained coverage under the ACA as of May 1, 2014.¹⁶ Nurse anesthetists can deliver high quality of care at a more cost-effective rate while increasing access for surgical services to these newly insured patients entering the health care market.

CRNAs are well-qualified anesthesia providers to meet the growing need for the administration of anesthesia in a physician office settings. These providers may encounter barriers in practicing to the full extent of their education and training. Some barriers include the requirement of physician supervision based on the geographical area in which they practice. This

may limit a CRNA's ability to meet consumer demand for services. Removal of these practice barriers remains a high priority. The purpose of this project was to investigate barriers, which may be encountered by a CRNA when implementing an OBA practice. Specific barriers nurse anesthetists encountered, were identified to assist in the development of an electronic resource guide for use by new CRNA entrepreneurs.

The goal of this investigation was to answer the following research questions:

- What are the barriers faced by nurse anesthetist entrepreneurs wishing to implement office-based anesthesia practices?
- How can an electronic resource guide be created to assist CRNAs to identify and manage barriers faced when implementing OBA practices?

II. REVIEW OF LITERATURE

Many articles have been published about entrepreneurs in general, but little scientific research has been done to explore theories on entrepreneurial processes and outcomes and the barriers these entrepreneurs encounter including strategy, marketing, finance and operations.¹⁷ Popular journals and books on entrepreneurs are mostly biographical, such as "rags to riches" stories of startups that portray the flamboyance of the entrepreneur. Since entrepreneurship is accepted as one type of profession and nurse anesthesia is also a profession, the concepts for the CRNA entrepreneur are interconnected or similar to that of other professions.¹⁸

Assuming that the CRNA entrepreneurial theories and concepts are correlated to those of other professions, it is then required that the entrepreneurship and nurse anesthetists' literature be concurrently reviewed to gain more insight into the CRNA entrepreneurial process. The available literature is limited for CRNA practicing OBA as well as for the autonomous CRNA interested in starting an OBA practice. There are commonalities in the barriers faced by CRNAs

practicing OBA and other independent CRNAs practicing anesthesia in other areas, such as hospital-based facilities.

History of Nurse Anesthesia

The first professional groups to provide anesthesia care to patients in the United States were nurses. Nurse anesthesia has been recognized as the first advanced clinical nursing specialty; it was established in the late nineteenth century. The first evidence that nurses were administering anesthesia is found in accounts from the U.S. Civil War, when surgeons recruited nurses to provide anesthesia to wounded soldiers on the battlefields.¹⁹

The most well known nurse anesthetist of the nineteenth century was Alice Magaw. Magaw worked at St. Mary's Hospital, now known as the Mayo Clinic, located in Rochester, Minnesota. Dr. Charles Mayo bestowed the title "Mother of Anesthesia" upon Magaw for her many clinical achievements, particularly her mastery of the open-drop inhalation technique of anesthesia using ether and chloroform.²⁰ Magaw subsequently published her findings from 1899 to 1906 in an article documenting more than 14,000 anesthetic cases without a single complication attributable to anesthesia.¹⁹ Dr. Mayo and Magaw worked well as a team, and they were instrumental in establishing a standard of professional excellence in anesthesia and surgery. Many physicians and nurses from across the United States and throughout the world came to observe and learn their anesthesia techniques.²¹

In 2013, approximately 150 years after the profession was founded, more than 44,000 CRNAs and Student Registered Nurse Anesthetists administered approximately 44 million anesthetics in all practice settings where anesthesia services were required.⁶ To receive an extensive education in anesthesia, a registered nurse (RN) must attend a nurse anesthesia program accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs

(COA). There are currently more than 115 accredited nurse anesthesia educational programs in the United States. The admission process is highly competitive, with several requirements for admission to a nurse anesthesia program.²² These requirements include a Bachelors of Science in Nursing, or another appropriate baccalaureate degree from an approved program, and a minimum of one year of critical care experience.

In 2011, the COA appointed a Standards Revision Task Force to develop new accreditation standards. Following three years of vigorous research and development by the task force, the Council on Accreditation approved the first entry-level Practice Doctorate Standards, and the first voluntary post-graduate CRNA fellowship standards, in January 2014.²³ According to the COA, the Practice Doctorate Standards are designed to prepare graduates to enter into anesthesia practice with the capacity to provide safe, competent, and ethical anesthesia and anesthesia-related care to patients undergoing diagnostic, therapeutic, and surgical procedures.

Business concepts and business development are not routinely a part of nurse anesthesia education at the undergraduate or at the graduate level. Business planning is vital for a CRNA entrepreneur to succeed.²⁴ Many skills gained in the education of nurse anesthetists are beneficial to the development of a business plan. Assessing and identifying problems are skills utilized in diagnosing illnesses. Developing interventions, implementing solutions, and evaluating activities, and skills gained during nurse anesthesia education can be applied to the development of a business plan, as well as to the private independent practice of the nurse anesthetist.²⁵

There are opportunities for independent practice and entrepreneurship in the CRNA profession; however, partly due to lack of incorporation in their training, nurse anesthetists may have inadequate skills, training, experience, or business acumen. Some training programs may not address the area of OBA practice. CRNAs may be unfamiliar with anesthesia practice

outside the hospital operating room setting. Research suggests that education for the provision of quality care in remote locations in which one may be the sole anesthetist, should be considered in nurse anesthesia education.²⁶

CRNA Scope of Practice

The AANA describes the Scope of Practice (SOP) for a nurse anesthetist.²⁷ It is important for CRNAs to not only familiarize themselves with the SOP, but to understand how the SOP relates to specific work environments. This enables providers to practice to the full scope of the profession and improve patient care outcomes. In January 2013, the AANA Board of Directors charged the Practice Committee to revise the Scope of nurse anesthesia practice.^{27,28} The scope of nurse anesthesia practice describes CRNAs as advanced practice registered nurses (APRNs) who are licensed as independent nurse practitioners.²⁷ CRNA practice is typically defined by the Nurse Practice Act and governed by the State Board of Nursing, but other laws and regulations may impact practice, and other entities may play a role in creating barriers to CRNA practice.

CRNAs have had the ability to practice independently challenged over time. During the last decade, organized physician groups have attempted to block efforts aimed at ensuring that CRNAs achieve independent anesthesia practice status, and have publicly brought nurse anesthetists' skills into question.²⁹ Efforts include pressuring state governors to not opt out of the federal Medicare Part A physician supervision requirement for facility reimbursement of CRNA services, particularly when there is no state law or regulation requiring nurse anesthetists to be supervised by a physician.⁸ Some physicians groups and medical societies do not support CRNA scope of practice expansions because of the fear of erosion of private medical practice.³⁰ As a result, CRNAs are forced to work in anesthesia care teams (ACTs), which are gaining more

popularity in some parts of the country.³⁰ The ACT model involves a combination of CRNAs working under the supervision or medical direction of an anesthesiologist thereby limiting the number of nurse anesthetists practicing independently.

Following the implementation of the ACA, with its goal of increasing access to care, while providing high-quality health care, the role of APRNs has received significant publicity. In 2011, the Institute of Medicine (IOM) published the results of a multidisciplinary panel concerning the future of nursing.² The IOM reported that nurses should practice to the fullest extent of their education and training. When the panel from IOM convened to review practice patterns, they found that the tasks nurse anesthetists and all APRNs specialties are permitted to perform, are often determined by hospital bylaws, credentialing committees, and ambiguous state laws, rather than by the education and training of the provider.²

The IOM concluded that to ensure continued access to high-quality care, it is critical to remove unnecessary barriers to practice and restrictions on SOP for all APRNs, including CRNAs.³¹ Office based anesthesia practice has challenges that create barriers to CRNAs practice. Professionals in other disciplines, such as obstetrics and gynecology, general surgery, and ophthalmology, may fail to recognize CRNAs as qualified to make independent judgments concerning all aspects of OBA care based on their education, licensure, and certification.

Many states have enacted statutes that prevent CRNAs from practicing to the full extent of their education and training. This has largely contributed to the CRNA's inability to provide chronic pain management services which has been legislatively challenged by organized medicine in Iowa, California, Illinois, and Oklahoma. There is overwhelming research that supports the safe, quality, cost-effective care provided by nurse anesthetists. Many Americans

face inherent obstacles to access safe office-based surgery, and anesthesia care, which may be related to the unnecessary scope of practice restrictions, placed on CRNAs.

A knowledge gap exists in the anesthesia literature regarding the barriers faced by CRNAs when implementing an OBA. The question about OBA barriers faced by CRNAs merits further exploration due to increase in office-based surgical (OBS) procedures requiring deep sedation or general anesthesia.⁹ There are a lack of randomized controlled trials to determine how office-based procedures and anesthesia affect patient morbidity and mortality when administered by nurse anesthetists versus when administered by the operating surgeon or anesthesiologist.³² In general, OBA studies are retrospective in nature and do not differentiate which type of provider administered anesthesia in the office. Some literature exists which discusses concerns about the safety of office-based procedures and anesthesia but lack specific details on how the complications arises.³³ Recent data has shown that care in ambulatory office settings is comparable to hospitals and ambulatory surgery centers, regardless of whether anesthesia was delivered by a CRNA or by an anesthesiologist. The data does not differentiate if the offices are accredited, or if the providers involved are board-certified or credentialed to perform the similar procedures in hospital settings where there are more rigorous background checks and peer review before delineation of privileges to provide patient care.¹

Following the review of available literature, it was determined that no objective studies are available that assess the barriers faced by nurse anesthetist entrepreneurs, wishing to implement an office-based anesthesia practice. This emphasizes the need for a comprehensive survey to be performed targeting CRNAs in OBA practice to determine perceived barriers. Analysis of data obtained from the survey is meant to supplement existing knowledge on the subject of OBA practices for CRNAs, and identify significant areas for future research.

Considerations for OBA

State Guidelines and Regulation for Office Based Anesthesia

There are no standardized regulations for the provision of anesthesia in office-based surgical facilities.³² The increase of OBA practices has not coincided with an increase in regulation to ensure patient safety in these facilities. This is especially concerning given the continued occurrence of complications, which places great responsibility on CRNAs to offer OBA in a well tolerated, efficient, and safe setting. Several relevant guidelines set by the AANA are available on the Internet,¹¹ and are intended to assist members who are considering the practice of office-based anesthesia.

Many reports of adverse patient outcomes, including the publicized death of Joan Rivers, which occurred during a surgical procedure in an outpatient clinic, have increased the public's awareness of the safety issues facing OBA practice today. With over 10 million office-based surgical procedures performed in 2014, healthcare providers, patients, and the public, have sought an advocate with the resources, expertise, and national recognition necessary to improve OBS safety, and assist healthcare practitioners to provide safe care in office-based practices.³³

To ensure increased patient safety, the Centers for Medicare & Medicaid Services (CMS) released the *Ambulatory Surgical Center Quality Reporting Specifications Manual, version 1.0*.³⁴ The manual provides measured specifications for required reporting, and mandates that all of its accredited ASCs must utilize a surgical safety checklist.³⁴ However, there are no requirements for office-based surgical facilities to use surgical safety checklists as required by CMS in ASC's facilities. Research on checklists has been primarily conducted in operating rooms in larger surgical facilities. In December 2012, Rosenberg et al.,³⁵ conducted the first study on checklists in office-based surgical facilities. This research demonstrated the effectiveness of using a

checklist to reduce complications and improve adherence to practice safety measures by all staff members. The template for the checklist was developed in cooperation with the Institute for Safety in Office-Based Surgery.³³ Professional associations, such as AANA, are yet to require the use of checklists in office-based surgery by CRNAs.

Business Financing

Not only may business laws and regulations be difficult to understand and implement, but also financial backing for new ventures can be perplexing and cumbersome for a CRNA entrepreneur. Business scholars have identified possible funding sources for entrepreneurs as banks, venture capital agencies, 401K loans, major companies, private individuals, and government agencies, such as the Small Business Administration (SBA). CRNAs have the opportunity to operate as a small business owner by incorporating as a Limited Liability Company (LLC), in order to reduce potential business liabilities, and offer tax reduction opportunities to the underlying business owner.

A 2011 study by Lofstrom, examined the transitions to entrepreneurship and industry-specific barriers.³⁶ Lofstrom's study demonstrated that key entrepreneurial entry determinants are dissimilar in high-barrier fields versus low-barrier fields. Wealth holdings positively predict entry into high-barrier industries, but do not significantly impact the likelihood of entry into low-barrier fields.³⁶ The human-capital and financial-capital endowments of potential entrepreneurs entering practices in various industries have been shown to help new business entrepreneurs overcome barriers. This may explain why some individuals with more capital are more likely than others to become entrepreneurs and succeed as small business owners.

