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Perspectives of Retired Air Force Nurse Anesthesia Leaders

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Abstract

Current military and civilian CRNA history papers do not have a United States Air Force focus. This study expanded the current history of roles, relationships, and techniques of the CRNA professionals. The purpose of this qualitative study was to historically describe the roles, professional relationships, and techniques among nurse anesthetists in the Air Force since 1951.

CRNAs who served on active duty in the United States Air Force were included in the sample. These interviews gathered information regarding the history of the Air Force. Descriptive information from these interviews described the changing roles, techniques, and relationships of the target population. The structured interview technique, with focused questions and probes, was utilized as the instrument for data collection. Reliability and validity concerns were addressed by using the accepted qualitative standards of confirmability, transferability, consistency, and truth-value. The data were analyzed by chronology and topic in order to describe the progression of roles, relationships, and techniques.

The eleven telephone interviews were completed from CRNAs who served on active duty in the Air Force. Taped recordings were made of these interviews and transcribed. Both researchers looked for common themes, progression of roles, relationships, and techniques in all interviews.

The results demonstrated that commonality of experience was in evidence from those CRNAs interviewed. These commonalities included autonomy of practice, lack of understanding of the roles and responsibilities of the CRNA from other health care professionals, and advances in technologies in patient monitoring and anesthetic delivery over time.

Introduction

The role of the nurse anesthetist deserves the perspective of time and the careful consideration of scholars to assess the impact and effectiveness in providing anesthesia in the Air Force. Nurse anesthetists has been integral in the advancement of the United States Air Force (USAF) and USAF Nurse Corps as leaders and innovators, in addition to the primary duties of providing anesthesia care to the active duty airman, military retiree and dependent. The experiences of nurse anesthetists possess a unique perspective regarding the challenge of providing anesthesia in wartime and peacetime.

Although the profession of nurse anesthesia has existed for over a century, the career field has existed in the USAF since 1951. Since their incorporation into the Air Force, Certified Registered Nurse Anesthetists (CRNAs) have served in at least three major conflicts, numerous operations, and countless missions other than war. Unfortunately, there is a scarcity of records regarding the topic of nurse anesthesia history in the USAF.

The purpose of this study was to describe the roles, relationships and techniques of CRNAs by answering the research questions:

1. Who were the influential men and women with responsibilities and duties as CRNAs?
2. What were the contributions and achievements of Air Force CRNAs in war and peacetime?
3. What are the personal experiences of the CRNAs serving in the USAF?

Model

The Benner novice to expert model formed the basis for this historical perspective of nurse anesthesia in the USAF and allowed the examination of nursing skill to be manifested with

its emphasis on the value of experience. The nursing theorist Patricia Benner believed that nursing knowledge and experience needed to be captured through the use of the Critical Incidence. A CI is defined as situation-based descriptions of patient care episodes (Benner, 1984). Patricia Benner introduced the Novice to Expert Model to describe the progression of patient care expertise that can result from professional nursing experience. See Table 1 for novice to expert model description.

In documenting the history of nurse anesthesia in the Air Force the story of nursing is being made public. The purpose of recording the contributions of CRNAs in service to the USAF was to capture and further catalog their Critical Incidences within their historical and clinical context. Future CRNAs will be able to learn from past experiences and be better prepared to meet the challenges of service in the USAF.

Definitions – Conceptual and Operational

The target population of this study was CRNAs who served on active duty in the USAF. The history, which was collected through the interview process, referred to past human experiences specific to the person's time during active duty service. CRNAs are those registered nurses who held a position of nurse anesthetist and carried out those duties specific to this profession. The CRNA also has to pass the national certification board exam in this specialty.

Assumptions

Several assumptions grounded this study due to the nature of using an oral history interview process. The primary assumption was that interviewees told the truth with regard to their personal experiences and they recalled their experiences accurately. It was assumed that persons participating in the study wished to share their experiences and that those who participated were representative of the target population.

