The Analysis of Current Practice for Nurse Anesthetists in the Veterans Health Administration

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Abstract

Background

Full practice authority (FPA) for Certified Registered Nurse Anesthetists (CRNAs) has been a point of debate for years. CRNAs practice in multiple practice models ranging from independent to medically directed. The Veterans Health Administration (VA) has no system-wide standard practice model for CRNAs, meaning each facility decides the practice model of its choice. This quality improvement initiative aims to evaluate the state of VA CRNA practice through survey methodology and offer actionable steps based on the findings.

Methods / Results

An anonymous and voluntary electronic questionnaire was sent to all VA CRNAs to assess current VA CRNA practice. CRNAs were asked about their practice model, level of physician involvement, and various demographic data. Data was analyzed to evaluate current VA CRNA practice. Survey results showed that most VA CRNAs practice in some form of an Anesthesia Care Team Model (ACT) but still had significant supervision by a physician anesthesiologist. The most common physician anesthesiologist to CRNA ratio was 1:1-2. Recent VA directives encouraging increased practice autonomy were not shown to change CRNA practice, and well over half of respondents felt they could not practice to the full scope of their education and training.

Conclusion

Significant variation of the ACT exists within the VA and CRNAs are not practicing to their full ability. CRNAs are safe and capable providers that desire more independence. Findings suggest that an ACT is reasonable and allowing CRNA full practice autonomy, decreasing physician anesthesiologist to CRNA ratios may result in improved access to care for veterans, decreased costs, and improved CRNA job satisfaction.

The Analysis of Current Practice for Nurse Anesthetists in the Veterans Health Administration

Problem Description

The Veterans Health Administration (VA) is the largest employer of advanced practice registered nurses (APRN) in the country, including more than 1000 Certified Registered Nurse Anesthetists (CRNA) (American Association of Nurse Anesthesiology (AANA), 2021). The AANA provides a framework to the CRNA scope of practice and describes the CRNA as an APRN licensed to provide anesthesia independently with full autonomy, in all clinical settings, across the entire lifespan (AANA, 2020; AANA, 2017). Anesthesia is commonly administered under four practice models, including CRNA independent practice, physician anesthesiologist (MDA) independent practice, MDA supervision of the CRNA, and medical direction of the CRNA by an MDA (Schreiber & MacDonald, 2008).

A recent chart review of 484,042 surgical cases at 125 VA facilities and discovered that only 11.7% of anesthesia was performed under independent CRNA practice. Over half (56.8%) of the reviewed anesthetic cases were performed in a medically supervised model in which an MDA supervises the CRNA practice. CRNAs were utilized independently more often in rural settings and lower acuity cases (Annis et al., 2018). VA Directive 1899 encourages that all healthcare professionals be allowed to practice within their full scope of practice in an effort to meet VA needs (Department of Veteran Affairs, 2020). In addition, VA directive 1123 identified the Anesthesia Care Team (ACT) as the preferred model in the VA (Department of Veteran Affairs, 2019). Despite the clear scope of practice provided by the AANA and guidelines set forth by the VA Directive 1899 and 1123, the actual practice model is facility-specific and not consistent throughout the VA health system (Department of Veteran Affairs, 2019; Hussey et al., 2016).

Regardless of the practice model inconsistencies in the VA, the CRNA certification does not require the medical direction or supervision of an MDA and the CRNA is solely responsible for all decisions that are made (Schreiber & MacDonald, 2008). The VA desires an ACT, however, the team model is not always feasible, and variations continue to exist within the VA (Department of Veteran

Affairs, 2019). It is evident that VA CRNA practice models differ based on facility and culture, making the current day-to-day practice model for the VA CRNA unclear.

Available Knowledge

Types of Anesthesia Practice Models

There are four common anesthesia practice models which include CRNA independent practice, MDA independent practice, CRNA medical supervision, and CRNA medical direction by a physician. Medical supervision simply means there must be a physician (not necessarily an MDA) available at all times to assist. Medical direction, which can be a form of an ACT, requires an MDA to be present for various aspects of patient care, to not be providing anesthesia while concurrently supervising a CRNA, and to not direct more than four CRNAs at a time (Schreiber & MacDonald, 2008). VA directive 1123 identifies the ACT as the preferred practice model. However, there is no direct mention of medical direction, and the team leader is only required to be the provider with the most experience, not necessarily an MDA, leaving room for interpretation and inconsistencies in practice (Department of Veterans Affairs, 2019). Before VA directive 1123, Annis et al. (2018) performed a retrospective study through chart reviews to understand current CRNA practice models at the VA. The results showed that approximately 57% of the time, a CRNA was supervised by an MDA, 32% of anesthetic cases were performed by an MDA only, and 11% of the time CRNAs practiced independently. Unfortunately, this data was obtained only by assessing provider signatures on the chart. This method of practice analysis by Annis et al. (2018) does not provide a real-time account directly from the CRNA resulting in limitations and gaps in knowledge on current real-time CRNA autonomy and practice models.

APRN Full Practice Authority

VA Directive 1899 has issued guidance for VA facilities regarding independent practice for all VA health care professionals, including CRNAs, "…to practice and operate within the full scope of the

license, registration, or certification they hold" (Department of Veteran Affairs, 2020, p.1, para.1). This directive has created the opportunity for increased CRNA autonomy, more closely aligning with the level of competency that the CRNA certificate denotes (APRN Consensus Work Group, 2008; Department of Veterans Affairs, 2020). This CRNA independence and autonomy, encouraged by VA directive 1899, has significant implications regarding the desired ACT model identified in VA Directive 1123, and challenges the inconsistencies of CRNA practice models across the VA.

Prior to Directive 1899, VA Directive 1350 granted full practice authority to all APRNs, except CRNAs. APRNs included in Directive 1350 were Nurse Practitioners, Clinical Nurse Specialists, and Nurse-Midwives (Department of Veterans Affairs, 2017). Recently it has been found that in VA non-CRNA APRN practice models, APRNs were operating with FPA at 34% of VA institutions with 57% of facilities reporting to be in the process of transitioning to APRN independent practice currently or in the next 12 months (Rugs et al., 2021). It is the trend in the VA is to grant independent practice authority to APRNs. With over 1,200 VA facilities, only abour ten percent of total VA facilities have been assessed making it difficult to fully understand the current state of APRN practice in the VA (Rugs et al., 2021; Veteran Health Administration, 2021).

The Institute of Medicine's (IOM) "Future of Nursing" report identified a restricted APRN scope of practice as a barrier, limiting access to health care. There is no difference in quality of care provided when comparing states with more restrictive practice and those with fewer restrictions. The IOM has recommended that all healthcare professionals, including APRNs, be able to "practice to the full extent of their education and training" (IOM, 2010, p.2, para.3). This will allow more patients to benefit from the increased access to high-quality health care professionals (IOM, 2010)

CRNA State Certification

APRNs have a defined state license and national certification which designates their competency to practice in their respective field as independent practitioners (APRN Consensus Work Group, 2008;

Myers et al., 2020). Variations in levels of practice autonomy have been seen across the spectrum of APRNs at both the national level and in the VA. APRN scope of practice varies from state to state, including between 22-23 states (depending on the source) allowing full practice authority for APRNs and 27 states putting limits on APRN practice (Myers et al., 2020; Phillips, 2020). CRNA practice currently only allows independent practice in 19 states (AANA, 2022). The VA is a federal institution, not bound by state laws, giving it the ability to determine privileges and scope of practice for its APRNs (including CRNAs) (Rugs et al., 2021). Despite this federal flexibility to determine CRNA scope of practice, there is no nationwide practice standard that defines CRNA privileges. This lack of national standard tends to result in the local VA facilities mimicking state practice acts for CRNAs.