Liability

There have been several cases in which the courts found that the surgeon was not

responsible for the nurse anesthetists' actions, and therefore, they were not found liable for the negligence of the nurse anesthetist.³⁷ The "Captain of the Ship Doctrine" is a doctrine that courts previously used to deem that an operating physician was liable for any negligence that occurred while they had "command" of the patient. Over the years, courts have ruled that the doctrine was not reliable, with some state courts citing that the doctrine was never applicable in the first place.³⁷ The courts found that the physicians were not to be held responsible for actions of other professionals involved in the care of the patient. The emphasis shifted to teamwork, the interdependent roles of providers, and the recognition that all providers are independent professionals who can make clinical judgments based on their training.³⁷

CRNAs contemplating establishing an office-based practice may face barriers from surgeons hesitant to work with nurse anesthetists. There is a false assumption that working with a nurse anesthetist, as opposed to a physician anesthesiologist, may cause the surgeon to be liable for any anesthesia error. CRNAs engaged in OBA practice team-based healthcare model are compelled to integrate their expertise and skills in anesthesia care as described by their scope of practice, while collaborating with the operating surgeon to promote safe, patient-centered care.³⁰

Reimbursement

Fair reimbursement for CRNA services continues to be a challenge for nurse anesthetists. The Omnibus Budget Reconciliation Act of 1986,³⁸ established direct reimbursement for CRNA services under Medicare Part B. However, barriers still exist for nurse anesthetists in relation to Medicare reimbursement. A report,³⁹ released publicly in March 2014 by the U.S. Government Accountability Office (GAO), cited the Centers for Medicare & Medicaid Services (CMS) payment rule for chronic pain management by CRNAs as inconsistent. The GAO identified that as of 2013, Medicare Administrative Contractors (MAC) that pay medical claims on behalf of

Medicare, allowed payment to CRNAs for selected procedures in 19 states,³⁹ allowed payment for a subset of selected procedures in 30 states and the District of Columbia, and denied payments for selected procedures in the other states.

The report by the GAO suggests that these payment policies can have a restricting effect on CRNA practices in certain states. CRNAs are required to work under physician supervision for reimbursement of Medicare Part A (facility fees), unless the state governor opts out of this requirement.⁴⁰ This requirement is more restrictive than the majority of state laws or regulations, and transforms what could be a quality and access decision for a state, into a challenge between professional disciplines.⁴⁰

Barriers to non-physician provider reimbursement by third-party payers exist for CRNAs with private insurance company policies. Provider nondiscrimination provisions that stimulate patient safety, competition, and choice in healthcare were included in the ACA, but were vigorously opposed by the American Medical Association.⁴¹ The federal Provider Nondiscrimination portion of the law, which took effect on January 1, 2014, prohibits health plans from discriminating against entire classes of qualified licensed healthcare professionals, such as nurse anesthetists, solely on the basis of their licensure.

Until the law is fully implemented, CRNAs will continue to face health insurance discrimination challenges. Under the law's provision, health plans retain the latitude to address provider network sufficiency and quality for the availability of healthcare reimbursements to their enrollees.²⁰ CRNAs have advocated for this provision and joined in protection of this law. Strategically, independent CRNAs in OBA must remain unified to ensure implementation to the legislative intent, because unlike other CRNAs, they have to bill fees for services.

Nationally, chronic pain management procedures provided by CRNAs have been challenged by state laws and legislation.⁴² Within the past 10 years, there have been states where legislation or proposed rules have been introduced at the request of physician specialty groups in an attempt to restrict CRNA interventional pain management practices.⁴² Some affected states are Louisiana, Alabama, Tennessee and Missouri, and the Federal Trade Commission (FTC) intervened on behalf of the CRNAs in three of the states.⁴³ The FTC explained that the proposed rules would reduce the availability of chronic pain management services, and raise the prices of chronic pain management services.⁴²⁻⁴⁴

In summary, the literature supports the need to investigate if there are barriers faced by CRNAs wishing to implement an OBA practice, and add knowledge and relevant evidence to assist CRNA entrepreneurs who want to venture into an OBA practice overcome some of the common barriers in OBA practice.

III. MODELS AND THEORIES

The Low-Cost Model

The business model selected for this project is The Low-Cost Model. It is also known as the Low-Cost Carrier Model, and is often associated with airlines.⁴⁵ This business model was established with the assumption that offering services and products at a low cost will enable a company to gain more customers. Airlines such as Southwest and Ryanair, which use this model, incur low operational costs and offer the most basic services to clients at low costs.

The model is suitable for use by new businesses such as private OBA, which have not previously existed. The Low-Cost Model enables an organization to identify areas in which it will achieve distinction from others in the industry and develop strategies of overcoming competition.⁴⁵ The advantage of utilizing the model by CRNAs providing OBA, is that it

focuses on the ability to offer services at lower costs compared to hospitals, therefore, allowing the CRNA to more readily acquire customers who will provide expeditious revenue necessary in the early stages of a business.

Patricia Benner's Novice to Expert Theory

The removal of OBA practice barriers for nurse anesthetists to practice to their full scope is a progressive process. This process can be conceptualized as the development of a CRNA from a novice to an expert practicing OBA autonomously, while encountering minimal barriers. As knowledge about barriers to full practice of OBA is learned and adopted by the CRNA, a holistic view of the problem will develop through stages of growth.⁴⁶

In 1984 Patricia Benner introduced her theory from novice to expert after an observational and interview study on clinical nursing practice situations, from the perspective of new nurses and their preceptors.⁴⁷ Benner argued that nurses' skills go through five distinct stages: (1) novice, (2) advanced beginner, (3) competent, (4) proficient, and ultimately (5) expert.⁴⁷ As nurse anesthetists' experience and knowledge increase, their ability to handle complex clinical situations and to practice without supervision (OBA) increases.

Novice

In her theory Benner suggests that beginners rely on scripted roles and guidelines to perform their duties because they lack experience in handling particular situations.⁴⁷ The reliance on regulations by novices makes them develop rule-governed behavior that is inflexible, and may be a disadvantage because nurses encounter various situations while delivering services which require them to act differently. Following particular procedures may cause underperformance, because the rules cannot guide the nurses at novice level, about the most relevant tasks to perform in an actual situation.⁴⁷ In this project, the novice CRNA is a newly qualified nurse who

wants to establish private OBA, but lacks experience and knowledge on the processes that are to be followed.

Advanced Beginner

Nurses at the advanced beginner level of proficiency have acquired experience in the profession; therefore, they can handle real world situations. Advanced beginners must have been in the profession for at least one year and demonstrated acceptable performance in their practice. According to Benner, the advanced beginner can formulate principles that can be utilized as guidelines for actions.⁴⁸ Therefore, CRNAs who are at advanced beginner stage can identify barriers to establishing private OBA, but may require more skills and knowledge to overcome the challenges.

Competent

Competent nurse anesthetists have at least two years of practical experience. They have the ability to formulate long-term goals and practical strategies of achieving the objectives. According to Benner, a competent nurse makes a plan that establishes a point of view of an experienced person in nursing practice about a problem that needs to be solved. Also, the plan is based on a considerable conscious, abstract, analytic contemplation of the problem.⁴⁷ A proficient CRNA may be skilled to develop a few strategies of overcoming barriers to OBA practice, but may face challenges in executing the plans.

Proficient

As a holistic perception develops, unconscious heuristics govern problem solving at this level of development. Problem solving becomes less self-conscious and more self-evident. Benner provides an analysis that characteristically, the proficient performer perceives situations as whole parts rather than in terms of aspects. Additionally, Benner theorizes that performance of

a proficient nurse is guided by maxims.⁴⁷ A proficient CRNA is the one who can develop several effective strategies of overcoming barriers to OBA practice, but may rely on advice from other nurses.

Expert

Experts no longer rely on guidelines, rules, or principles to handle situations. The experts overcome common barriers by analyzing problems and situations through background experience. Benner stated that expert clinicians are not difficult to be identified because they are frequently involved in making clinical judgments, or in managing complex clinical situations.⁴⁷ In this project, an expert CRNA is the one who can independently establish effective solutions to barriers in private OBA.

Benner's theory as shown in figure 1, illuminates the process which CRNAs can undergo transformation of personal growth through experience and education to become expert practitioners of OBA. The transformation process begins with a novice CRNA, who lacks the experience in OBA practice and works in a clinical setting where anesthesia is offered as a team. The process culminates with the expert CRNA who is skilled, business oriented, and can apply scientific knowledge and experience to practice OBA. Based on Benner's theoretical model, the expert nurse is the ideal CRNA who can practice independently in OBA practice.

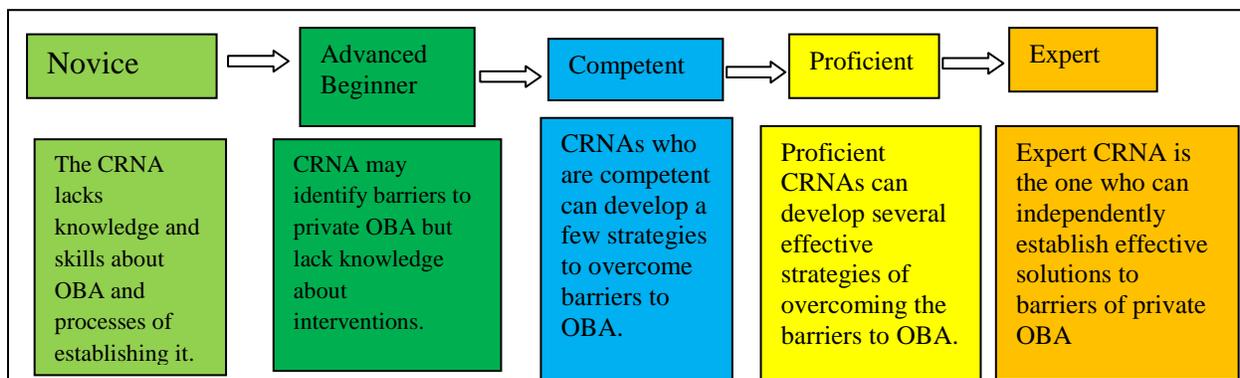


Figure 1: How the CRNA Advances Through Stages as They Adapt to OBA Practices

IV. METHODOLOGY

The number of insured patients has been increasing, and many are expected to seek medical services following the passage of the ACA in 2010, which mandates that all Americans should be insured.^{15,48} The rise in the number of patients in the insured population, will cause an increase in demand for nurse anesthetists, who have been the predominant providers of anesthesia in physicians' offices. Figure 2 below illustrates the conceptual framework of the project, a descriptive correlational study carried out to assess the specific state barriers faced by nurse anesthetist entrepreneurs wishing to establish an OBA practice