Research Methods

In this qualitative study, the sample included 11 CRNAs who served on active duty in the USAF in the role of CRNAs. After obtaining Institutional Review Board approval, a sample representing the study population was recruited through a combination of network and snowball sampling methods. After initial contact to establish interest in the study, participants were mailed study materials to include a consent form and demographic data sheet. Once the participant returned the material and signed consent, the principal investigator conducted a tape-recorded interview by phone after verifying informed consent. Interviews continued until saturation of the emerging themes. Verbatim transcriptions were made from interview recordings. Coding was used to maintain participant anonymity.

Instrument Identification

A structured interview guide provided the foundation of predetermined categories regarding role, techniques, and professional relationships. Open-ended questions queried participants on their background and experiences during their years spend on active duty in the USAF as a CRNA. Appropriate probes were used to explore emerging themes during the interviews. An expert panel composed of military CRNA's and methods experts reviewed the focused interview guide to insure understandability and comprehensiveness of the initial questions. All interviews were tape recorded with the participant's permission and transcribed verbatim. An audit trail was established to document coding decisions and verification of identified themes. Transcriptions were coded to protect anonymity of participants.

Analysis

Analysis of the interview transcripts began as a historical search of roles, professional relationships and techniques among the CRNAs. Historical research is a collection of subjective data composed and related through human dynamics and experiences. The data were listed in chronological order and related by topic. These descriptive findings were supported by their quotes. These quotes were then grouped and connected together by commonality to capture the "aha" experience described by Benner (1987). An accurate description of the roles, relationships and techniques of CRNAs was generated based on these interviews.

Descriptive statistics were used to present the demographics of the sample to include the average age during active duty service, assignments, roles, and certification/education experience. The analysis and descriptive statistics were provided as a picture of CRNAs who have served in the USAF and provide a basis for further research into the history of this field. This study showed the chronological and progression in roles, relationships and techniques for USAF nurse anesthesia.

Finding

The influential men and women with responsibilities and duties as CRNAs had different educational backgrounds, roles and periods of service in the USAF. See Tables 3, 4, and 5. The educational development of these CRNAs progressed from a diploma certification through a bachelor degree to a master's program. All CRNA participants who initially acquired a diploma certification or bachelor's degree in nurse anesthesia later acquired a higher level of education or master's degree. The progression of certification for CRNAs was due in part to the availability of educational programs. Air Force CRNAs pursued more advanced educational degrees as these became available.

The autonomy of this group of USAF CRNAs was seen in various ways. For instance six out of eleven respondents were the sole CRNAs at their assigned station. Five were flight nurses, with four serving in flying assignments during the Vietnam conflict. In one interview, a participant spoke of being pulled out of his flying duties to provide anesthesia for a general's son who had received wounds during combat. Past directors of the USAF nurse anesthesia educational program, as well as advisors to the surgeon general participated in the study. Other distinguished roles of those interviewed included Heads of Surgical Services, Chief Nurses, Academic and Clinical Instructors, Clinical Directors, and a Hospital Group Commander. These roles demonstrate the leadership positions and autonomous practice held by USAF CRNAs in the past. Many of these respondents had a great influence on the way USAF CRNAs are educated and practice today.

The participants' time in service (see Table 5) overlapped service periods. During these service periods respondents reported many different roles and areas of responsibility previously described. The time period most represented in the study was from the years 1966 to 1985. The depictions of educational backgrounds, roles and responsibilities, and assignments; based on the study findings, profiled the men and women who were influential as CRNAs in the USAF.

The contributions and achievements of USAF CRNAs were apparent in the evolution of anesthetic delivery techniques as revealed in the interviews. Technically, the administration of anesthesia has changed dramatically. All of the respondents reported adapting to the use of new and better techniques in airway management, volatile agent administration, the use of advanced monitoring and patient safety devices.

Anesthetic agents evolved over time from the predominantly use of volatile agents to the availability of newer, more stable anesthetic agents and administration techniques. For example,

one participant revealed the often-primitive conditions under which one must work while in a deployed setting, that highlighted not only technical innovation, but autonomous practice as well.

"[I administered} Open drop halothane on the floor of a Buddhist temple". (Respondent E, 1961 – 1985)

Other statements reflected the dramatic changes experienced during anesthesia's development.