Provider Autonomy

Provider autonomy has significant implications for the healthcare workforce. CRNAs with limited autonomy are more likely to experience burnout and report lower job satisfaction (Mahoney et al., 2020). Job satisfaction and burnout are highly correlated with high rates of job turnover for CRNAs and are cited as areas of focus to increase retention (Mahoney et al., 2020). Avoiding turnover is vital as this has a negative impact on patient care, patient access, and the economy as a whole (Boyd & Poghosyan, 2017; Mahoney et al., 2020; Rand Corporation, 2015; Tracy, 2017). The APRN community has been advocating for independent practice for years and data shows that independent APRN practice can decrease costs and improve health care access (Myers et al., 2020). The optimal practice environment is one in which the CRNA can practice with autonomy and achieve a state of meaningful work which will empower and ensure job satisfaction for the CRNA (Both-Nwabuwe et al., 2020).

Patient Outcomes

The safetly, effectiveness, and quality of anesthesia does not change depending on the practice model. Multiple studies support that the type of anesthesia provider and/or practice model does not have any effect on patient outcomes (Lewis et al., 2014; Negrusa et al., 2016). In addition, granting FPA for

APRNs at the VA has shown to improve wait times allowing earlier access to care (Rugs et al., 2021). A common theme found in the literature is that autonomous practice of APRNs improves access, decreases healthcare costs, and decreases patient wait times (Boyd & Poghosyan, 2017; Mahoney et al., 2020; Rand Corporation, 2015; Tracy, 2017).

Economic Impact of CRNA Full Practice Authority

CRNA independent practice has financial benefits, including the potential to increase provider productivity in a cost-efficient manner. CRNAs have shown to be the most cost-effective anesthesia option in a variety of care settings (Hussey et al., 2016; The Lewin Group, 2016). There is also significant economic benefit to the entire economy. As an estimated 8.6 billion dollars and nearly 70,000 jobs would have been created between 2017 and 2025 in Tennessee alone if full practice authority had been granted to APRNs (Myers et al., 2020). CRNA independent practice can improve healthcare costs and increase provider retention, which is key to improving access and reducing overall costs (Boyd & Poghosyan, 2017; Mahoney et al., 2020; Myers et al., 2020; Rand Corporation, 2015; Tracy, 2017).

Conclusion

VA directive 1899 provided guidance for APRN full practice authority (including CRNAs) and is a significant step forward in the professional standing of CRNAs in the VA (Department of Veterans Affairs, 2020). Since this directive, there has been no data collected from the actual practicing CRNAs in the VA on their current state of practice. We have an opportunity to significantly improve patient access and cost-effectiveness through a practice analysis of CRNAs within the VA.

Rationale

Increased autonomy of the CRNA has numerous benefits, including improving patient access, increasing provider retention, and numerous financial benefits (Hussey et al., 2016; Matthews & Brown. 2013; Mahoney et al., 2020; Myers et al., 2020). This practice analysis applies the Collaborative Health

Management Model (CHMM), focusing on autonomous practice, with the goal of working as a collaborative interdisciplinary team including CRNAs, physician anesthesiologists, surgeons, physician assistants, anesthesia techs, pharmacy, and perioperative nursing staff (See Appendix B). The CRNA can take a lead role in this practice model, ensuring that all participants acknowledge and appreciate the different perspectives brought to the table by a variety of health care specialties (Matthews & Brown, 2013). There are limitations to the CHMM, including that its intended target was for primary care and for managing chronic conditions. Due to the unique and episodic nature of anesthesia care, this project will use an adaptation of the CHMM model and focus this collaborative team-based model specifically to anesthesia care. The anesthesia-specific focus of the CHMM meshes well with the initial primary care goal of the model considering the increased levels of chronic conditions, PTSD, chronic pain, and mental health in the VA patient population. Unutzer et al. (2013) found success by adapting the CHMM to the mental health population where physicians, APRNs, case managers, and psychiatrists work as equals to provide care, focusing on a treat-to-target approach. Similarly, CRNAs can collaborate with the healthcare team in a treat-to-target fashion to meet perioperative care goals. An adaptation of the CHMM to anesthesia care has been provided (See Appendix B). As such, a collaborative and autonomous model is not new for the APRN and its benefits to healthcare are well documented (Matthews & Brown, 2013; Unutzer et al., 2013). Through a VA CRNA practice analysis, the state of VA CRNA practice can be evaluated and will allow for more effective advocacy for full practice authority and collaboration among various disciplines.

We performed a root-cause analysis of the VA's CRNA practice model inconsistencies and a fish bone cause-and-effect diagram was created to visually show contributing factors to the lack of practice consistency for the VA CRNA (Appendix A). Many influencing factors were discovered during the root cause analysis and demonstrate a complex situation without one single cause. A comprehensive literature review showed that current VA directives encourage CRNAs full practice authority, however practice models do not appear to be consistent with current VA directives at all facilities (Annis et al., 2018;

Department of Veteran Affairs, 2020). By better understanding the state of practice as described by the VA CRNA, and not simply chart reviews, the VA can adjust its standards accordingly, creating the optimum working environment for the CRNA, improving collaboration and patient access, increasing autonomy, and decreasing costs (Hussey et al., 2016; Lewin Group, 2016; Matthews & Brown, 2013; Myers et al., 2020; Philips, 2020; Rugs et al., 2021). The end results will be in line with the preferred team model as identified in VA directive 1123 (Department of Veteran Affairs, 2019).

Specific Aims

This practice analysis project aims to assess the current state of CRNA practice within the VA by way of a survey completed by VA CRNAs. With a current analysis of VA CRNA practice, this group hopes to provide an assessment of current VA CRNA practice and recommendations for future CRNA practice to the VA by December 31, 2022.

Context

The VA employs over 1000 CRNAs in a variety of settings including rural, metropolitan, and suburban areas. There are 125 VA hospitals, but CRNAs also work within small surgery centers and in non-surgical pain management settings (Annis et al., 2018). The current context of the CRNA practice model varies greatly between facilities, with each location deciding between medical direction, supervision, and autonomous practice (Annis et al., 2018). This practice analysis comes at a time of significant support from the nurse anesthesia community to establish a practice standard. In October of 2021, 33 nursing organizations sent a letter to the Secretary of the VA asking for support to help create practice standards for all healthcare professionals allowing for full practice authority (Coalition Letter to VA National Practice Acts, 2021). This falls in line with the overarching movement that came from the Institute of Medicine's statement that the future of nursing and healthcare involves the promotion of APRN practice (Institute of Medicine, 2010). Although some physician groups oppose this movement,

this practice analysis will continue to support autonomous CRNA practice by analyzing and establishing the current state of CRNA practice at the VA.