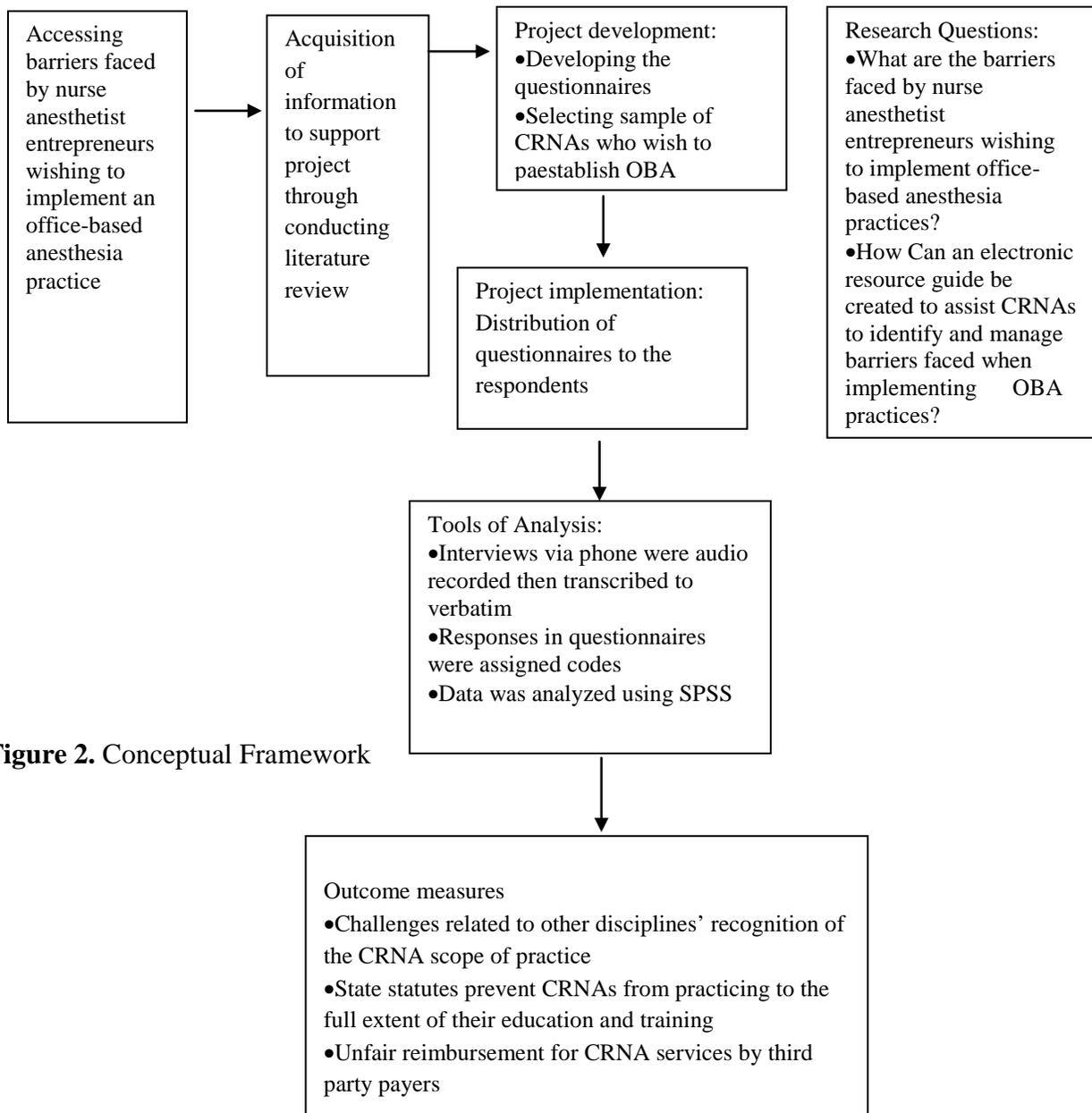


Figure 2. Conceptual Framework

The challenge to meet the expected increase in demand for surgical services and anesthesia, may be addressed by CRNAs establishing private OBA practices, however they may encounter challenges such as state barriers. This study utilized a survey instrument that focused on the barriers experienced by CRNAs when transitioning into autonomous OBA practices. American Association of Nurse Anesthetists members were surveyed to assess the barriers and challenges, which they experience during the process of transitioning to become independent nurse anesthetists in OBA.

Study Design

The project involved a descriptive qualitative study design. Questionnaires in Appendix A were distributed via the social media and email websites, Yahoo and Facebook, which are specific to CRNAs who are in OBA practice. Additionally, individual interviews were conducted via phone with CRNAs practicing OBA who reside in Maryland in order to obtain detailed information on state regulation and licensing of OBA and compare it with other states. The survey questions were meant to illicit respondents' opinions regarding the barriers faced by nurse anesthetist entrepreneurs wishing to implement private OBA practice. Barriers to OBA practice are important to identify, and manage, in order to become a successful small business owner for this method of anesthesia delivery. Therefore, the barriers were explored with the intent of gaining knowledge to assist CRNA entrepreneurs who are considering becoming independent office based anesthesia providers.

The questionnaires sent to online groups were recorded, and results analyzed by assigning codes to participants' answers based how the responses interrelated. The online interviews were audio recorded then transcribed to verbatim. Verbatim transcriptions of the

survey results were analyzed to identify and describe the challenges experienced by nurse anesthetist entrepreneurs in private OBA practice. The data was analyzed through a qualitative descriptive approach in order to learn about the barriers to private OBA practice. According to Vaismoradi et al., a descriptive study is utilized when detailed account of a phenomenon is sought. Qualitative content analysis presents implications to improve the consistency between the purpose of related studies and the method of data analyses.⁴⁹

Population Sample

The sample population for this study was entrepreneurial CRNAs who are currently in autonomous OBA practices. Potential respondents were identified by inviting CRNAs who have joined Yahoo and Facebook groups that are specific to CRNAs in OBA practice which the author was already familiar with. Questionnaires were sent electronically to the prospective online participants who met the inclusion requirements. The inclusion criteria involved CRNAs who had been in autonomous practice for two or more years in order to gain an accurate perspective of the various barriers encountered by CRNAs currently in OBA practices. Other participants meeting the criteria, who reside in Maryland were interviewed via phone calls. Qualitative studies involve small samples,⁵⁰ therefore, a few of the respondents were selected based on an acquaintance with the author, and after determining that these participants were from diverse backgrounds outside OBA practices. Information reviewed in the literature, and a focus on answering the research question for this project, led to establishing the criterion for sampling selection.

Stakeholders

Stakeholders in this study include CRNAs who were contemplating establishing a private practice, and schools of nurse anesthesia seeking to add OBA practice to their

curriculum. Other stakeholders include insurance companies, health care administrators, and consumers. State scope-of-practice (SOP) laws govern the procedures and actions that CRNAs working as licensed independent providers can perform.⁸ The state's SOP establishes both the range of services that CRNAs may deliver, and whether they can practice independently without the supervision of physicians.⁸ The results of the survey implemented for this project may be used to influence policymakers in establishing legislation to remove SOP barriers, which will enable CRNAs to practice to the full extent of their education and training.

Procedures

Permission to conduct this study was obtained from the Institutional Review Board (IRB) at the University of Michigan-Flint (HUM00102086) for a period of one year. Informed consent forms were distributed online to potential participants via Facebook and Yahoo groups (Appendix B). Interview questions were distributed using Qualtrics® research suite software to CRNAs in OBA practice via Facebook and Yahoo mail. Qualtrics research suite program was customized to accommodate the participants' availability, and for participant ease in completing the questionnaire in approximately 10 minutes. Some survey questions were emailed directly to those CRNAs residing and working near the researcher's geographical location in Baltimore, Maryland. Follow up phone interview was carried out to obtain more detailed information concerning state laws and regulation in Maryland, which hinder CRNA practice. The state of Maryland has not opted out of physician supervision rule of CRNAs, but the author found that CRNAs were able to practice OBA independently as the state only required a collaboration agreement with the operating surgeon. Future research studies on collaboration versus physician supervision may add additional knowledge if the collaboration model of CRNA practice alleviates barriers to OBA practice.

Analytic Plan and Data Collection Instruments

The instrument for this study was a survey that was designed by the researcher. The questions in the survey inquired about demographic information and work experience of the respondents. A section regarding additional comments was included for the participants to provide other information they wished to offer, in addition to the promoter questions. An example of additional information which participants were able to provide, included advice to CRNAs contemplating entering OBA practice. Additional comments elicited were with regard to factors significant to the participants during the process of starting their practice.

Data was collected via the online survey using Qualtrics®, and transcribed into a text document by the researcher. Assigning a code number to the individual CRNA survey at the beginning of the survey process, ensured the respondents' confidentiality. After the survey was completed, the content was transcribed verbatim from the results, and only the researcher had access to the survey contents. Records for this study remained confidential and data was stored in secured files, which is to be retained for a minimum of seven years. The transcribed files of the survey were stored on a password-protected computer, and any written paper transcripts were stored in a locked cabinet.

The survey was scheduled to be conducted between November 2015 and January 2016. Content analysis was used in the data analysis plan. In a paper titled *Whatever Happened to Qualitative Description*, Sandelowski states that content analysis is more appropriate for use in qualitative descriptive studies.⁵¹ The article was written to critique the prevailing tendency in qualitative health research, to claim the use of methods that were not actually used, and to clarify a methodological approach rarely identified as a distinctive method. In the article, it was implied that codes are data driven and are generated from the data itself during the course of the study,

therefore, should be systematically applied in descriptive studies.⁵¹ Assistance with management and analysis of data was accomplished through the use of Statistical Package for the Social Sciences (SPSS). Qualitative descriptive studies typically produce a great deal of data that needs to be managed efficiently, thus using a SPSS enhances efficiency in data management, survey analysis, and to provide a way of storing and retrieving material. Statistical Package for the Social Sciences is also useful for tracing statements, phrases, or words.

The researcher for this project reviewed generated codes for accuracy on an ongoing basis. A second evaluation of the codes was done manually to ensure accuracy and possible modifications for additional codes. The researcher made arrangements to have a consultant at the Center for Statistical Consultation and Research at the University of Michigan who is knowledgeable in the field of research to provide feedback regarding the codes, categories, and analytic memos written throughout this study.

V. DISSEMINATION PLAN

The results from studies suggest that a substantial time lag of eight to 15 years exists between the time when technical information is generated and the time it is used in actual practice.^{52,53} Such a delay in implementation may adversely affect patient outcomes, especially in areas of nurse anesthesia where time lag of almost two years in utilizing new technology or knowledge.⁵³ Therefore, the identification of effective dissemination strategies to reduce this time lag are very important specifically in the field of OBA practice which is growing rapidly.^{52,53}

Poster sessions are great means of disseminating research findings.^{52,53} The approach has an added advantage over other means of research dissemination. The researcher is usually present during the poster presentation session, which provides a tremendous opportunity for

investigators to communicate research findings through direct interaction with the viewers and to transmit visual sensory messages by utilizing signs, symbols, objects, and relationships graphically. Dissemination of the final survey findings will be submitted for presentation during the AANA annual meeting that will be held in September 2017. The AANA requires that completed and final abstract be submitted online by June 1st, 2017. Oral poster applicants are required to provide PowerPoint slides or PDF format of the final survey findings for them to participate in oral presentation.

VI. RESULTS

This study was designed to identify barriers that potentially impede delivery of anesthesia services performed by CRNAs in office-based settings. As the primary instrument of the study, a questionnaire was designed and deployed online using Qualtrics®, an online survey software, via CRNA Facebook and Yahoo website group pages to CRNAs throughout the United States. Of those surveyed, 200 responded, null or invalid responses were omitted with a final n value of 86 respondents.

Demographics

Out of the 86 responses, 24.4% (21) have been practicing as a CRNA for 20-30 years, 23.3% (20) have practiced 10-20 years, and 18.6% (16) have practiced for 1-5 years (Figure 3). In regards to ages of respondents, 25.6% (22) are in the 40-50-age bracket, 50% (43) are ages 50 or older, while 7% (6) are ages 35 and younger (Figure 4). Of the participants, 55.8% (48) are female and 44.2% (38) are male (Figure 5). As depicted in Table 2, 71.3% (57) of the survey respondents have graduate degrees, 15.0% (12) possess doctoral degrees. Nearly 8% (6) of the respondents have Baccalaureate degrees. The remainder of the CRNA surveyed (6%) reported other as their education level (Figure 6).

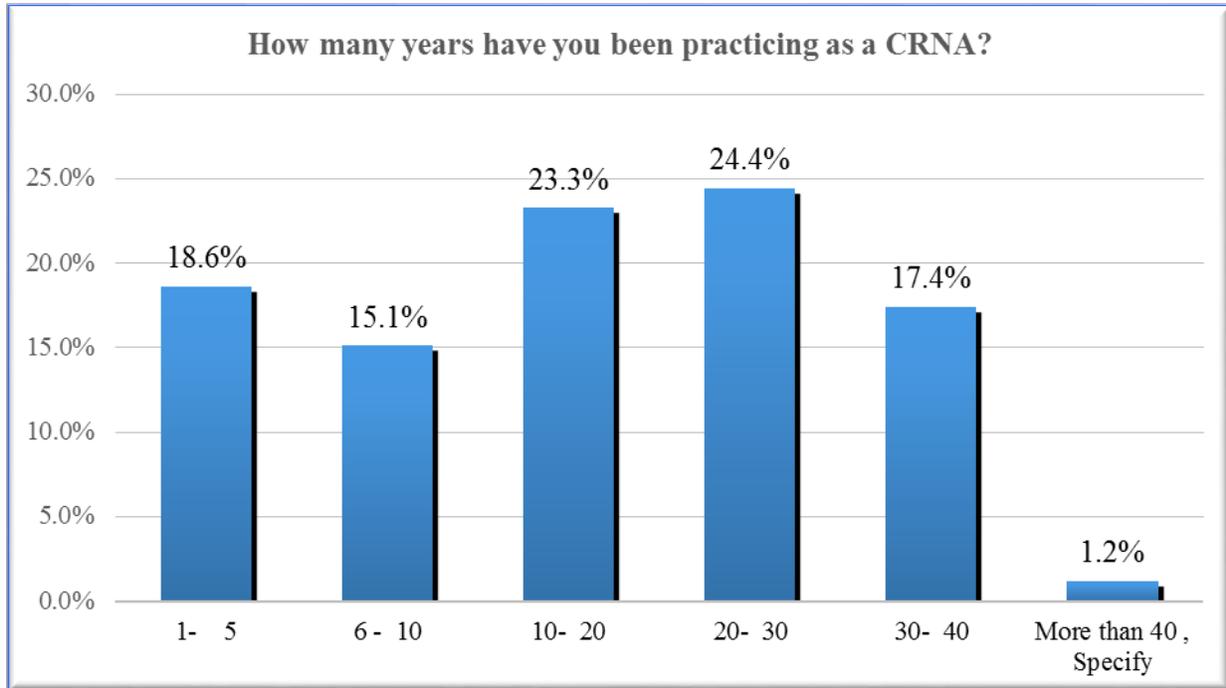


Figure 3. Number of Years in Practice.