"We did all sorts of things, we did open drop ether, vinyl ethane ether. We were not allowed to intubate unless it was really necessary for the type of procedure, another reason was so you could maintain ... good strength in their arms so you could truly manage their airway" (Respondent I, 1957 – 1980)

"I can remember doing neuro cases – turned on their sides, no tube under Trilene" (Respondent I, 1957 – 1980)

"We had cyclopropane which was flammable and explosive" (Respondent F, 1971 – 1989)

Volatile anesthetic availability and administration techniques have become safer by becoming less flammable and decreasing the risk of aspiration with the use of cuffed endotracheal intubation. The exposure of the CRNA and surgical staff to volatile anesthetics has decreased with the phasing out of the open drop technique.

In earlier years, many new monitors were considered a luxury and needed a special justification for their use. These monitors are now standards of practice. Pulse oximetry was

unavailable prior to the mid-80s. All clinicians however knew the value of “hands-on” patient assessment in the absence of specialized monitoring.

“I was so used to using an ear piece. I relied on an ear piece for years and years and years, and I probably got away for it in adults when I started using pulse oximetry ...”

(Respondent H, 1982 – 1999)

“... One EKG machine for the whole OR” and “no ventilators” (Respondent I, 1957 – 1980)

“One techniques you may not have heard about is First Stage Ether – maintained the patient in a state of analgesia but they would be totally tuned into what was going on.” (Respondent I, 1957 – 1980)

“... We had one end tidal machine that was shared.” (Respondent D, 1958 – 1977)

“CO₂ monitors were ... used basically on the neuro cases only, there was like one in the department” (Respondent A, 1982 – 2000)

“EKG monitors ... used needles to connect to [the] skin” (Respondent F, 1971 – 1989)

“When I was first doing anesthesia and that not every patient had a heart monitor. Of course, and we were not using CO₂ monitors until probably mid or later on in my anesthesia career, so you know these things evolved.” (Respondent J, 1963 – 1979)

These statements echo the commonality between the respondent CRNAs of changing availability of monitoring equipment. As new monitoring devices become available, as well as proven in their reliability, they eventually become the standard of care. The evolution of new anesthetic agents, the change from "pure" inhalational anesthetics to a balanced technique (volatile agents, narcotics, muscle relaxants and induction agents), the changes in availability of new pharmacology regimens, and the body of physiologic knowledge had all changed dramatically from the beginning to the end of the careers of those interviewed.

The commonalities of personal experiences found in the interviews were autonomy of practice, leadership and professional relationship "challenges". Discussion with these CRNA's uncovered many similarities with their careers and personal insights. All interviewed CRNAs were in leadership positions during their assignments. Several factors were attributed by these CRNAs placing them in leadership positions. Those factors included personnel assignments, nursing administration relationships, and anesthesia group practice models. Many of the respondents identified having served an assignment as the single anesthesia provider or one of two anesthesia providers for their facility. Some interviewees described their first assignment after graduating from certificate program,

"Was sent to Johnson AFB in Japan, which is now closed and it was a two anesthetist site. And there was one anesthetist there. She had been there two months by herself and right after I got there she took off." (Respondent I, 1957 – 1980)

"My first two years at Shilling AFB, I was the only provider and could only give ether and nitrous oxide and oxygen with muscle relaxants and the only two muscle relaxants that were available were d-tubocurare and succinylcholine ... including a

succinylcholine drip ...” (Respondent E, 1961 – 1985)

“I was in Hahn and was the only CRNA for about a year or so... If you are the only one you are on 24/7” (Respondent F, 1971 – 1989)

“And my first assignment, after completion of my anesthesia school and training, was to Portland International Airport in Portland, Oregon, to a 25-bed hospital. I was the sole anesthetist there for a period of three years, and following that assignment, I was assigned to San Pablo Air Force Base in Seville, Spain to a 25-bed hospital, and where I was one of two anesthetists.” (Respondent J, 1963 – 1979)

These autonomous roles entailed many sacrifices and required a high degree of self-reliance.

Another provider reports their overseas experience as,

“Well I gave anesthesia ... that was my primary duty because there was only two of us there in an active hospital, just giving anesthesia” (Respondent G, 1958 – 1977)

Autonomy of practice was required often by serving as the sole provider and assuming sole responsibility for anesthesia delivery, often in isolated or under austere conditions. The above statements gathered from the interview process evidenced autonomy of practice.