Interventions and Study of Interventions

This practice analysis utilized a questionnaire, completed by VA CRNAs, to assess the current state of VA CRNA practice. The questionnaire was created and distributed using the secure online questionnaire platform, Qualtrics. No identifiable information was collected. Completion of the questionnaire was completely voluntary. Consent was obtained prior to participation in the survey. All data was password protected and accessible only by the members of this specific practice analysis project. Information was stored in a cloud format to ensure security. A global analysis of the cumulative data was completed to determine overall themes and trends. Individual data points were not analyzed.

The questionnaire assessed multiple factors related to VA CRNA practice. Questions were in a multiple-choice format with some free text options on specific questions. Specific demographic questions inquired about years of CRNA practice, age of provider, specific practice setting, and geographical location. Further questions included, but were not limited to, specific facility practice models, amount of active involvement by an MDA throughout the perioperative period, and expectations regarding performing pre and post procedure assessments.

Links to the online questionnaires were distributed using VA CRNA email addresses. CRNAs were able to respond at any time after receiving the invitation to complete the questionnaire. Data was collected for 31 days spanning March 2022. If the provider chose not to participate in the questionnaire, this did not reflect on the participant in any way and was blind to the organizers of this project. Upon completion of the 31-day data collection period, the data was analyzed and trends were noted. The findings will be presented to key stakeholders within the VA.

Measures

The outcome measure for this project was whether a 10% questionnaire response rate was obtained. Our goal participation rate was based on the overall response rate of around 15% for two recent surveys of CRNAs published by the AANA (American Association of Nurse Anesthesiology; Hoyem & Jordan, 2020). This participation rate was collected through the Qualtrics online questionnaire platform. Although outside the scope of this project, future outcome measures will include any changes to the CRNA practice model at the VA in response to this survey and its recommendations set forth by this project.

Analysis

Upon closure of the questionnaire period, quantitative data was analyzed from the questionnaire disseminated to VA CRNAs. Descriptive statistics and graphs were used to assess responses to each question and trends in current practice. Specifically, each question's response rate was converted to a fraction and displayed as a percentage in a visually appealing format using the Qualtrics software. All information obtained was via specific options on the multiple-choice questionnaire and from free text options. All free text responses were categorized to assess overall themes and evaluated in a holistic manner.

Ethical Considerations

Ethical considerations during this practice analysis were privacy and security concerns regarding the questionnaire data. Participant email addresses were obtained through the VA and remain internal to the VA system. These email addresses were not shared in any way with an outside entity. Consent was obtained prior to participation. Completion of the questionnaire was completely optional and there was no identifying information to trace back to the respondent. These questionnaires were disseminated through a password-protected, online format, and data was secured in the cloud to increase security and privacy of

questionnaire data. The passwords were only made accessible to the administrators of this specific project. This quality initiative was approved by the VA and OHSU Institutional Review Board and has been officially deemed "not research" (Appendix E).

Results

Over the one month of data collection spanning March 2022, our survey (Appendix D) response rate was 23.6%. Of all the responses, 255 surveys met the inclusion criteria to be counted as a completed survey. After review, 28 survey responses did not meet the inclusion criteria for data analysis. The inclusion criteria required the survey to have a single response in each survey category: demographics, anesthesia department, scope of practice, and practice model. Participants were allowed to skip questions if they did not feel comfortable answering. These criteria ensured the respondents navigated through the entirety of the survey and allowed for a well thought and accurate response. The current CRNA workforce in the VA is approximately 1080 CRNAs, meaning the response rate of 23.6 % far exceeds our stated measure of a response rate of 10%.

Demographics

The survey gathered data across the whole spectrum of VA CRNAs, ensuring the data is representative of the VA workforce and reduces sampling bias. Respondents ranged in age from 25 years to greater than 65 years of age, with 5.9% of respondents between the ages of 25-35 years, 15.3% between 36-40 years, 13.7% between 41-45 years, 24.3% between the ages of 46-50 years, 16.1% between 51-55 years, 14.9 % between 55-60 years, 5.9% between 60-65 years, and 3.9 % greater than 65 years of age. Genders were equally represented, with responses for males and females being 49.2% and 50%, respectively. Out of 55 possible U.S. States and Territories, 40 states yielded CRNA responses that met the inclusion criteria for participation in this survey. The State of Florida had the most responses accounting for 9.8 % of total responses. Pennsylvania accounted for 7.5 % of responses and Texas and California each accounted for 7.1 % of total responses. The survey even included responses from Puerto

Rico. Years of CRNA and VA experience were well represented. Experience as a CRNA ranged from less than 1 year to greater than 40 years, with 84% of participants having between 6-30 years of experience. Years of VA CRNA employment ranged from less than one year to greater than 20 years. Only 3.92% of respondents had less than one year VA CRNA experience, 31% had 1-5 years of VA experience, 31.7% had 6-10 years of VA experience, 17.3% had 11-15 years of experience, 8.6% had 16-20 years VA experience, and 7.45% had greater than 20 years of VA CRNA experience. Master's degree prepared CRNAs accounted for 69% of respondents and DNP/DNAP prepared CRNAs accounted for 17.8%. Lastly, 1.39% and 0.35% of CRNAs had a PhD or JD, respectively, in addition to their masters or doctorate CRNA education.

Practice Model

Significant findings specific to the practice model currently used within the VA were discovered. Broadly, 88.2% of CRNAs reported working in an ACT and 11.8% reported independent practice at their VA facilities (Appendix F). More specifically, 8.6% reported practicing independently with staff physician anesthesiologists as professional colleagues, while the remaining 91.4% worked under the supervision of a staff physician anesthesiologist, likely showing some variance in how CRNAs define independent practice. There were differences in what the CRNA supervision looked like as 47.2% reported making most of the anesthesia-related decisions, 36.1% reported the staff physician anesthesiologist being involved in all decisions regarding the anesthetic, and 8.2% reported being supervised by a staff physician anesthesiologist only during the day, but less so on weekends, on-call, or on nights (Appendix G). Of those with staff physician anesthesiologist supervision, the physician to CRNA ratios varied with 11% of CRNA being supervised 1:1, 68.2% were 1:1-2, 15.7% were 1:3-4, and 5.1% were greater than 1:4 (Appendix H). Medically Directed CRNAs reported inconsistencies in staff physician anesthesiologist participation at key points throughout the anesthetic delivery. In the medically directed practice model, staff physician anesthesiologists were always present for induction only 42.7% of the time, and 24.9% of CRNAs reported the staff physician anesthesiologist was present for induction

greater than 75% of the time. On extubation / removal of an airway, 53.3% of respondents reported the staff physician anesthesiologist was present less than 25% of the time. Responsibilities for charting the pre-operative evaluation varied between CRNAs and staff physician anesthesiologists and 43.5% of respondents reported the staff physician anesthesiologist was responsible for charting the preoperative evaluation, 15.7% reported this to be the CRNAs responsibility, and 32.6% reported that either the CRNA or staff physician anesthesiologist could chart the preoperative evaluation.

