

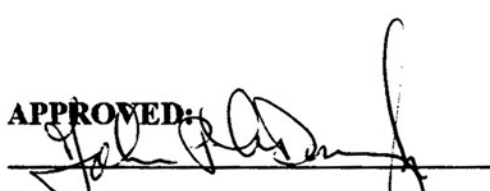
**PATIENT KNOWLEDGE OF ANESTHESIA:
DO POST-OPERATIVE PATIENTS
KNOW IF THEIR ANESTHESIA
WAS ADMINISTERED BY A
CERTIFIED REGISTERED NURSE ANESTHETIST
OR AN ANESTHESIOLOGIST?**

Presented

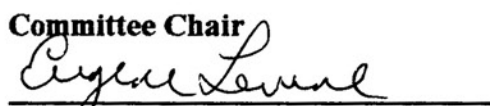
by

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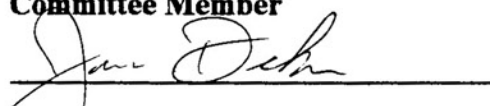
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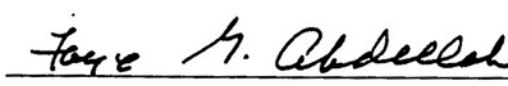

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**Patient Knowledge of Anesthesia:
Do Post-Operative Patients
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was Administered by a
Certified Registered Nurse Anesthetist
or an Anesthesiologist?
Jeffery W. Moore, M.S., R.N.**

Abstract

The purpose of this study is to provide a baseline measurement of patient's knowledge of who provided their anesthesia. The general public may be unaware of the existence of nurse anesthesia as a profession. Failure of patients to identify Certified Registered Nurse Anesthetists as an option for the provision of their anesthesia has negative consequences for both the patient and anesthetists as a profession. The patient's fundamental right to choose the type of anesthesia provider administering anesthesia care has been explored in this study. The adverse effects of patient's lack of knowledge relative to nurse anesthetists is also presented. A convenience sample of 50 post-operative and post-partum patients requiring anesthesia care in a medium-sized military medical facility was surveyed to determine the extent of their knowledge about which type of anesthesia provider (Certified Registered Nurse Anesthetist or Anesthesiologist) administered their anesthesia. Four subjects received their primary anesthesia care from physician anesthesiologists and 46 from nurse anesthetists. Three of the four receiving care from an anesthesiologist accurately identified their provider. Of the 46 subjects receiving anesthesia care delivered by nurse anesthetists only seven accurately identified their provider (15.3%). The results clearly indicate a lack of patient knowledge about the type of provider is administering their anesthesia.

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Chapter 1

Patient Knowledge of Anesthesia:

Do Post-operative Patients

Know if Their Anesthesia was

Administered by a Certified Registered Nurse Anesthetist

or an Anesthesiologist?

One of the oldest nursing specialties is that of anesthesiology. Sister Mary Bernard emerged as the first identifiable nurse anesthetist in 1877 (Bankert, 1989). Currently more than 25,000 Certified Registered Nurse Anesthetists (CRNAs) administer nearly 65 percent of the anesthetics given each year in the United States and are the sole anesthesia providers in 85 percent of rural hospitals (Jordan, 1994). Due to the nature of anesthesia, nurse anesthetists are held to the same standard of patient care as their physician counterparts (Blumenreich, 1987). Throughout their long history, CRNAs have maintained this high standard of care as noted by Bechtoldt (1981), who found the incidence of patient deaths from anesthesia for nurse anesthetists and anesthesiologists to be similar. Although these facts attest to the vast input of nurse anesthetists as anesthesia providers and to the quality of their practice, the general public may be unaware of the existence of nurse anesthesia as a profession.

There may be many reasons for this lack of patient knowledge of Certified Registered Nurse Anesthetists as primary providers of anesthesia care. The sophisticated nature of anesthesia may result in patients falsely assuming that only physicians are capable of providing this service. Nurse anesthetists and anesthesiologists frequently dress alike, making it impossible for patients to determine who their anesthesia provider is based solely on outward appearance. Frequently, nurse anesthetists fail to include the word "nurse" in their initial contact with patients and instead introduce themselves as anesthetists or "from the anesthesia department" (Gray, 1994). Some patients also receive

their pre-operative assessment from a provider other than the individual who performs their actual anesthesia. This results in further confusion as to who the provider actually was.

Pre-operative anxiety is another factor which hinders the ability of patients to comprehend fully the information presented to them during the pre-operative period. A study of 60 pre-operative ambulatory surgery patients revealed decreased short-term memory, reduced response to the environment, and decreased cognitive processes in 25 percent of subjects studied (Nyamathi and Kashiwabara, 1988). Facing the prospect of surgery is an anxiety-provoking event which may limit the patient's ability to discern or remember the word "nurse" as part of the anesthetist's introduction even when it is properly presented.