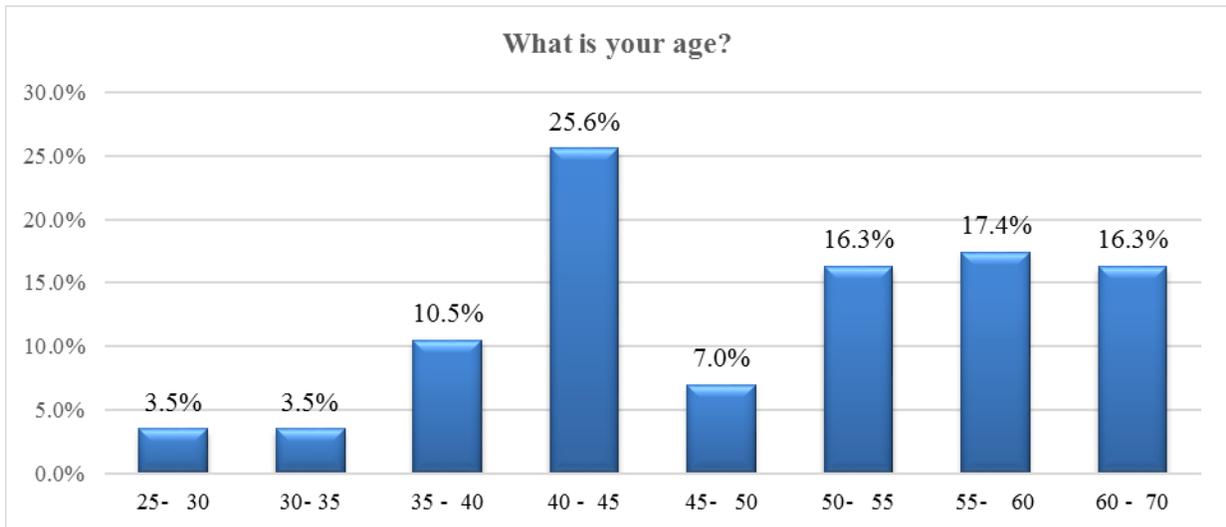


Figure 4. Age

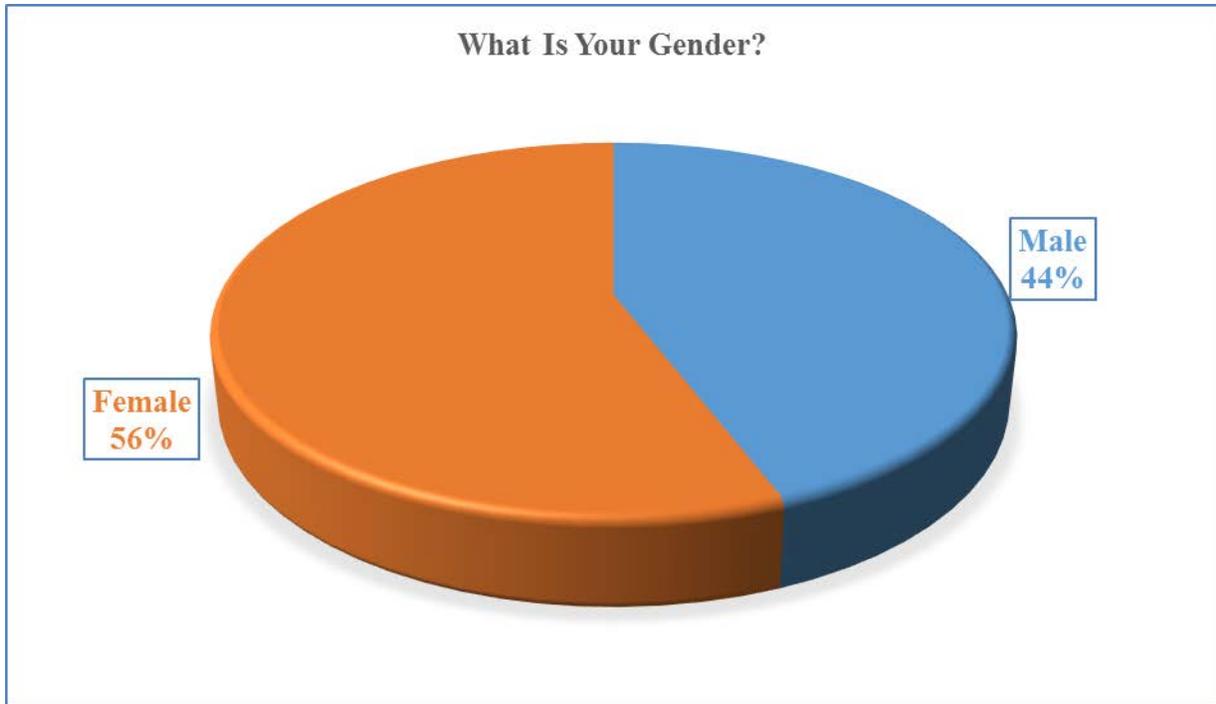


Figure 5. Gender

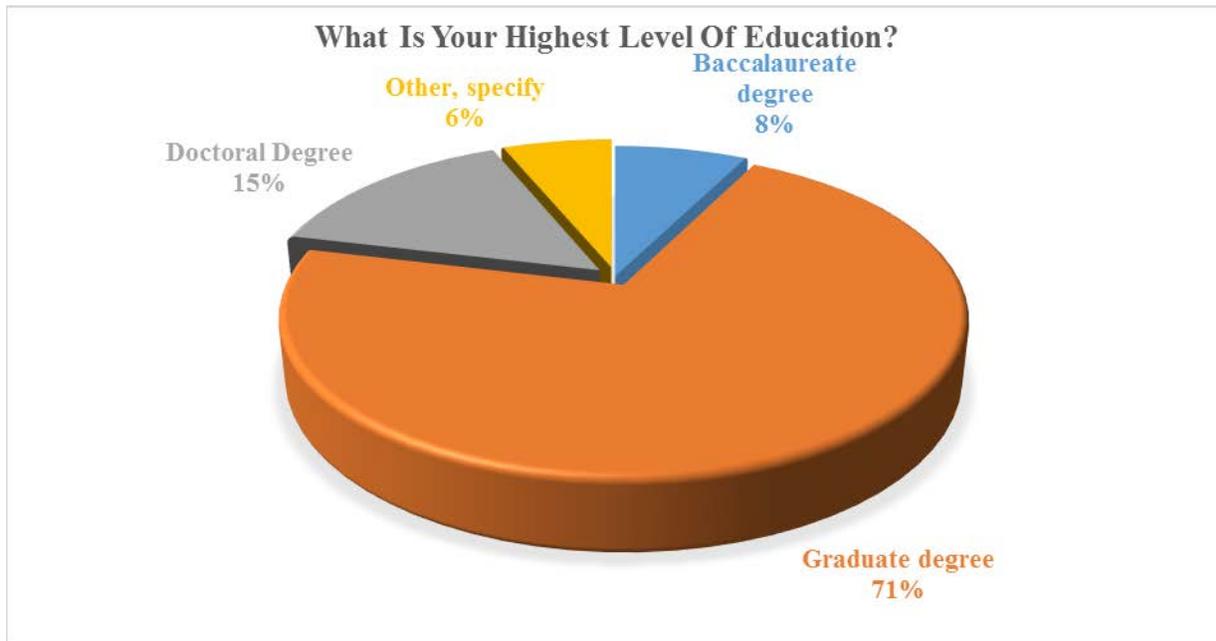


Figure 6. Highest Level of Education

CRNA Compensation

Total CRNA compensation was compared before beginning an independent OBA practice, and after starting an independent OBA practice. CRNAs practicing independently in OBA reported higher compensation. Figure 7 represents the survey respondents’ total income prior to starting an independent practice. The largest percent (40%), fell within the \$150, 000 - \$199, 999 range, which is similar to CRNA compensation, survey carried out annually by AANA.

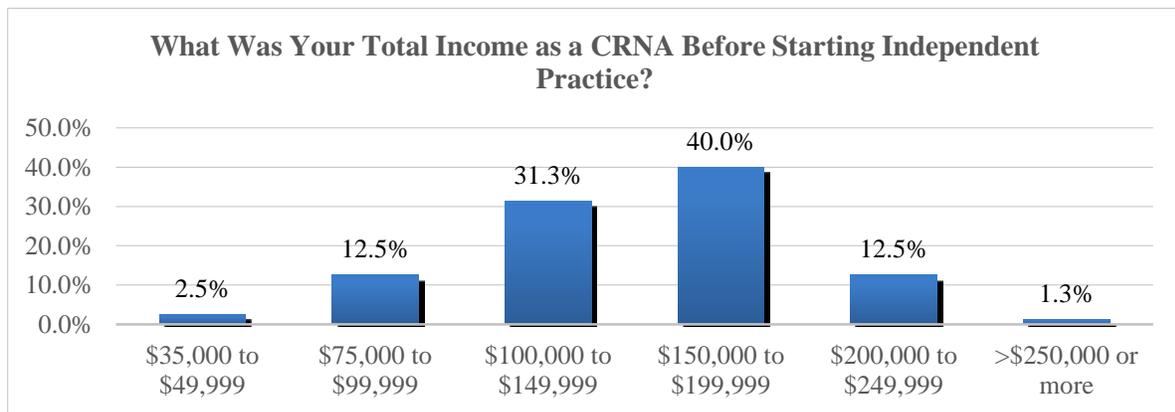


Figure 7. Total Income as a CRNA Before Starting Independent Practice

The CRNAs income increased substantially after starting independent OBA practice with majority (60.1%) earning between \$170,000 to \$ 349,999, and another 11.3% of the CRNAs earning \$350,000 or more annually.



Figure 8. CRNAs’ Current Total Annual Income in OBA Practice

Change in State Laws and Legislation

Of the 88 CRNAs surveyed, 68% (51) work in states that still practice physician supervision, while 32% (24) work in states that have opted out of physician supervision. Respondents were asked if change in legislation to become an opt-out state affected their individual Scope of Practice in OBA. Based on the surveyed participants, 36.8% (14) of the CRNAs were unsure if they were affected at all after their home states opted out of the requirement of CRNA supervision by a physician. Conversely, 28.9% (11) of the respondents answered that there were no changes in their CRNA scope of practice after opting out of the requirement of physician supervision. However, 18.4% (7) of the respondents said that the change in legislation, significantly affected their scope of practice (Figure 9).