In terms of privileges granted to CRNAs, 28.1% cannot perform a history and physical, 17% were responsible for writing PACU orders, and 69.7% did not have full prescriptive authority. From all the respondents, 57.5% felt they could not practice to the full extent of their education and training. When provided with a definition of full practice authority (FPA) within an ACT, 92% of respondents answered in the affirmative, acknowledging they felt comfortable practicing with FPA in an ACT. Regardless of hospital policy and after receiving a definition of FPA, 8.4% of respondents reported their actual practice was fully independent, 17.2% reported working in a care team model while maintaining independent practice, 32.8% were medically directed, and 41.6% were medically supervised (Appendix I). When asked if the CRNA performed regional anesthesia, there was a wide range of responses, with the majority being spinals. A free text option regarding the practice of regional anesthesia showed a major theme involving a restriction in regional anesthesia practice based on physician preferences. It is unclear if this restriction in practice is only physician preference or also related to facility culture. Example responses included, "I can ask to do the regional but it's at the discretion of the physician anesthesiologist," or "Only when the MDA approves. No autonomy provided," and "I used to do all blocks prior to the start of a MD directed acute pain service with no CRNAs involved in the team. They have several APRNs and RNs and multiple MDs but no CRNAs."

VA CRNAs were given the opportunity to provide a free text response answering the following question: "Which area of the CRNA practice do you feel could be expanded in your facility?" This subjective response rate demonstrated three themes. First, the CRNA's desire to have more independence

in their practice, including full practice authority with less physician anesthesiologist supervision. Example responses included in the results include, “We need full independent practice,” and “Greater independent practice and expand the CRNA/Physician anesthesiology ratio.” Second, CRNAs want to be respected as anesthesia providers within the ACT model. One respondent sums up this theme well stating, “Getting us back into the OR again, independence/autonomy while maintaining ACT model, respect for CRNA abilities.” Third, CRNAs want to expand their regional anesthesia practice. An example response from a VA CRNA includes, “We would like to be able to administer regional anesthetics/blocks, epidurals and spinals.”

Scope of Practice

Despite Dr. Stone's May 27, 2020 memo granting temporary full practice authority, 80.2% of respondents' practice did not change at all and 9.1% of CRNA reported an even more restrictive practice. Free text responses were obtained regarding the CRNAs thoughts on the stone memo. General themes emerged, including feelings that CRNA FPA could be beneficial and resistance from physician anesthesiologists are barriers to embracing the temporary CRNA FPA granted by the Stone memo. The overall desire for full practice authority was evident from the free text responses. Of respondents, 56.9% of VA CRNAs have nursing licenses in non-restrictive states, meaning that their license does not require physician supervision. Regardless of state licensure and regulation, the VA is federally regulated and individual VA hospital bylaws regulate individual practice. This lack of a CRNA autonomy could have drastic implications for staffing in the future, as around 30% of respondents reported if they left their VA employment it would be due to practice restrictions and/or work environment issues (Appendix J).

The final question on the survey allowed for a free text option to share any pertinent information related to CRNA practice. These responses were sorted and showed three overall themes. First, establishing a VA CRNA national practice standard is essential to collaborative practice within the VA. Second, CRNAs feel they are competent anesthesia providers who desire to practice independently, to

their full scope, within an ACT. Third, CRNAs desire to be acknowledged as licensed and trained health care providers capable of independent anesthesia practice. It is important to point out that all branches of the military take advantage of this rigorous anesthesia training, allowing CRNAs to practice independently. The military embraces the specialized training of the CRNA and fully utilizes their knowledge and skill set to provide high quality anesthesia to the members of the armed forces. Despite this federal use of CRNAs, the VA, another federal organization, does not seem to follow suit. The restrictive VA CRNA practice is not an effective use of government resources resulting in limited health care access and improper allocation of resources for our nation's veterans.

Summary

To date, this survey is the most recent snapshot of CRNA practice within the VA. It encompasses the realities of CRNAs across the spectrum of age, experience, and geographical location, giving validity to the data as a whole. The data obtained demonstrates significant variance between VA practice standards and actual CRNA practice. With the strong response rate to this survey, it is clear that these inconsistencies in policy and practice have been long standing and span the majority of the VA. Despite facility policy, 25.6% of CRNAs reported practicing to the full extent of their education and training within either a care team model or in independent practice at their facility. The remaining 74.4% were under medical direction or supervision. Pairing this with the 57.5% of respondents that felt they were unable to practice to the extent of their education and training, a clear picture of the variance between facility CRNA practice can be seen. Responses from the free text comments demonstrated frustration with a limited CRNA practice and the desire for less restriction of practice. These results highlight the stark contrast between actual CRNA practice and the care team model that is desired by the VA. With restricted CRNA practice, the VA is not taking advantage of the safety and financial benefits of well-trained and educated CRNAs. It is also worth mentioning the previously discussed negative effects on the economy, workforce, and healthcare access that are possible due to CRNA staff turnover at the VA as a result of practice restrictions and work environment concerns. The opportunity for improving the current

anesthesia practice model and the resulting increased health care access to veterans at the VA is evident from this survey.

Interpretation

From the use of the CHMM, it is clear the ACT could be an effective practice model for the VA CRNA. In this model, the staff physician anesthesiologists are not supervising the CRNAs, but rather acting as a fellow team member and colleague to assist and offer advice when needed to ensure the highest quality of care for our veterans. However, this practice analysis shows many inconsistencies in VA CRNA practice models resulting in restricted practice and potentially wasting veteran resources and taxpayer dollars. The inconsistencies in anesthesia practice models should be examined by decision-makers within the VA to better align current practice with policy in an effort to improve CRNA practice autonomy and veteran access to their well-deserved health care system.

Limitations

There are some limitations to this practice analysis. Sampling bias is a known issue within surveys, as respondents are those who are naturally inclined to respond which may result in data from only a certain group of individuals (Andrade, 2020). The survey also may have not been able to be accessed by the entire population due to issues involving distribution, which also increases bias (Andrade, 2020). However, our response rate did reach 23.6%, which is nearly a quarter of the CRNA VA population, so it can be inferred that our sample does represent a large portion of VA CRNAs.

Conclusion

Despite the VA granting temporary full practice authority to CRNAs in 2020 and the VA Directive 1899 providing guidance for full CRNA practice autonomy, inconsistencies exist between the desired VA ACT practice model and current practice. CRNAs have been shown to provide safe and effective anesthesia care at an affordable cost to the facility. It is important to recognize that all military

branches acknowledge and utilize the CRNA's specialized training to provide high quality care independently. Future VA attention should be focused on realigning policy for CRNA practice by making CRNA practice less restrictive. Our recommendation would be for the VA to allow for CRNAs to practice to the full extent of their education and training, with a standard of 1:3 to 1:4 or greater physician to CRNA ratio, which would mirror the general anesthesia industry. In this way, CRNAs and physicians can collaborate as team members while simultaneously practicing independently within their full scope of education and training. This model will increase autonomy and independence for the CRNA while improving care and access to the men and women who have sacrificed for our country.