Professional relationships varied greatly in reporting between interviewees. Leadership manifested itself through advocacy of their duties and responsibilities as CRNAs. A common theme of communication was to break down barriers and misconceptions.

“Professional relations are exactly as you make them ...” (Respondent E, 1961 – 1985)

" I felt nurse anesthesia was not treated with the respect it should have been ... "

(Respondent B, 1985 – 2002)

"When I was not doing nursing or anesthesia, I would be doing nursing duty to supplement shortages on the wards. For a period of time, I was assigned to drawing blood in the lab. And for a period of time, it was my responsibility to be doing a dietary work, you know, for specialized diet. And the chief nurse there, you know, just made it her personal duty to make sure that when I was at work and not busy doing anesthesia that she kept me occupied the whole time." (Respondent J, 1963 – 1979)

"When I was at Shilling [Air Force Base], I reported in ... and the chief nurse of the base told me I would have work in pediatric nursing ... I got called up one night, just remember I was the anesthesia care provider there for two years, and I was up the entire night ... I was late [the next day] ...and I said to the colonel if you want me to work as a nurse you've got it and you've got me as a nurse and I'm not going to do anesthesia anymore..." (Respondent E, 1961 – 1985)

Many interviewees could point to both supporters of nurse anesthesia and colleagues with poor conceptions of the CRNAs's role and duties. However, no one indicated any system-level bias. All could nonetheless relate the different nuances of maintaining relationships with the nursing leadership under which they served.

" You had to work with the Chief nurse ... you had to be fairly tactful ... those folks have

not, at least not many of them, have a idea what goes on behind these doors in the OR”
(Respondent E, 1961 – 1985)

“It was important to keep good relationships within the nurse corps, even though you were a practitioner, you operated on the medical side of the house, and you are with medical providers – your OPR (evaluation) would go through the nursing side of the house, and you would also need the endorsement of the nursing side of the house, so without becoming too chummy, it still behooved you to get out and be visible and to get out of the OR to go down and offer your help with things. And again, I have spoke [with] friends about careers, not getting promoted and you ask them - they isolated themselves many times ...” (Respondent H, 1982 – 1999)

These quotes exemplify another uniqueness of the CRNA. The uniqueness of the CRNA profession is that of having a foot in two different worlds - one foot in the world of the expert clinician and the other foot in the world of the nurse corps.

Throughout the early USAF nurse anesthesia history, many within the nurse corps' administration appeared misinformed or ambivalent about the capabilities and exacting responsibilities of CRNAs. An interviewee relates,

“Members of the mainstream nurse corps did not fully understand what nurse anesthetists were going through ... basically I was told by a number of people that all a nurse anesthetist does was sit on their ass and turn dials and not do a whole heck of a lot more and go home early and come in late everyday ...” (Respondent E, 1961 – 1985)

Invariably this led to conflict and inefficient use of the nurse anesthesia provider. Two quotes from a provider highlight the “pull” between the two worlds of the CRNA as described above.

“What bothered me the most was the bureaucracy ... the higher you get it seemed like, ... you’d see more stupidity, in my mind’s eye anyway ... ” (Respondent I, 1957 – 1980)

“We bumped heads a bit but had a great relationship” (Respondent I, 1957 – 1980)

Statements from the discussions support the observation in the history of nurse anesthesia that misunderstandings and misconceptions existed between CRNAs and Air Force nursing administration.

Discussion

When this research is compared to the body of literature that was found on USAF similarities and differences were found. Banker’s Watchful Care: A History of America’s Nurse Anesthetists supports the technical advances that continue today in the field of anesthesia. This research mirrored technical advances noted from the literature. The USAF CRNA website section on History of Nurse Anesthesia in the USAF included in the Wright-Patterson Medical Center Home Page makes note of the themes of CRNA autonomy and expertise. The autonomy and clinical skill of CRNAs is supported by this study as well, making CRNAs critical to the success of the USAF mission. Very few personal experiences or histories have been recorded concerning this specialized group of nurses. Furthermore, no comparisons or search for commonalities among USAF CRNAs were uncovered. This research added to the scant body of

information that existed on this very specific population of CRNAs. Our study provides documentation of personal experiences and a systematic analysis of this group of respondents.