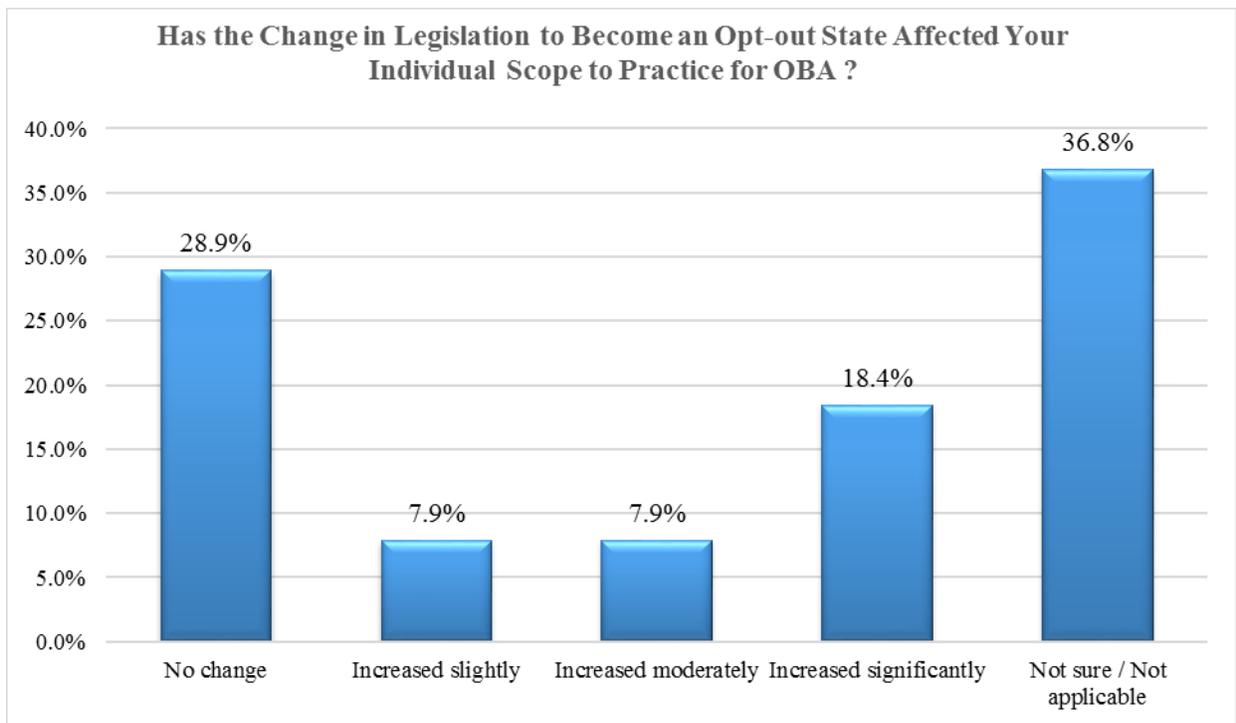


Figure 9. Change in State Laws and Legislation

From this survey, it is evident that a significant number of CRNAs (36.8%) perceived that the state's decision to opt out from a physician supervision requirement did not significantly

affect their ability to practice OBA. This finding is consistent with the number of CRNAs who worked in plastic surgery clinics (31.5%), where most patients are relatively young and healthy. Plastic surgery procedures are cosmetic procedures, and are rarely covered by third party payers such as Medicare. In most of the states, Medicare has a requirement of CRNA supervision by physician as a condition of re-imburement of services rendered by the CRNA. However, in most of the plastic surgical offices, patients pay out of their own pocket and therefore physician supervision rule do not apply in order for the CRNA to be paid for anesthesia services rendered.

Specialty Type of Office Based Anesthesia

Regarding the specialty type of OBA, 31.5% (34) of the CRNAs surveyed (31.5%) worked in plastic surgery, 26.9% (29) practiced OBA in an endoscopy suite, 32.8% (20) practiced in dentistry, 13.9% (15) worked in OB/GYN, 31.5% (34) practiced in plastic surgery, and 9.3% (10) worked in podiatry (Figure 10).

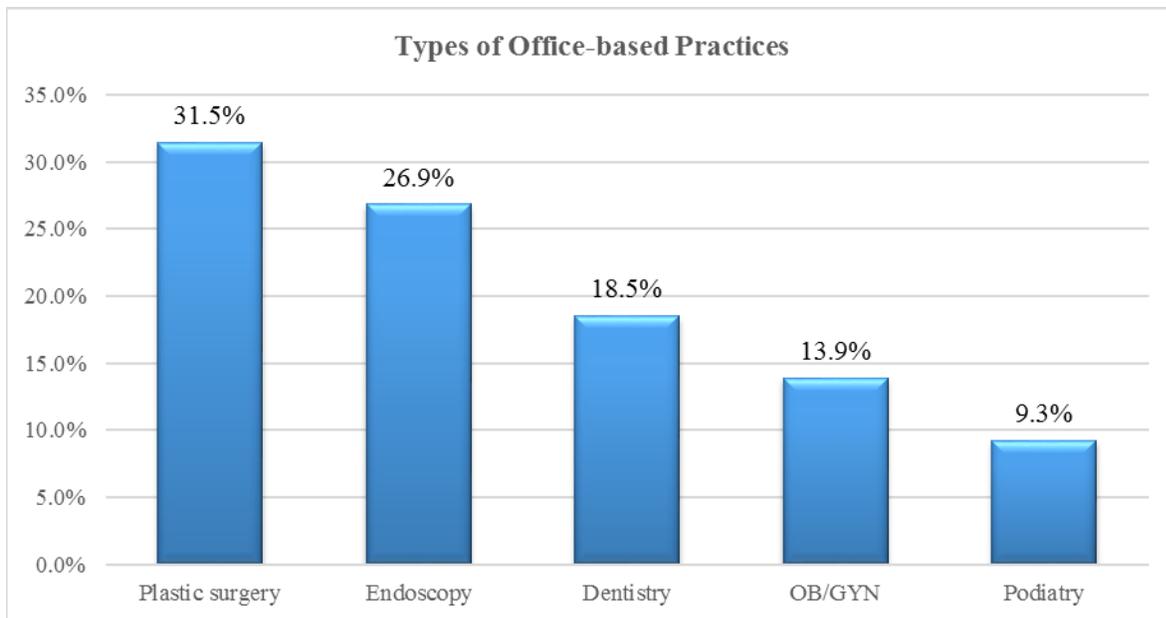


Figure 10. Types of Office-Based Practices

Accreditation.

Based on the survey responses, 79.7% (55) of the CRNAs work in accredited facilities, while only 20.3% (14) worked in non-accredited facilities. CRNAs worked in non-accredited office settings because some offices were too small, and performed procedures too infrequently to justify accreditation. Some respondents indicated that they were contracted by the state to provide mobile anesthesia for pediatric dental cases where they moved from one office location to the other. Mobile anesthesia CRNAs did not have a permanent office and therefore no need for accreditation.

Some office sites were under construction at the time the survey was distributed, thus, accreditation was not a requirement by the state. Survey respondents indicated that some laws such as the Kansas statutes did not require official inspection. For example, CRNAs in states such as Michigan reported that there were no accreditation requirement for surgical services performed in office settings. Some CRNAs performed only minor office procedures once a week using for “cash payments” and therefore were not required to obtain accreditation.. Another reason offered by survey respondents for practicing in unaccredited facilities was the lack of formal OBA accrediting bodies in the state to carry out the accreditation process.

Barriers

To determine the common barriers experienced in establishing an OBA practice, the respondents were asked, “Have you experienced any of the following barriers to your OBA practice?”. Based on the survey responses, 30.1% (22) of the respondents experienced lack of fair reimbursement of services by third party payers, 27.4% (20) experienced barriers relating to state laws and regulations, 15.1% (11) experienced financial difficulties, 13.7% (10) experienced restrictions to scope of practice, and 4.1% (3) had difficulties obtaining professional liability insurance (figure 11).

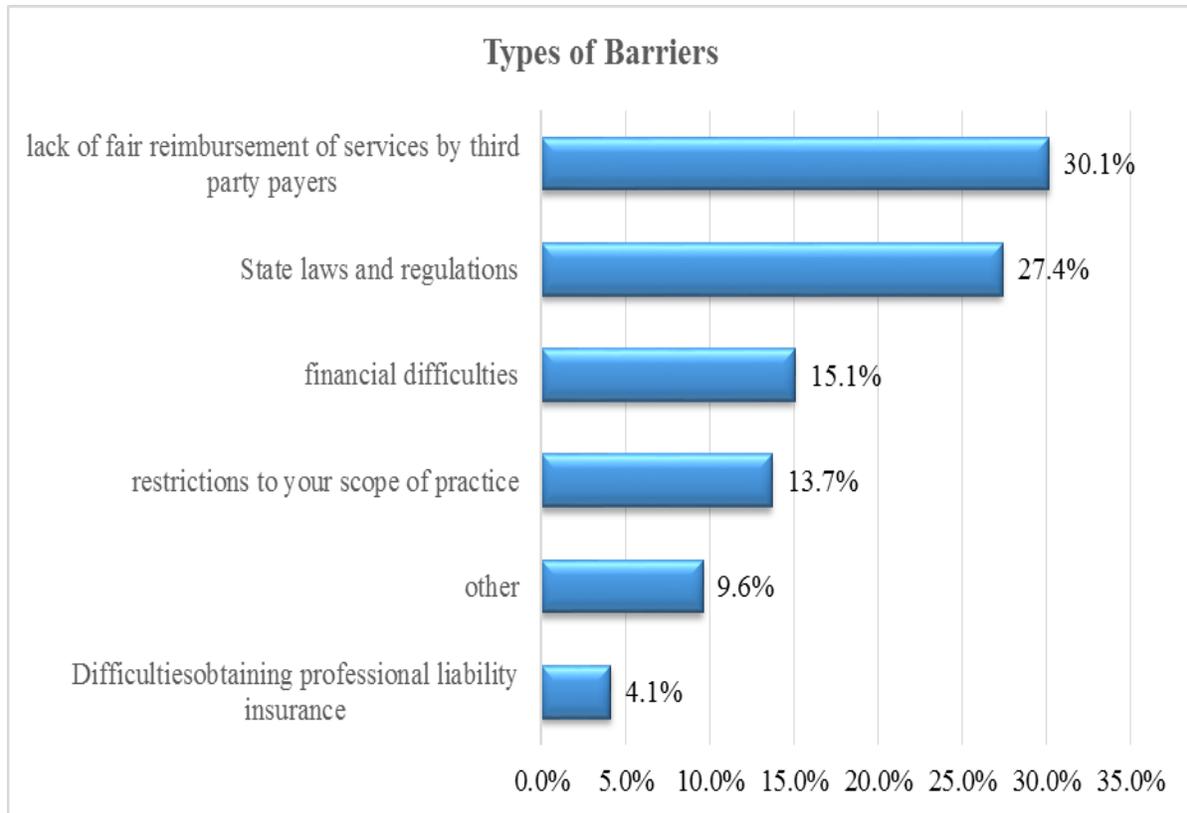


Figure 11. Barriers to OBA Practice

Current State Laws and Regulations

Respondents were asked to indicate whether state laws and regulations were barriers to OBA practice in their respective home states. The majority of survey respondents ,(32.8%) either disagreed or strongly disagreed that state laws and regulations hindered the CRNA practice in OBA. This indicates that the majority of participants didn't view their home state laws and regulation as a barrier to OBA practice. (Figure 12).

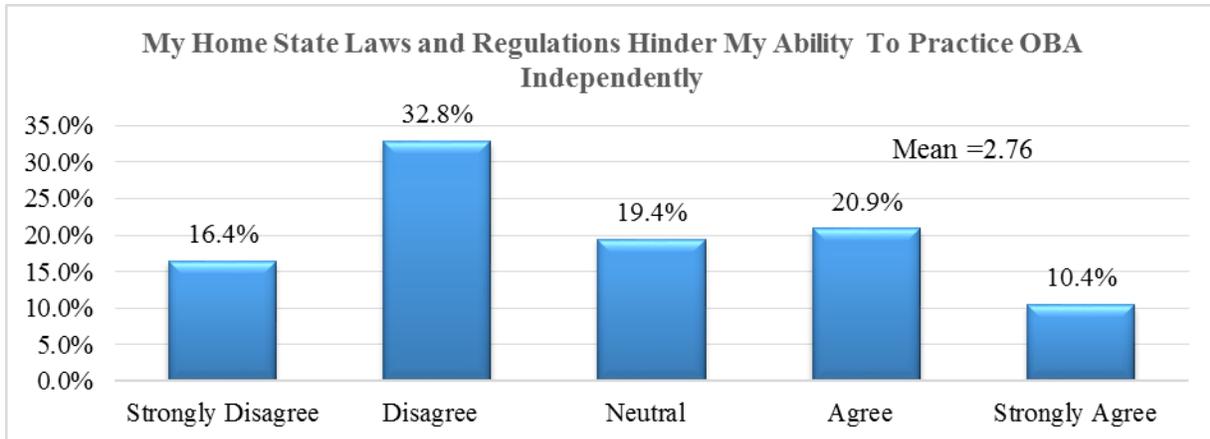


Figure 12. State Laws and Regulations

Relationship Between State Regulations and CRNA Years of Practice

Based on the survey results, the majority of the CRNAs who perceived that state laws hindered their ability to practice OBA independently had worked for 10-20 years (18), followed by those who had worked for 20-30 years (16), 30-40 years (12), 6-10 years (12), and 1-5 years (8), respectively. Based on age group, the majority of the respondents who believed that home state laws and regulations hindered their ability to practice OBA independently to the full scope of practice were aged 40-45 years (19), followed by those aged 50-55 years (13), 55-60 years (10), 60-70 years (10), 35-40 years (8), 45-50 years (5), 25-30 years (1), and 30-35 years (1), respectively.