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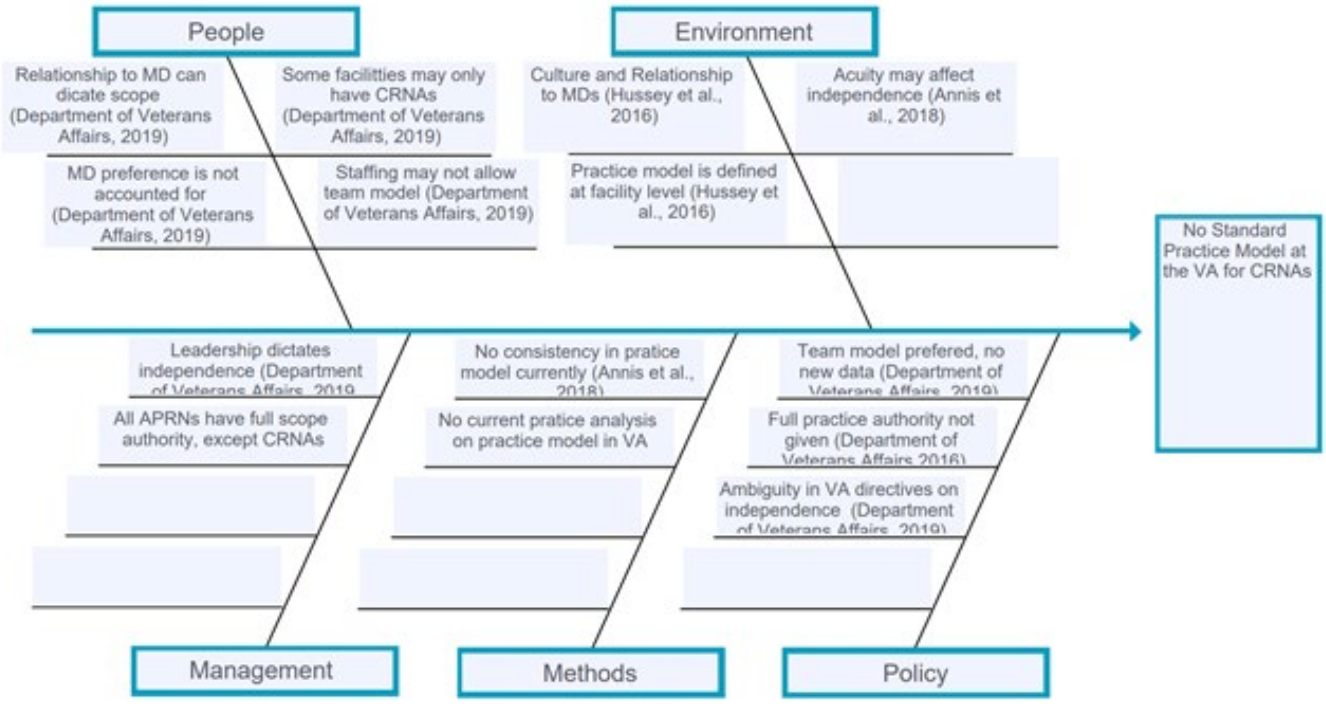
Appendix A

Cause and Effect Diagram



Appendix B

Collaborative Health Management Model in Anesthesia Practice

Goals of CHMM:
1. Improve perioperative management of all patients undergoing surgeries or procedures
2. Provide evidence-based, patient-centered care
3. Increase patient decision making regarding anesthetic choices and post-op pain management
4. Facilitate smooth care coordination from preoperative phase to postoperative phase
5. Improve perioperative team collaboration and communication

Team Member Roles:

CRNA
- Provide autonomous perioperative care, including pre and post operative assessment and planning, within the breadth of their certification, licensure, and experience
- Collaborate with the perioperative team to address patient needs in all phases of care
- Develop perioperative goals of care and lead team to achieve the goals

Physician Anesthesiologist
- Provide autonomous perioperative care, including pre and post operative assessment and planning, within the breadth of their certification, licensure, and experience
- Collaborate with the perioperative team to address patient needs in all phases of care
- Develop perioperative goals of care and lead team to achieve the goals
- Provide specialized care where need with respect to their specific training and knowledge

Perioperative Nurses
- Active collaboration with team to meet perioperative goals through implementing nursing care
- Patient safety advocate with strong role in care coordination between disciplines
- Partner with anesthesia and surgical team in procedural care

Pharmacy
- Support and collaborate with entire team with regards to pharmaceutical needs
- Ensure safe patient care through deciphering complex medication concerns

Anesthesia Tech
- Support anesthesia team through equipment and supply expertise
- Facilitate smooth transition between surgical cases

Appendix C

Project Timeline Example

	Dec 2021-Jan 2022	Feb 2022	March 2022	April 2022	May 2022	June 2022	July 2022	Aug 2022	Nov 2022	Dec 2022
Finalize project Design and Approach (703A)	X									
Complete IRB determination or Approval (703A)	X									
Send out Initial Questionnaire			X- Early March							
2 week follow up reminder for Questionnaire Completion			X- Late March							
Final Data Analysis			X							

Write Sections 13-17 of Final Paper				X	X	X	X	X		
Prepare for Project Presentation / Dissemination					X	X	X	X	X	X

Appendix D

Questionnaire:

Item #	Variable	Question	Response
Demographics			
1.	Age	What is your age range?	• < 25 years • 25-30 years • 31-35 years • 36-40 years • 41-45 years • 46-50 years • 51-55 years • 56-60 years • 61-65 years • >65 years
2.	Gender Identity	What gender do you identify as?	• Male • Female • Non-Binary / Third Gender
3.	Total CRNA Experience	How many years of experience do you have practicing as a CRNA?	• < 1 year • 1-5 years • 6-10 years • 11-15 years • 16-20 years • 21-30 years • 31-40 years • > 40 years
4.	VA CRNA Experience	How many years of experience do you have practicing as a CRNA at the VA?	• <1 year • 1-5 years • 6-10 years • 11-15 years

			• 16-20 years • > 20 years
5.	Education	What is your highest degree earned? (Select all that apply)	• Certificate • Associates • Bachelors • Masters • DNP/ DNAP • PhD • J.D. / Other
6.	VA Location (City)	In what city is the VA in which you practice? (Please specify a single city)	• Free text box
7.	VA Location-State	In what state is the VA in which you practice?	• Drop down box with all US states and Territories
8.	VA Location-Station Number	Please input your 3 digit station number below	• Free text box
9.	Anesthetizing Locations		
Anesthesia Department			
10.	Anesthetizing Locations	What is the total number of anesthetizing locations that you provide at your facility? (Total ORs, Endo suites, MRIs, Cath Labs, etc)	• 1-4 locations • 5-8 locations • 9-11 locations • 12-14 locations • 15-20 locations • > 20 locations

11.	Chief CRNA	If your facility has more than three CRNAs, do you have a chief CRNA?	● Yes ● No ● NA
12.	CRNA Educator	If your facility has more than three CRNAs and /or academic/ training affiliations, do you have a designated CRNA educator (Nurse IV designation)?	● Yes ● No ● NA
13.	CRNA Roles / Responsibilities	What are your main roles at the VA as a CRNA? Please select all that apply	● Administration ● Teaching / Precepting ● Research ● Quality Improvement ● Clinical Practice ● Other (Free Text Box)
14.	Professional Development / Engagement	What professional development / engagement activities do you actively engage in? Please select all that apply	● Lead Departmental Activities (Grand rounds, M&Ms, etc) ● Lead interdepartmental activities (simulations, mock codes, fire drills, etc) ● Hospital Committees ● Presentations at Hospital In Service ● State Professional Organization Leadership ● National Professional Organization Leadership ● National or State professional Meeting Presentations ● Oher volunteer service ● Other (Free text box)
15.	Continuing Education	How are you currently completing continuing education? Please select all that apply.	● Departmental Conference / Workshops ● Grand Rounds ● AANA National or State Conference / Workshops ● AVANA Conference ● Self-Study Courses