Findings from this study cannot be generalized due to the small number of past Air Force CRNAs taking part in the study. Those CRNAs interviewed represented the years from 1954 to 2003. However, the predominant time period was from 1966 to 1985, potentially over-representing this twenty-year period. Another recognized limitation is the possible unwillingness by interviewees to share negative experiences, which may have benefited the study. Interviewees may have forgotten some aspects of their nurse anesthesia experience due to a lengthy time lapse. Some questions may have been more meaningful to some respondents than other respondents, stimulating different memories. Representation in the sample was not equal for all past CRNAs who had served in the USAF. This is because all CRNAs who served in the United States Air Force did not have an equal chance to participate in the study due to the sampling strategies.

Future studies should evaluate current relationships and perceptions between CRNAs and the USAF Nurse Corps. Surveys could be conducted to evaluate the current knowledge and attitudes of nursing administrators about the roles and responsibilities of CRNAs. These findings could help educate these leaders of the role of the CRNA.

New exploration could be conducted to compare present relations with CRNAs and other professional groups. Examination of current practice models of CRNAs in the USAF may confirm the autonomous practice and leadership role evidenced by this research. USAF CRNAs should evaluate trends in technological advances in the accomplishment of the USAF mission. New equipment and technical application can be assessed for application in different theatres.

Conclusion

Our results establish the commonality of experiences in career, professional relationships and the evolution of anesthesia practice with the study respondents. This influential group of men and women was described in this research by education, roles fulfilled and years of service as CRNAs in the USAF. In the history of CRNAs in the USAF, their contributions included incorporation of advancing technological and changes in anesthetic administration, pharmacology and monitoring. As summarized by one participant,

"To be very, very general about it ... there has been one heck of a lot changes in anesthetic ... pharmacology as well as techniques ... not to mention the knowledge of physiology and pharmacology." (Respondent E, 1961 – 1985)

This study revealed commonality of personal experiences among all the respondents. A common experience included aspects of autonomous practice in the administration of anesthesia. Those CRNAs interviewed also faced challenges with colleagues who had an incomplete understanding of the roles and responsibilities that are endemic to anesthesia practice. The pressures and conflicts from those outside nurse anesthesia proved to be an obstacle that early CRNA's had to negotiate. Our study supports that the vital components in completing the mission of CRNAs in the USAF includes leadership and independent practice, understanding and comprehension of CRNA function by the nurse corps and the continued evaluation of technological advances in anesthetic delivery.

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Table 1

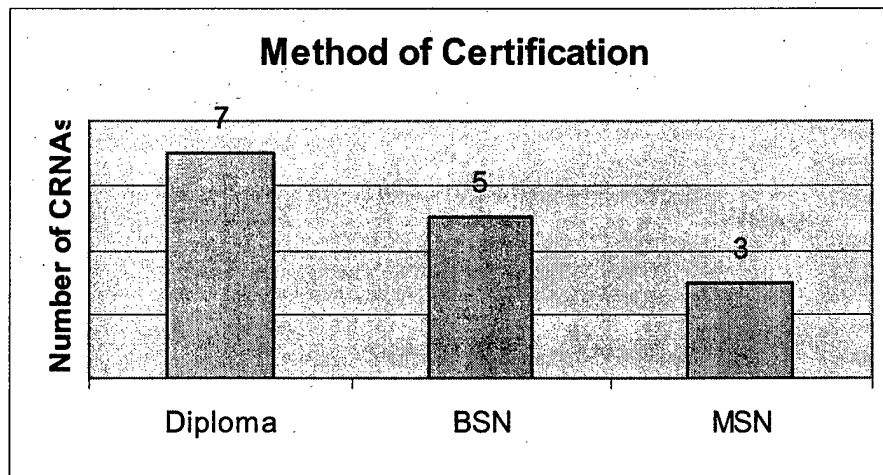
Novice	Inflexible	Rule-governed behavior
Advanced Beginner	Marginally acceptable performance	Relies on basic theory and principles
Competent	Aware of long-range goals Engaged in planning	Feeling of mastery, efficiency, & organization Ability to cope with contingencies
Proficient	Perceives situations as wholes	Uses maxims as guides Recognizes implications of instructions
Expert	Intuitive grasp of situation	Zeros in accurately on problem without wasting time with unfruitful alternatives

Benner's description of the novice to expert progression in patient care experiences.