With Regard to gender, more males (34) perceived that their home states' laws and regulations hindered their ability to practice OBA independently to the full scope of training when compared to females (33). Based on the education level, majority of the respondents who perceived that their home state laws hindered their ability to practice OBA independently to the full scope of training had graduate degrees (49), followed by those with doctoral degrees (10), baccalaureate degrees (4), and other certifications (4), respectively.

Third Party Reimbursement for Professional Services

A majority of CRNA respondents 47.8% (35) experienced difficulties while billing third party reimbursement for the services rendered, while 47.8% (32) had never experienced any difficulties. Based on the responses, 36.9% (24) of the CRNAs reported that they experienced difficulties while billing private insurers for payments of services rendered, 16.9% (11) experienced difficulties when billing Medicaid, 13.8% (9) reported difficulties with billing Tricare health plans, 12.3% (8) struggled with billing Medicare, and 4.6% (2) had difficulties with billing Medicare administrative contractors (Figure 13).

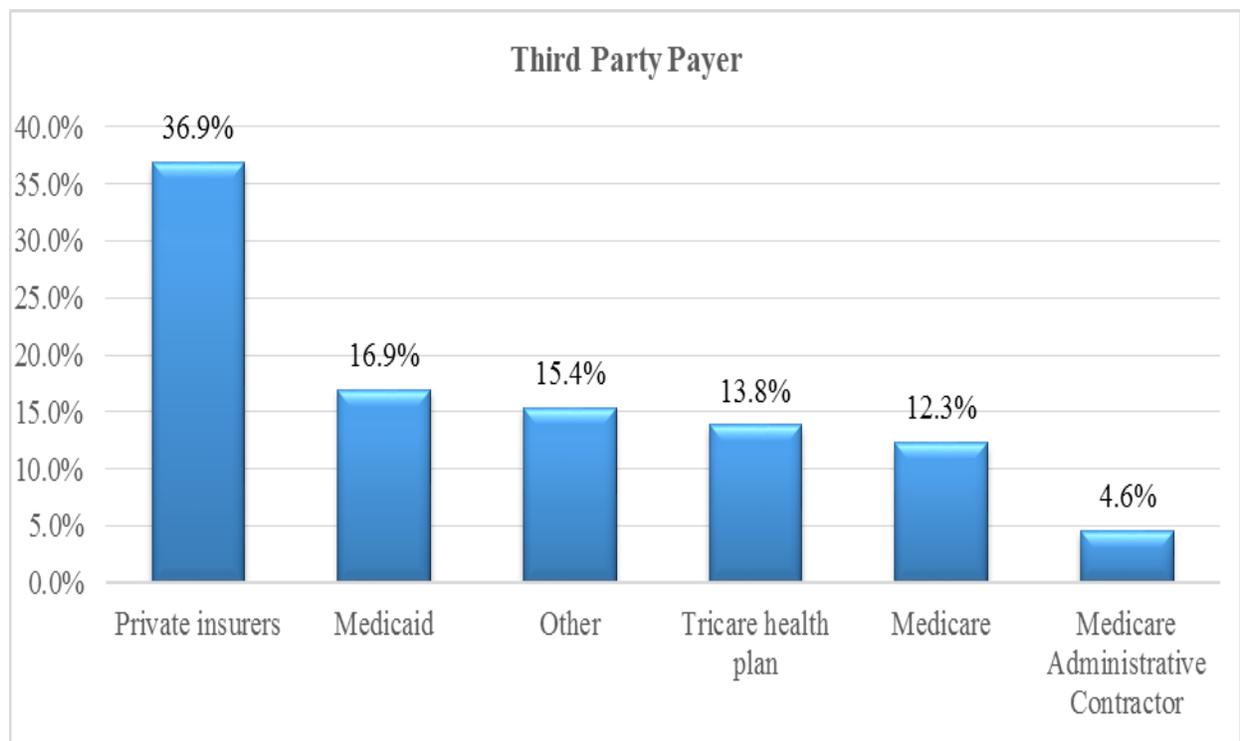


Figure 13. Third Party Payer Billing Difficulties

CRNA's Scope of Practice in OBA Restriction by Other Professional Associations

Based on the survey results, 54.5 % (36) of the CRNAs responding indicated that they had other professional associations restricting their ability to practice OBA. Results showed that,

45.5% (30) of the participants indicated that no associations restricted their ability to practice OBA.

Nurse Anesthesia Education

Based on anesthesia education, 45.5% of the CRNAs (30) believed they were well prepared for OBA practice, 21.2% (14) felt they were unprepared (14), 16.7% (11) responded that they were moderately prepared, 15.2% (10) felt they were slightly prepared, and 1.5% (1) were unsure whether nurse anesthesia education had prepared them for OBA practice (Figure 14). For CRNAs who perceived that nurse anesthesia education had prepared them well for OBA practice, majority had practiced for 10-20 years (18), followed by those who had practiced for 20-30 years (14), 30-40 years (13), 6-10 years (11), 1-5 years (8), and more than 40 years (1) respectively. Based on education level, majority of the participants who perceived that nurse anesthesia education prepared them well for OBA practice had graduate degrees (47), followed by those who had doctoral degrees (10), Baccalaureate degree (4), and others (4), respectively.

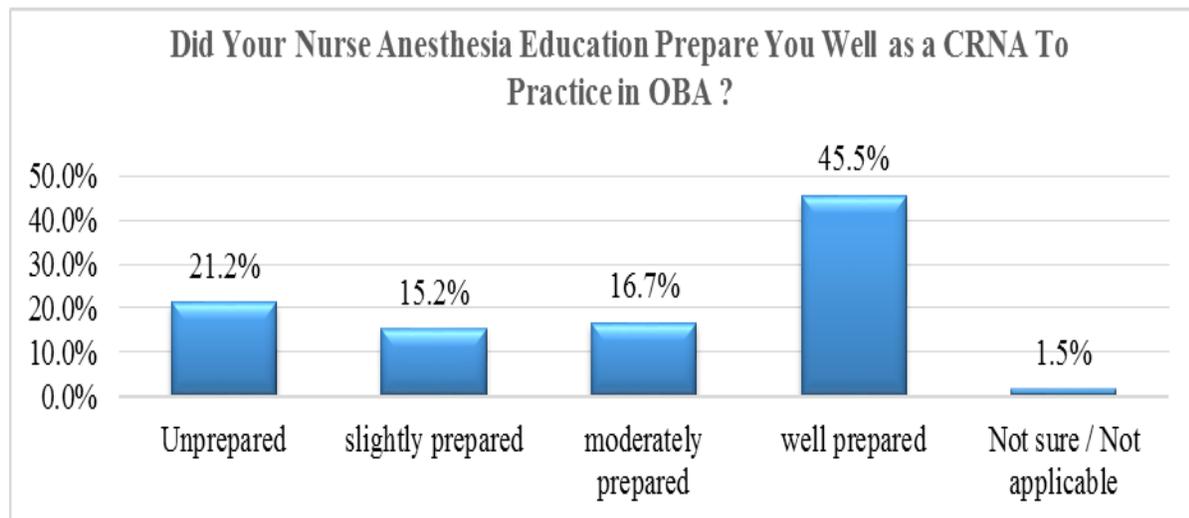


Figure 14. Nurse Anesthesia Education

Credentialing

The CRNAs were asked whether the credentialing parameters at their primary place of clinical practice imposed restrictions on their practice, including legal limitations dictated by the state. Based on the responses, 87.9% (58) of the CRNAs indicated that credentialing did not impose restrictions to OBA practice, while only 12.1% (8) agreed that credentialing imposed restrictions at their primary place of clinical practice (Figure 15).

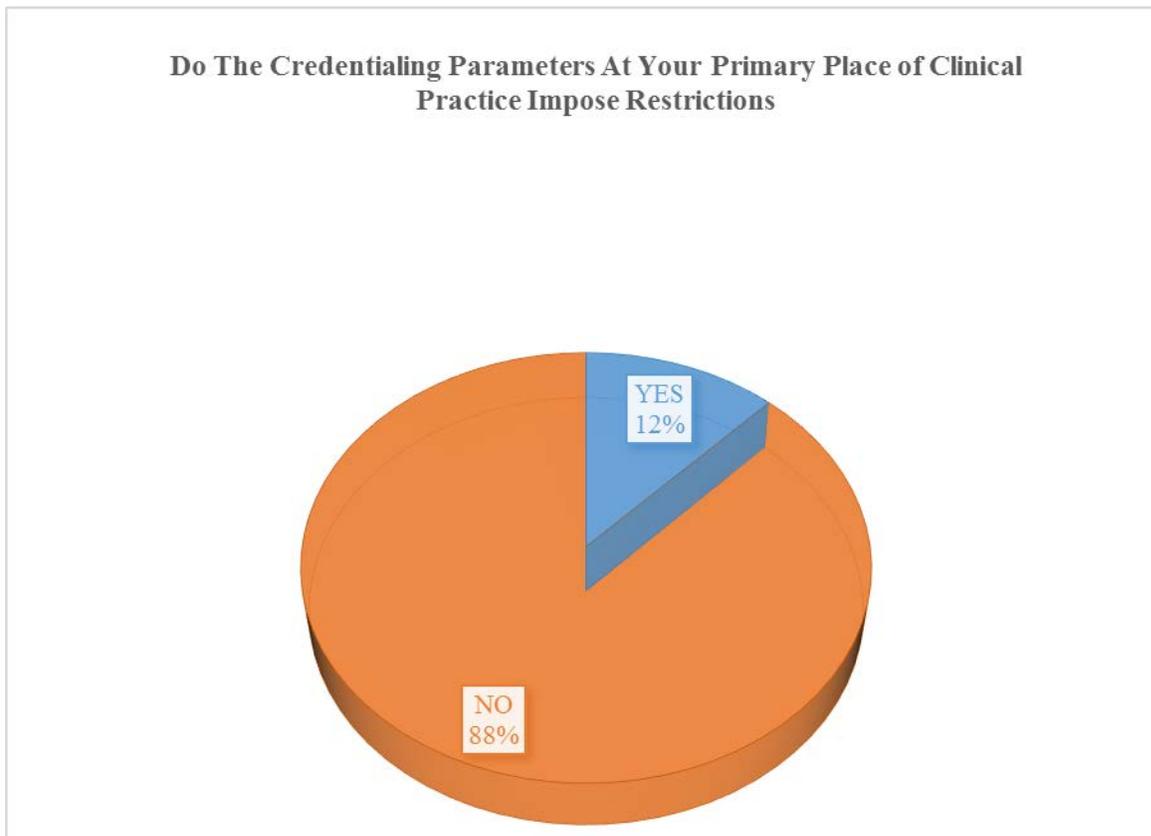


Figure 15. Credentialing Parameters

Business Decision to Start an Independent OBA Practice

Based on the survey, 28.6% (48) of the respondents started independent OBA practice to gain autonomy, 25% (42) started OBA practice for flexibility, while 23.8% (40) wanted financial advantages. Also, 17.9% (30) of the participants started OBA for entrepreneurship purposes. As indicated in Figure 15, 69.8% (44) of the respondents used personal savings to start independent

practice, 7.9% (5) used loans, and 1.6% (1) used marketing agencies to raise the start-up capital. 20.6% (13) of the respondents used unspecified means to raise the start-up costs (Figure 16).