			● College or University Courses ● Non- VA Conferences ● Other (Free text box)
16.	PTO for Continuing Education	Are you provided with paid time off for continuing education?	● Yes ● No ● I don't know
17.	Education Reimbursement	Do you receive compensation and / or reimbursement for educational related expenses including but not limited to travel, course fees, lodging, tuition, etc?	● Yes ● No
18.	Education Reimbursement Satisfaction	If you answered yes to the previous question, is the funding for educational expenses sufficient to meet the needs of the entire department?	● Yes ● No
19.	Satisfaction	Please indicate your level of satisfaction with your current CRNA position?	● Likert Scale with Smiley Face
20.	Covid Reassignment	During the Covid Surge, have you or any of your CRNA colleagues been assigned to other patient care areas as an APRN, not specifically for anesthesia duties (out of OR airway management, central lines, code team, proceduralist, etc.)?	● Yes ● No

21.	Covid Redeployment Areas	During the Covid Surge, if you were detailed to another department as nursing staff, which patient care area did you work?	● Emergency Department ● PACU ● ICU ● N/A- I wasn't reassigned ● Other (Free text)
Scope of Practice / Work Environment			
22.	Dr. Stone Memo	Dr. Stone released a memo, May 27, 2020, granting temporary full practice authority (FPA) to all CRNAs during the Covid 19 pandemic. Did this memo affect your practice?	● Id did not affect my practice at all ● It made my practice more restrictive ● It made my practice less restrictive ● Other (Free text)
23.	Collaboration	Since the release of the Stone memo, please share your overall level of collaboration amongst physician anesthesiologist colleagues and CRNAs (Mutual respect, shared decision making, etc)?	● Likert Scale to determine level of collaboration
24.	Nursing License	Do you currently hold a nursing license in a non-restrictive state?	● Yes ● No
Practice Model			

25.	Independent Practice	Are you practicing independently at you primary VA Facility?	• Yes • No, I practice in an anesthesia care team model
26.	Care team Culture/ Dynamic	In a care team model, how would you describe the Physician Anesthesiologist / CRNA supervision culture / dynamic at your facility?	• I practice anesthesia independently with staff physician anesthesiologists available as professional colleagues • My practice is supervised by a staff physician anesthesiologist, but I provide most of the input on the anesthetic delivery to the patient • My practice is supervised by a staff physician anesthesiologist, he/she/ they are involved in all decisions regarding patient care and the anesthetics delivered to the patient • I am supervised only during the day shift, not much of my practice is supervised during on-call, weekend, or night shifts
27.	Supervision Ratio	If you are in an anesthesia care team model, how many CRNAs does a single staff anesthesiologist supervise?	• 1 MD: 1 CRNA • 1 MD: 1-2 CRNAs • 1 MD: 3-4 CRNAs • 1 MD: 4-10 CRNAs

28.	Induction	If you are in a medically directed practice model, how often is a staff physician anesthesiologist present on induction?	● 100% of the time ● > 75 % ● 50-75 % ● 25-50 % ● <25 % ● Never ● NA, I do not work in a medically directed model
29.	Delayed Cases	How often is a case delayed because a staff physician anesthesiologist is not available to be present on induction?	● Almost never ● <25% of cases ● 25-50 % of cases ● >50 % of cases ● NA, I do not work in a medically directed model
30.	Extubation	How often is a staff physician anesthesiologist present on extubation / removal of LMA?	● <25% of cases ● 25-50 % of cases ● 50- 75 % of cases ● >75% of cases ● NA, I do not work in a medically directed model

31.	Pre-Op Eval	Who is responsible for charting the pre-operative evaluation?	• Physician Anesthesiologist • CRNA • Doesn't Matter: Either MDA or CRNA • Someone Else
32.	History and Physical	Are you able to perform a full history and physical examination independently in the preoperative setting per you VA facility by-laws?	• Yes • No
33.	Prescriptive Authority	Do you have full prescriptive authority in your facility?	• Yes • No
34.	DEA Number	Do you have your own DEA number? If so, is it through the VA?	• Yes, I have my own DEA number, not through the VA • Yes, I have a DEA number and it is through the VA • I do not have a DEA number
35.	PACU Orders	Who is responsible for writing the PACU orders?	• CRNA • Staff Anesthesiologist • Does Matter: CRNA or MDA • Other

36.	Trans-Esophageal Echos	Do you perform trans-esophageal echocardiograms?	• Yes • No
37.	Regional Anesthesia	Do you perform regional anesthesia? Please select all that appl	• Epidurals • Spinals • Upper Extremity Blocks • Lower Extremity Blocks • Thoracic and abdominal Wall Blocks • Head and Neck Blocks • Intravenous Regional Anesthesia • other
38.	Types of Surgeries	What type of surgeries/ procedures do you routinely administer anesthesia for? Select all that apply	• General • Thoracic • Cardiac • Orthopedic • Vascular • Outpatient • Neuro • Oral and Maxillofacial • Podiatry • Ophthalmic • Gynecologic • Plastic • ENT • Orology • Transplant • NORA
39.	Areas that can be expanded?	Which area of CRNA practice do you feel could be expanded in you facility?	• Free Text Box
40.	Pain Fellowship	Did you complete a fellowship in pain management?	• Yes • No
41.	Practice to full scope of training	In your current facility, do you feel you are able to practice to the full scope of your education and	• Yes • No

		training (within the limitations of your facility)	
42.	FPA within an ACT	Please Select the best description of full practice authority within a care team model?	● The CRNA is able to practice to the full extent of their education and training, within the confines and limits of their facility. The staff physician anesthesiologist does not act as an "attending" but as another independent practitioner who the CRNA may consult as a professional colleague ● Most of the time the CRNA is able to make independent choices but the staff physician anesthesiologist is responsible for specific tasks within the perioperative course ● A staff physician anesthesiologist attends to the needs of the CRNA and instructs the CRNA how to provide care ● Other
43.	Comfortability with FPA in an ACT	Provided description of full practice authority in a care team model: The CRNA is able to practice to the full extent of their education and training, within the confines and limits of their facility. The staff physician anesthesiologist does not act as an "attending" but as another independent practitioner who the CRNA may consult as a professional colleague. Do you feel comfortable practicing with full practice authority in a care team model?	● Yes ● No
44.	Privelages	According to your medical center bylaws, do you practice under a scope of practice or are you privileged? (If you are a licensed	● I practice under a scope of practice ● I practice with specific privileges granted by the facility or organization

		independent practitioner, you are usually privileged)	
45.	CRNA practice Model	Regardless of what is actually done on a day to day basis, what is your facilities official policy on the type of CRNA practice model in your facility?	• Medically Directed • Medically Supervised • Independent Practice (Team Model) • Independent Practice (CRNA Only)
46.	Actual CRNA Practice Model	In day-to-day practice (regardless of policy), how would you describe the practice model in which you actually practice? ***Reminder: Responses are completely anonymous and non identifiable. No individual response will be categorized. All responses will pooled and over all response rates will be analyzed***	• Medically Directed • Medically Supervised • Independent Practice (Team Model) • Independent Practice (CRNA Only)
47.	Reasons to Leave	If you plan to leave the VA, what will be the top 3 reasons? Select all that apply	• Practice restricting • Work environment issues • Low pay • Pay Cap • Schedule Flexibility • Locations • Burn Out • Lack of education funding • Reassignment of duties • Other

Appendix E

NOT HUMAN RESEARCH

January 7, 2022

Dear Investigator:

On 1/7/2022, the IRB reviewed the following submission:

Title of Study:	The Analysis of Veterans Affairs Nurse Anesthetists Current Practice
Investigator:	Rishelle Zhou
IRB ID:	STUDY00023910
Funding:	None

The IRB determined that the proposed activity is not research involving human subjects. IRB review and approval is not required.