Table 2

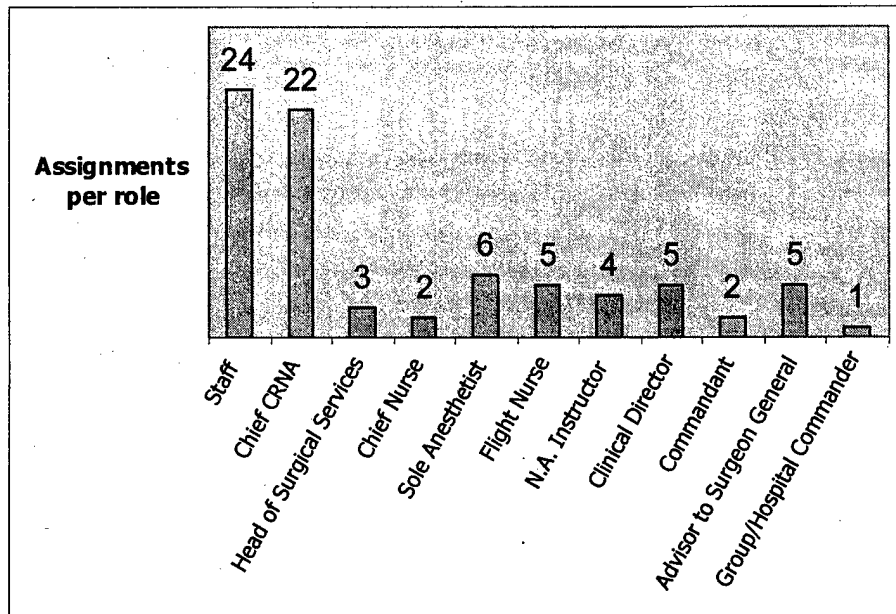
1. What were your age and dates of service in the USAF as a nurse anesthetist?
2. Can you describe your educational and certification experience to become a CRNA?
3. Can you describe your assignments while on active duty?
4. How would you describe your Air Force service experience?
5. Can you describe your significant professional relationships during active duty?
6. What roles did you fill as a CRNA?
7. How did anesthetic techniques change during your active duty service?
8. Is there a particular case or incidence that you would like to share?
9. What do you think your biggest contribution to Air Force as an officer or CRNA was?
10. What was the most difficult experience you would like to share as a CRNA in the Air Force?
11. What was the most rewarding experience you would like to share as a CRNA in the Air Force?

Open ended interview questions for establishment of a focused guide to explore commonalities in roles, techniques and professional relationships of USFA CRNAs.

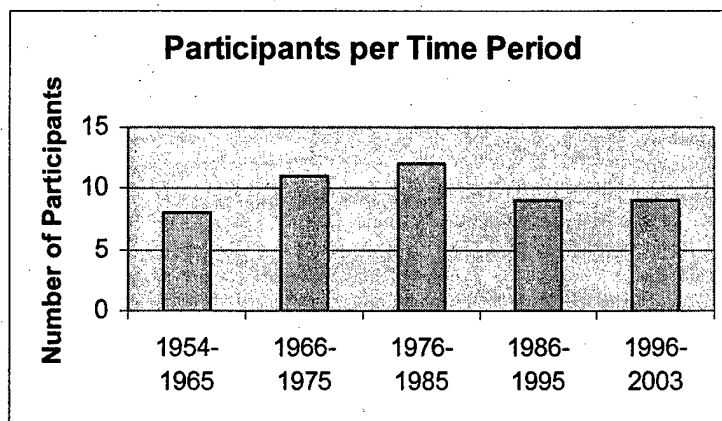
Table 3

Educational background of USAF CRNA participants. Highest degree held.

Table 4



Roles held by CRNA participants during their career.

Table 5

Time period CRNA participants were on active duty in the USAF.