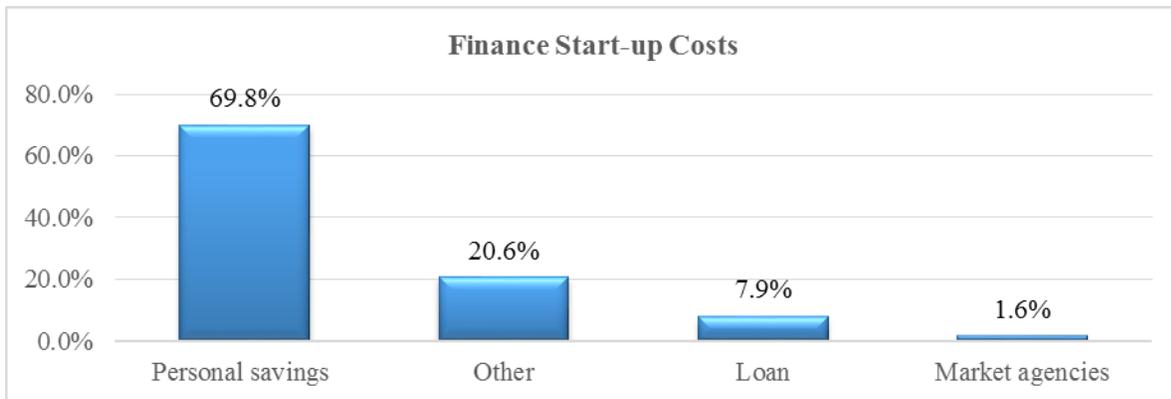


Figure 16. Start Up Capital

Utilization of Professional Services

Based on use of professional services during the start-up process, 40.5% (47) of the CRNA respondents hired accountants, and 30.2% (35) hired business attorneys. Only 6% (1) of the respondents hired marketing agencies to help promote their business (Figure 17).

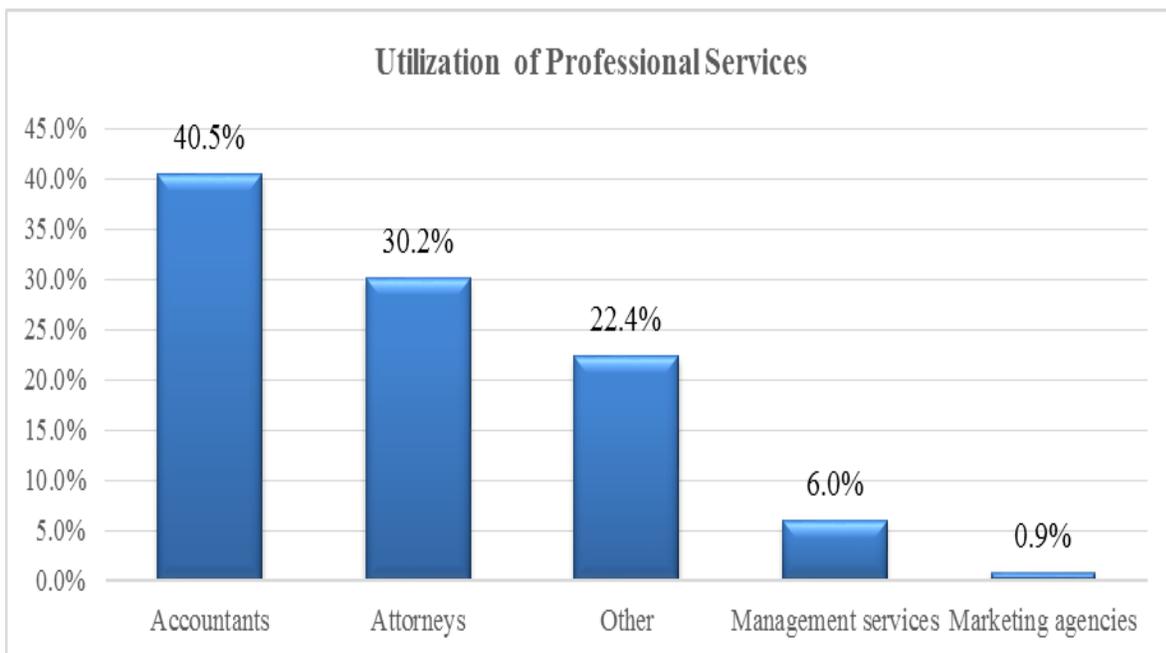


Figure 17. Utilization of Professional Services/Consultants

VII. FINAL PRODUCT

Based on the survey results and the knowledge gained from literature review, the culminating product for this project is an electronic guide that highlights specific state barriers faced by nurse anesthetists. The guide is meant to discuss ways to overcome barriers, as CRNAs pursue private OBA practice. The electronic document will be accessible online and will act as a resource guide for CRNA entrepreneurs considering establishing a private OBA practice. In order to develop the electronic guide, extensive literature review was carried out from major data sources that included ProQuest, EBSCOhost, Medscape, PubMed, Cochrane Library, CINAHL, and Google Scholar.

The key words used in finding the sources of information included Certified Registered Nurse Anesthetist(s), nurse anesthetist entrepreneurs, office-based anesthesia practice, and barriers faced by nurse anesthetists. Major barriers faced by CRNA entrepreneurs were identified and described in detail in the literature and used as a source of information in the formulation of a descriptive survey. A survey instrument was created after an exhaustive literature review was performed and was used to gather data about the barriers experienced by CRNAs when transitioning into autonomous OBA practice. The researcher analyzed and compared the findings from the survey and the literature review then developed a detailed description of the results.

The electronic resource guide was developed using the survey results and reviewed literature to assist CRNA entrepreneurs overcome barriers to OBA practice. Based on the survey findings, this author developed a step-by-step approach to critical decision-making while setting up a new OBA practice, since this can be a major determining factor for success or failure of a new CRNA owned business. Common barriers faced by CRNA entrepreneurs that were

identified from both the reviewed literature and survey analysis were used to design the electronic guide which addresses how a CRNA can identify and overcome such barriers in OBA.

An example described in the guide is a strategy for educating surgeons about the long history of safe anesthesia care offered by CRNAs. The strategy may facilitate overcoming a major barrier for CRNAs in OBA and a common misconception held by some physicians, that supervision of nurse anesthetists improves patient safety. The guide developed as a result of the information gained for this project, includes; information on how to advocate for CRNAs and to obtain support from federal and state governments, insurers, healthcare professionals, and consumers, which may help to advance autonomous nurse anesthetists OBA practice. Information regarding state laws and regulations which may assist CRNAs to practice according to the scope of their education and licensure, is included in the electronic guide.

Business Models for OBA

A complete business model for OBA is too complex to describe in this document, related to limited available literature in this topic area. The final product of this research was abbreviated to represent a business model for a starter CRNA entrepreneur with the idea of establishing an OBA practice business using the limited information available and the knowledge obtained from the survey. Office based anesthesia is unique in that, it is typically operated and managed by an individual as compared to an anesthesia department in a large hospital, or ASC where there are more resources and man power to include; managers, supervisors and several employees. Therefore, OBA is different from other types of anesthesia practice models, but the distinction does not necessarily make it superior or inferior to hospital based anesthesia practice.

The political climate has improved, with more states acknowledging the status of Office Based Surgery, and OBA.⁵⁴ As a result, OBA providers and owners who routinely practice

without regard to practical and appropriate industry standards will be forced out of business. Accreditation of an OBA practice may inspire confidence to patients and other health care providers that peer-reviewed standards are being met and followed nationwide. Everyone involved in OBA business needs to recognize that accreditation is not a substitute for the application of clinical knowledge and expertise, or a collection and assessment of quality assurance data, but a basic business model which can stimulate growth and attract more business with increased revenue.

It is inappropriate to view each OBA as a small anesthesia department, even though it involves operation ,procedures and legal issues comparable to hospitals and ASCs. It is useful for providers to be a blend between business-person and clinician is common in OBA. Efforts to maintain and promote professional sovereignty from business point of view may promote continued growth of this unique form of anesthesia practice.

Evaluation of Office Based Anesthesia

As of 2010, there was no federal government oversight of medical offices, which means that office-based practices have not been well regulated.¹⁰ Unlike hospitals and ASCs, office based surgical suites are subject to few regulations by state or local authorities. For instance, by 2010, only 27 states required accreditation of office-based practices.¹⁰ As of 2016, only 28 states had established guidelines or regulations pertaining to office-based facilities.⁵⁵ Patient safety, therefore, remains a concern in OBS and has intensified lately to include issues such as proper patient selection, safe sedation practices, maintenance of facilities and resuscitation equipment, facility accreditation and practitioner licensing, and the office staff's ability to deal with emergencies and complications.⁵⁶ To ensure patient safety and continued growth of OBA practice, anesthesia practitioners need to be continuously educated and evaluated about safety

concerns in the office-based setting. Various educational and evaluation strategies for anesthesia practitioners need to be developed in order to meet the continued growth and complexity of surgical procedures in office setting.

Anesthesia practitioners should receive continuous education about appropriate preoperative care management in order to ensure safety in office settings. One of the major tasks in preoperative care is patient and procedure selection.¹⁰ Certified Registered Nurse Anesthetists practicing OBA should evaluate patients using the following parameters: (1) past medical history related to morbid obesity, obstructive sleep apnea, or difficult airway; (2) family history of malignant hyperthermia or other metabolic disorders; (3) current medications; (4) drug or latex allergy; (5) deep vein thrombosis risk and prophylaxis regimen; (6) assessment of time and nature of last oral intake; and (7) psychological status, especially a history of drug or alcohol abuse. If a patient does not meet acceptable criteria, the physician must take appropriate precautions and reassess the decision to proceed with the selected procedure. In some cases, patients may not be candidates for sedation or anesthesia in the office-based setting; therefore, the physician may need to refer them to appropriate hospitals.⁵⁷

VIII. DISCUSSION

The majority of the survey respondents (68%), work in non-opt-out states that require some level of physician supervision. This key finding helps answer the survey question, which asked the CRNAs if change in legislation in their home states to opt-out of physician supervision requirement affected their individual Scope of Practice for OBA. The majority of CRNAs practice under supervision or collaboration with physicians.

Another major barrier identified in this study was lack of fair reimbursement of CRNAs services by third party payers. Approximately one third of the CRNAs surveyed have

experienced inadequate reimbursement by third party payers including private insurers, Medicaid, Tricare health plans, Medicare, and Medicare administrative contractors. A significant number of CRNAs perceived that, barriers to non-physician provider reimbursement by third-party payers exist for CRNAs partly due to private insurance company's rules and regulations. This aligns with literature findings that impartial reimbursement for CRNA services by Medicare and third party payers continues to be a challenge, and may create barriers for CRNAs entering independent office-based anesthesia practice.

Legislation passed by Congress in 1986 granted CRNAs direct reimbursement rights under the Medicare program.²⁰ However, barriers still exist for nurse anesthetists in regards to Medicare reimbursement. In the survey conducted for this project, 47.9% of the respondents had problems with accessing reimbursements for their services by third party payer. Ten percent of the CRNAs indicated they are having difficulties with getting payments from Medicare. Based on Medicare rules, CRNAs are required to work under physician supervision for reimbursement of Medicare Part A (facility fees) unless the state governor opts out of this requirement. This requirement is more restrictive than most state laws or regulations and shifts what could be a quality and access decision for a state into a challenge for CRNAs in OBA practice.

Challenges related to other disciplines' recognition of the CRNA scope of practice create barriers to OBA practice. Many state statutes such as the requirement of physician supervision prevent CRNAs from practicing to the full extent of their education and training. Of the surveyed CRNAs, 10% strongly agreed that state laws and regulations created barriers to OBA practice. A plan of action to reform scope of practice regulations at the state level may help to reduce barriers for CRNAs to provide anesthesia services in physician offices, which they are educated

to perform. Continued research aimed at outcomes data related to CRNA effectiveness and quality in OBA practice is necessary to aid the successful reduction of scope of practice barriers.

There was no distinct relationship between hindrance in CRNA, OBA practice when comparing state laws and regulations and gender and age. This finding suggests that the age and gender of the CRNAs are not barriers to OBA practice. Based on this survey, CRNAs had little or no difficulty billing CMS. Recently, insurers have sought to withhold reimbursement for chronic pain management services based on private corporate analysis, which suggests that nurse anesthesia education and training is inadequate for CRNAs to receive payments for such services.⁵⁸ However, the CMS ruled in November 2013 that Medicare administrators should reimburse CRNAs for chronic pain management services provided that they are within the CRNA scope of practice for the respective state.⁸

CRNAs with doctoral degrees tend to agree that their home state laws and regulations hinder their ability to practice OBA. However, graduate-level CRNAs with master's degrees perceive that state laws and regulations do not hinder their ability to practice OBA. Most CRNAs with doctoral degrees are still in the early stages of their career (less than 10 years), thus, may have contributed to their perception that home state laws and regulations hindered their ability to practice OBA.