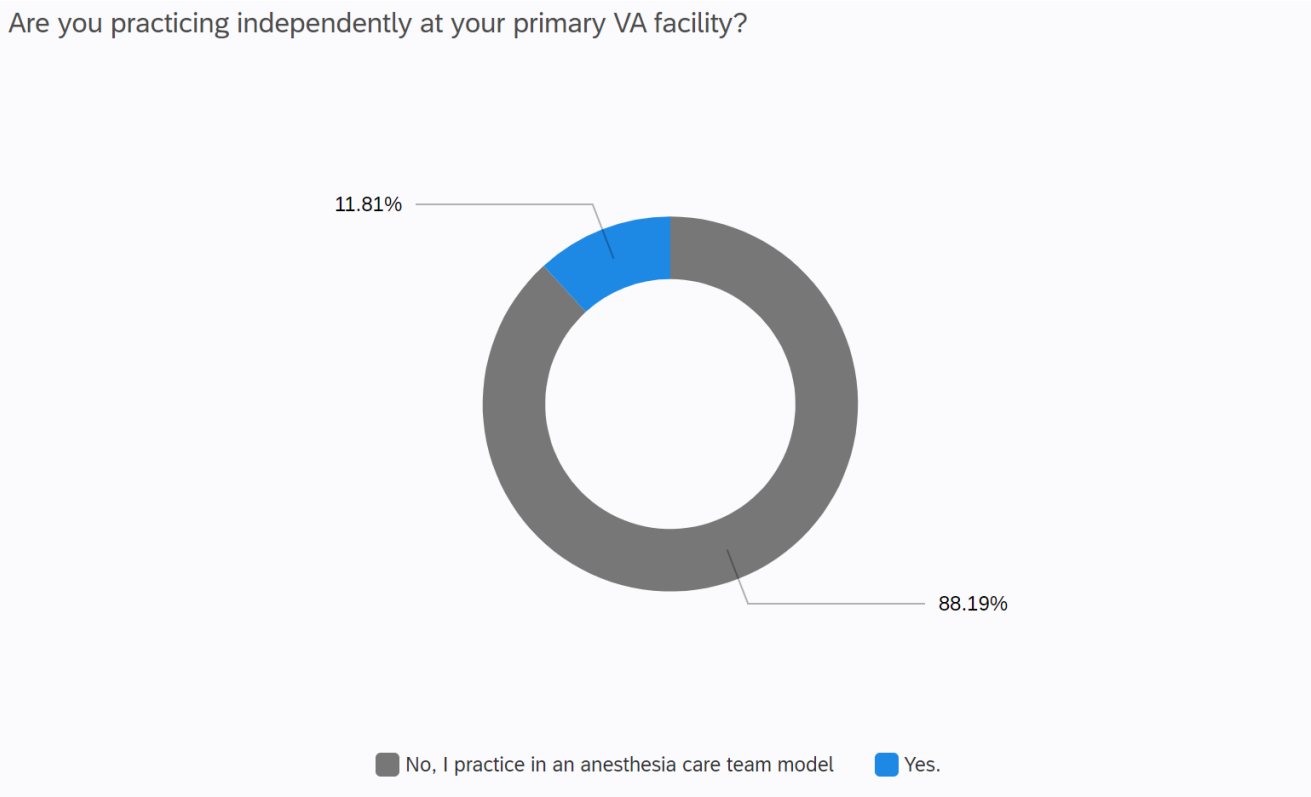
Certain changes to the research plan may affect this determination. Contact the IRB Office if your project changes and you have questions regarding the need for IRB oversight.

If this project involves the collection, use, or disclosure of Protected Health Information (PHI), you must comply with all applicable requirements under HIPAA. See the HIPAA and Research website and the Information Privacy and Security website for more information.

Sincerely,

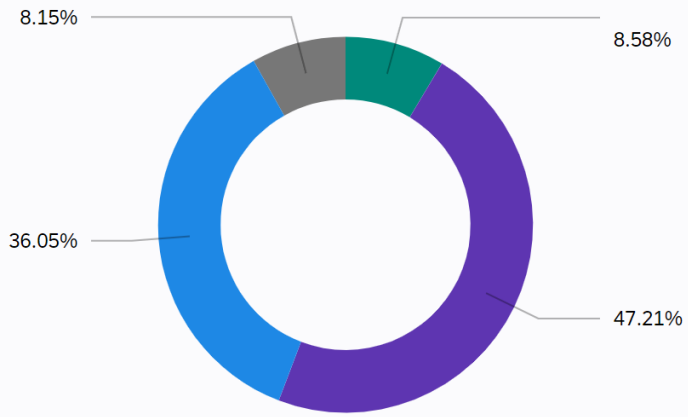
The OHSU IRB Office

Appendix F


Are you practicing independently at your primary VA facility?
11.81%
88.19%
No, I practice in an anesthesia care team model
Yes.

Appendix G

In a care team model, how would you describe the Physician Anesthesiologist/CRNA supervision culture/dynamic at your facility?



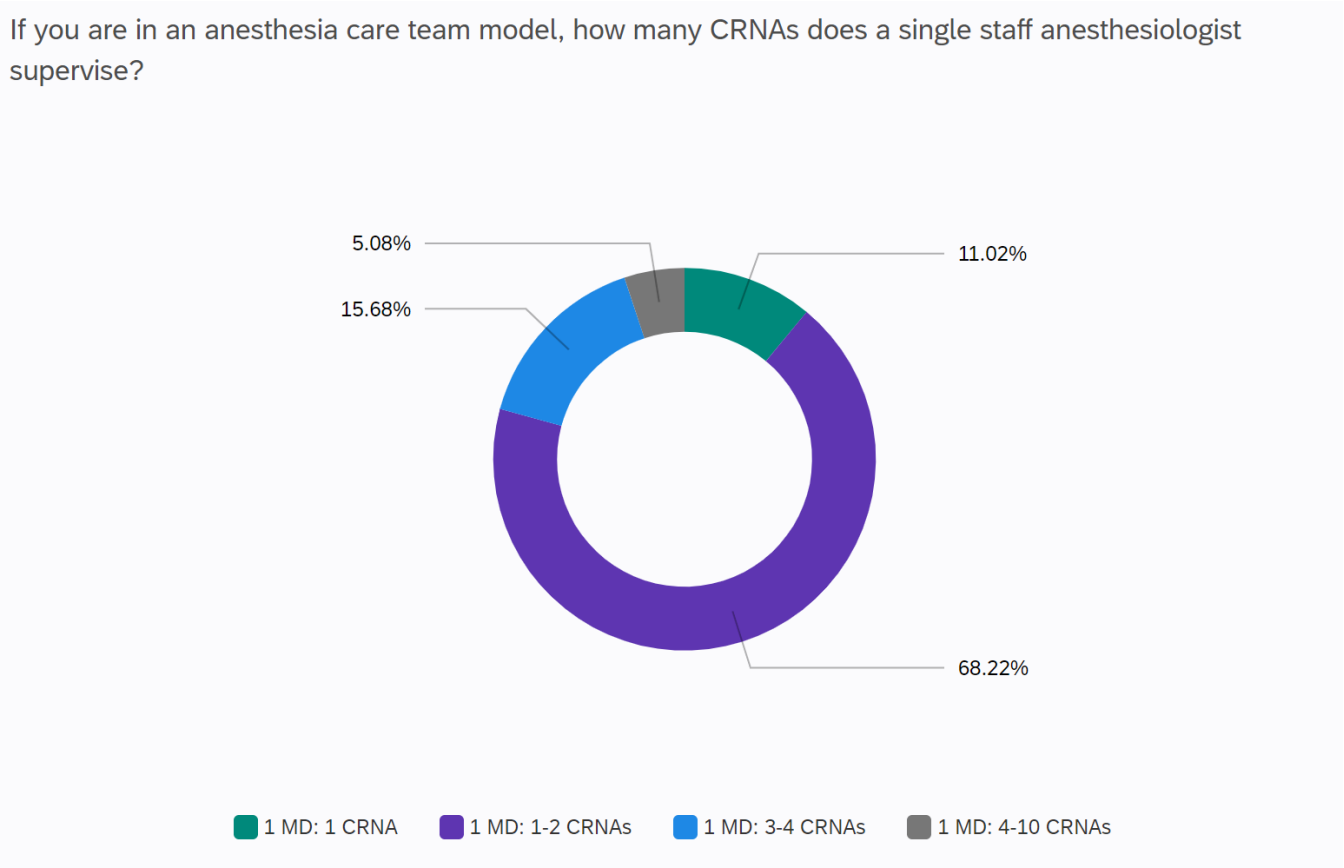
I practice anesthesia independently with staff physician anesthesiologists available as professional colleagues

My practice is supervised by a Staff Physician Anesthesiologist, but I provide most of the input on the anesthetics delivery to the patient

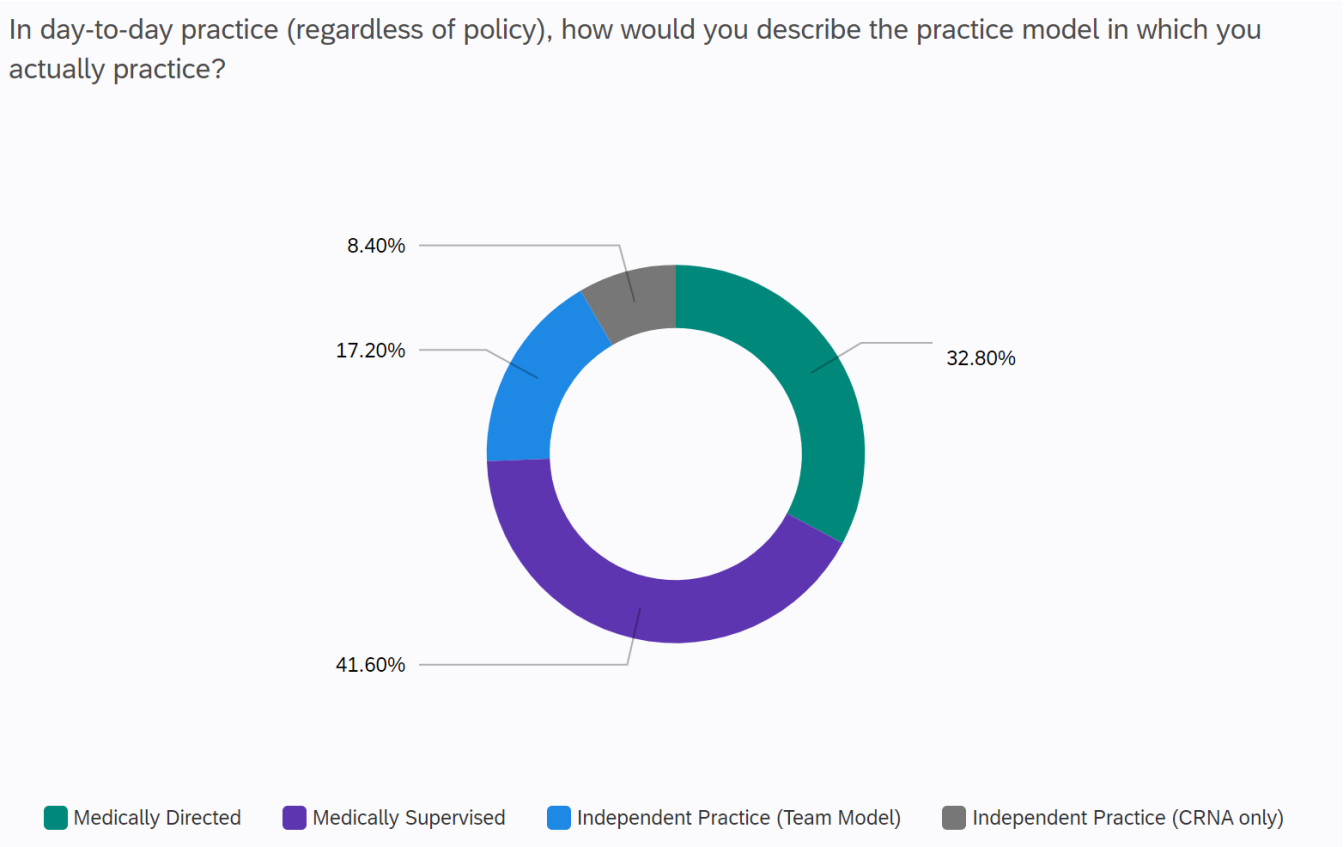
My practice is supervised by a Staff Physician Anesthesiologist, he/she/they are involved in all decisions regarding patient care and the anesthetics delivery to the patient

I am supervised only during the day shift, not much of my practice is supervised during on-call, weekend, or night shifts

Appendix H


If you are in an anesthesia care team model, how many CRNAs does a single staff anesthesiologist supervise?
5.08%
11.02%
15.68%
68.22%
1 MD: 1 CRNA
1 MD: 1-2 CRNAs
1 MD: 3-4 CRNAs
1 MD: 4-10 CRNAs

Appendix I


In day-to-day practice (regardless of policy), how would you describe the practice model in which you actually practice?
8.40%
17.20%
32.80%
41.60%
Medically Directed
Medically Supervised
Independent Practice (Team Model)
Independent Practice (CRNA only)

Appendix J

What will be the top 3 reason if you plan to leave the VHA?