The findings of the survey used for this project, demonstrated that a majority of CRNAs in OBA practice had ten or more years of experience as a CRNA. Also, 54.5 % (36) of the CRNAs had experiences with other professional associations restricting their ability to practice OBA. The reviewed literature demonstrated that the CRNA's ability to practice OBA including chronic pain management services has been legislatively challenged by organized medicine in Iowa, California, Illinois, and Oklahoma.⁴¹ Additionally, the American Society of

Anesthesiologists (ASA), and other medical societies campaigned to 46 members of the U.S. House of Representatives to write the Veterans Health Administration (VHA) expressing concern about the agency's plan to recognize CRNAs and other APRNs as full practice providers.³¹

As evident in the findings of this study, approximately half of the participants believed that they were well prepared by Nurse Anaesthesia education to practice OBA, which leaves the remainder of the CRNAs perceive that they are not fully prepared to enter OBA practice based on their training. Anesthesia program administrators should ensure that future CRNAs receive adequate training and are rotated to office based anesthesia clinical sites so that they can gain the necessary skills. Based on this survey, the majority of CRNAs with Master's degrees were well prepared to practice in OBA, while Doctoral prepared CRNAs were slightly prepared. This may be due to the fact that most Doctoral programs are newly established within the last five years, and masters programs have been established for longer period of time.

A key finding in this study is that, 12.1% of CRNAs surveyed did not face any restrictions in credentialing. This finding might have resulted from the AANA's requirement that individual CRNAs' clinical privileges be delineated regardless of the contractual or employment relationship that exists within the practice setting.³¹ This finding may indicate that there is need to develop suitable credentialing procedures which may eliminate existing barriers to ensure that CRNAs obtain the proper delineation of privileges in order to practice OBA effectively and within their scope of practice, training and experience.

This study provided adequate evidence to support the development of an electronic resource guide to assist CRNAs to identify and address barriers they encounter when implementing OBA practices. However, it is important to determine the main factors CRNAs

consider when they want to establish OBA practice. For example, this study revealed that autonomy is a primary objective for most CRNA entrepreneurs. Other findings suggest CRNA entrepreneurs are faced with financial constraints, which is a common problem in the majority of small businesses where owners have used their personal savings as source of startup financing. The findings are consistent with a recent Small Business Success Survey that shows that 36% of owners are choosing to dip into personal savings, credit cards, 401ks, and more, to start or sustain their operation.⁵⁹ The electronic guide contains information to help CRNAs with a starting point if they are intending in borrowing initial start up capital. The small business administration program (SBA), which offers government backed loans to small and medium size businesses, was included in the guide.

CRNAs surveyed in this study, utilized various professional services during the startup process. The electronic resource guide includes information on how to handle technical matters of law, accounting, management and marketing, which are usually best handled by outside experts. Attorneys, accountants, and management and marketing consultants have specialized knowledge about niche areas of a business that the CRNA can not personally handle. The electronic resource guide can therefore improve the CRNAs knowledge of the economic benefits of using professional services when establishing OBA practice.

Having access to legal, accounting and other professional services is important and necessary for the growth and expansion of the business.⁵⁴ For example, accountants assist CRNA entrepreneurs to create accounts, review the business finances periodically and prepare all the necessary tax returns.⁵⁴ Business attorneys can assist CRNAs in almost every aspect of the OBA business from basic compliance with state and federal laws, copyright and trademark advice to formal business incorporation and lawsuits and liability.⁵⁵ Small businesses and startups lack the

ability to outsource their marketing needs to professionals.³⁶ However, there are various marketing practices available to CRNA entrepreneurs that do not require them to spend their limited resources on professional services in order to succeed in the OBA business.

IX. CONCLUSION

The purpose of this study was to assess the barriers faced by CRNA entrepreneurs who want to implement an office-based anesthesia practice. This study employed a descriptive research design and involved a survey of 88 CRNAs from all over the United States. The findings of this study are consistent with current literature and provide a strong foundation for supporting the removal of unnecessary barriers to OBA practice and restrictions on scope of practice.

The information gained from the literature review and study results were used to create an electronic guide titled ,Office Based Anesthesia Practice :*A Guide for New CRNA Entrepreneurs*. The guide will be searchable online and contains links that are specific to OBA practice. This electronic guide is meant to assist CRNAs identify and effectively manage barriers when implementing OBA practices. In this study, the author found that a major barrier to OBA practice was lack of fair reimbursement for CRNA services by third party payers including Medicaid, Medicare, private insurers, Tricare health plans, and Medicare administrative contractors. Information from AANA on how to overcome such barriers was included in the guide. Other barriers included state laws and regulations, credentialing, financial difficulties, and restrictions to scope of practice by other professional associations. The guide includes a link with every state information pertaining to CRNA OBA practice.

Nationally, the CRNAs' role continues to expand and develop based on an increasing frequency of daily surgical procedures. As a result, expert anesthesia practitioners are required to

manage patient care and meet workforce needs. The electronic guide contains searchable links to specific state regulations that impact the CRNAs' role. National reports on CRNA practice issues continue to identify existing barriers. Addressing the barriers to practice and ensuring CRNAs can practice to the full scope of their education and training can help promote optimal role fulfillment as well as establish the impact of the CRNA in office-based anesthesia delivery. The guide includes a section titled *State Legislative and Regulatory Requirements for CRNAs (50-state summaries)* which will help CRNA entrepreneurs easily access specific information about their home state from the guide by clicking on the links included in the guide.

Results from this study are consistent with the information obtained from the literature review regarding barriers to CRNA practice. Barriers to OBA practice experienced by CRNAs, are complicated and multi-factorial. Strategies for educating surgeons and other specialists on the long history of safe care given by CRNAs may ameliorate these barriers. Advocating for CRNAs and obtaining support from federal and state governments, insurers, healthcare professionals, and consumers may help to advance autonomous OBA practice. Interdisciplinary education and respect for the roles of care providers in the delivery of seamless health care to patients may assist CRNAs to practice according to the scope of their education and licensure.

Recommendations

The removal of the common barriers to the scope of practice among CRNAs is a national priority. Based on the findings of this study, CRNAs should be able to practice to the full extent of their education and training in order to overcome barriers they face in OBA practice. The following recommendations should be considered to ensure barriers to OBA practice are eliminated effectively.

- There is no research evidence suggesting that physician supervision of Nurse Anesthetists improves patient safety. Thus, expanding the Medicare requirement to all states to opt out from the requirement of CRNA physician supervision will alleviate the misperceptions held by some surgeons practicing OBA that their liability is increased when working with CRNAs.
- Expanding Medicare coverage for services rendered within a CRNAs scope of practice by stating that, “Anesthesia and related care means those services that a certified registered nurse anesthetist is legally authorized to perform in that state in which the services are furnished”.¹
- Defining the Medicare benefit category for CRNAs as including any services that CRNAs are permitted to provide under their home state’s scope of practice.
- Fair reimbursement of CRNA services by third party payers. The Departments of Health and Human Services should enforce the federal provider nondiscrimination provision in the Patient Protection and Affordable Care Act. The clause took effect January 1, 2014 and promotes competition, consumer choice and high quality healthcare and prohibits discrimination based on provider licensure that keeps patients from getting the care they need. Health insurers must avoid discrimination against qualified, licensed healthcare professionals such as CRNAs, solely on the basis of licensure.⁴¹

Limitations

Study limitations must be addressed when considering the findings of this survey. One of the limitations facing this study included constraint with time and funding. Due to the limited funds and time constraint, only limited details on the specific CRNA OBA practice barriers were discovered. Because the survey collected data at a single point in time, it is difficult to measure

changes or improvement of barriers experienced by CRNA entrepreneurs practicing OBA, unless two or more surveys are conducted at a future point in time. The use of structured questions in the questionnaire also limited the CRNAs choices to the ones provided by the researcher. Adding an extra open ended question, asking the participants what they thought were the barriers they experienced may have elicited more answers, with unique and important differences. Thus, the list of barriers that prevent CRNAs from establishing OBA practice was not comprehensive.

Surveys are expensive and time-consuming, making frequent future periodic surveys impractical. Another limitation of this study is the low response rate that might affect the reliability of the findings. To improve response rates, the student should consider employing monetary incentives, explaining the importance of completing the survey to the respondents, and designing a brief invitation email. It is also advisable to avoid sending surveys to participants during holidays and work hours. Though randomly collected, there is a possibility that the sample might not have been representative of all CRNAs in the United States, thus, affecting the generalizability of the findings.

Implications/Impact on Practice

As the demand for CRNAs continues to increase, there is need to ensure that the barriers to effective office-based anesthesia practice are identified and addressed. New graduate CRNAs and those who have limited experience in practice, most likely have been continuously introduced to the major aspects of evidence-based practice (EBP), but may have minimal exposure to OBA practice training and experiences. It would be prudent for nurse anesthetists training programs, program directors and CRNAs, to conduct more research into other potential barriers to effective OBA practice, and incorporate findings appropriately into practice and training of CRNAs.

Effective EBP requires a combination of experience, appropriate health information, and the need to address patients' wishes. This study contributes significantly to nursing practice by providing relevant evidence to assist CRNA entrepreneurs who want to venture into an OBA practice. The implications of this study are that by increasing the CRNAs knowledge and experience regarding the barriers to OBA practice, it may enable them to overcome these barriers effectively when implementing OBA practices. Lack of fair reimbursement for CRNA services by third party payers and existing burdensome state laws and regulations continue to hamper the growth of OBA practice. To remove some of the barriers to CRNA practice, some states have chosen to "opt out" of the physician supervision of CRNAs rule allowing them to practice independently without medical direction by an anesthesiologist or supervision from the operating physician, and receive full reimbursement of the services rendered.

X. SUMMARY

The development and implementation of this project served to answer the research question: What are the barriers faced by nurse anesthetist entrepreneurs wishing to implement office-based anesthesia practices? The analyses of the survey results revealed the following three primary barriers; (1) state statutes prevent CRNAs from practicing to the full extent of their education and training, (2) fair reimbursement for CRNA services by third party payers, and (3) challenges related to other disciplines' recognition of the CRNA scope of practice. Of the 88 participants surveyed, 90% perceived state statutes to be the greatest barrier to OBA practice.

The second question addressed by this project was: How can an electronic resource guide be created to assist CRNAs to identify and manage barriers faced when implementing OBA practices? This study provided adequate evidence to support the development of an electronic resource guide to assist CRNAs to identify and address barriers they encounter when

implementing OBA practices. Information gained in the development of this project may assist CRNAs wishing to establish OBA practices to gain an understanding of barriers faced, and provide a resource to assist in overcoming these barriers.

XI. APPENDICES

Appendix A

Survey questions

1. What is your age, education level, specialty type of OBA, and years of CRNA practice?
2. What was your total income before and after starting independent practice?
3. Do you practice in a state that has opted out of physician supervision of CRNAs? Has the legislation to become an opt-out state affected your individual Scope of Practice for OBA?
4. What is the mandate of CRNAs? Is the location where you practice OBA accredited?
5. Have you experienced any of the following barriers to your OBA practice? How can these barriers to OBA be eliminated?
6. Have you experienced difficulties billing third party reimbursement for your professional services? Please select the third party payer that you have encountered problems.
7. Is CRNA's Scope of Practice regarding OBA restricted by other professional associations?
8. What education and training you received from your Nurse Anesthesia School and how well has nurse anesthesia education prepared you to practice OBA.
9. Do the credentialing parameters at your primary place of clinical practice impose restrictions on your practice? Explain.
10. Why did you decide to start an independent OBA practice? How did you finance the start-up costs? Which professional services/consultants did you use?
11. Explain other subject that is important for new CRNAs, or CRNAs considering a solo practice in an office-based setting. Explain
12. In which state do you currently reside?

Appendix B*Informed Consent*

David Mwaura,
University of Michigan-Flint,

Dear CRNA,

You are invited to take part in an online-based interview to study to explore the barriers faced by CRNAs entrepreneurs considering the establishment of autonomous Office Based Anesthesia (OBA) practice. Before deciding to participate in this study, it is important to understand that your participation in this study is voluntary and will not affect future relations with your employer or the University of Michigan-Flint. There are no benefits associated with this research study. If you choose to participate, you will be asked a series of questions regarding your experience when entering autonomous OBA practice. The interview will last about 10 minutes using Qualtrics ®. One possible risk associated with your participation in this study is the experience of emotional stress. However, you may refuse to answer any questions or request that the survey be terminated at any time during the process; you may also withdraw from the study and request all data be removed from the researcher's computer. The University of Michigan Institutional Review Board (IRB) has approved this study. The committee chair for this study, Maximiliano Mendieta, Ph.D. can be reached at maxmend@umflint.edu. If you have any questions about this project, please contact me at 651-470-0357.

Sincerely,

David Mwaura CRNA

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