Patient Rights

Failure of patients in the pre-operative setting to identify Certified Registered Nurse Anesthetists as an option for the provision of their anesthesia has negative consequences for both the patient and anesthetists as a profession. Patients may lose their fundamental right to choose the type of anesthesia provider for their case based upon ignorance of their options. Such rights are grounded in ethical principles of autonomy and humanity, and the social significance of individual choice in a democratic system (Avis, 1994)

Specifically, these rights are protected by the American legal system, the Joint Commission on Accreditation of Healthcare Organizations (JCAH), and the American Hospital Association. In Canterbury v. Spence and the Washington Hospital Center, a case brought against a physician and hospital which explored the sufficiency of a surgeon's pre-operative disclosure of risk the court stated, "Every human being, and thus every medical patient, of adult years and sound mind has right to determine what shall be done with his own body. Medical patient's true consent to what happens to himself is informed exercise of choice, entailing opportunity to evaluate knowledgeably the options available and risks attendant upon each. It is the prerogative of patient, not physician, to

determine for himself the direction in which his interests seem to lie."

More specific to the right of patients to know who their provider will be is the section of the Joint Commission on Accreditation of Health Care Organizations (JCAHO) Accreditation Manual entitled "Rights and Responsibilities of Patients" which states, "The patient has the right to know the identity and professional status of individuals providing service to him and to know which physician or other practitioner is primarily responsible for his care (JCAHO Manual, 1996)." The Joint Commission's manual should be viewed as a document with legal significance (Pozgar, 1993). "It would most likely be admissible as evidence in a case where the rights of the patient were concerned" (Pozgar, 1993).

The American Hospital Association's Patient Bill of Rights echoes this sentiment stating, "Each facility and physician within each facility has the duty to provide each patient with the opportunity for informed participation in all decisions involving that patient's health care program including "To ensure that all personnel wear name tags and to inform each patient of the identity and professional status of all those providing service, to ensure that all personnel introduce themselves to the patient, state their professional status and position within the facility, and explain their role in the health care of the patient."

Military facilities are not exempt from providing patients' with these fundamental rights. An example of the Patient's Bill of Rights and Responsibilities from a large military medical facility states, "You have the right to know always the identity, professional status, and professional credentials of your health care providers, including the provider primarily responsible for your care."

Thompson, Pitts, and Schwansky (1994) found that patients desire to be involved in decisions when they were considering important options they felt qualified to evaluate. When presented with the facts surrounding the provision of anesthesia care by nurses and

physicians, patients may feel qualified to decide which professional they prefer to administer their anesthesia.

Managed Care

Managed care systems are expected to be the prevailing form of care delivery in America's future (Packard, 1993). As a result, there has been a definite trend in making the patient more financially responsible for medical care services by increasing out-of-pocket expenses (Rosenstein, 1986). Patients may therefore be more inclined to evaluate their anesthesia provider based upon cost when all other things are considered equal. This inclination may possibly increase the desire for nurse anesthetists as primary anesthesia care providers.

The profession of nurse anesthesia suffers negative consequences when patients fail to recognize nursing's role in providing anesthesia. Professional recognition as anesthesia providers is an earned right granted solely and exclusively by the public (Foster, 1994). Society retains the right to deny recognition of any professional service provider at any time when those services no longer meet the needs, expectations, or standards of the public (Foster, 1994). If society as a whole fails to recognize the existence of a profession, it is possible for the members of that profession to lose their status and position to a competing group.

Provider Competition

It is no secret that competition for customers exists between nurse anesthetists and anesthesiologists. In Oltz v. St. Peter's Community Hospital, (1988) an anti-trust suit was brought by a nurse anesthetist against four anesthesiologists and a hospital claiming unlawful conspiracy among these providers and the local hospital to eliminate competition. The court ruled in favor of the nurse anesthetist stating, " A nurse anesthetist does not have the broad and extensive medical education that is required for an M.D. anesthesiologist; however, nurse anesthetists are clinically qualified to provide certain anesthesia services under the supervision of the M.D. performing the surgery.

Thus, nurse anesthetists may provide anesthesia services in direct competition with M.D. anesthesiologists."

As the health care environment changes, this competition may increase significantly. Several factors contribute to the competition between nurse anesthetists and anesthesiologists. One is the projected increase in medical school graduates. There are 615,000 physicians in the United States today, and the number is expected to rise to 800,000 by the year 2020 (Gunn, 1994). This increase in physicians, many of whom may select anesthesiology, as a specialty further emphasizes the need for CRNAs to market their long history of providing quality patient care and the significance of their contributions to anesthesia care throughout the United States as a means of ensuring their viability as a profession.

Another factor enhancing competition between providers is the recent slowdown in the medical labor market. "In the past few years market forces have put the squeeze on anesthesia, starting with a moderation in surgery volume. HMOs and other managed care plans have responded by nudging down surgery and hospitalization rates for their members" (Anders, 1995).

Hypothesis

It is hypothesized that many patients do not know if their anesthesia provider was a Certified Registered Nurse Anesthetist or an Anesthesiologist.

Purpose

The purpose of this study is to obtain a baseline measurement of patients' knowledge of who provided their anesthesia. The information gained through this study can be used in future studies to compare the success or failure of interventions aimed at increasing patients' ability to identify which professional is administering their anesthesia.

Operational Definitions

Post-operative patients: Patients who have undergone an operative procedure requiring the provision of anesthesia by a certified registered nurse anesthetist or

anesthesiologist.

Included in this population are post-partum patients who received epidural anesthesia prior to delivery. Patients from the inpatient setting and outpatient surgical patients have been included in this study. No patients requiring emergency surgery were included if they were consciously unable to interact with their anesthesia provider prior to surgery. Patients who have previously interacted with their anesthesia provider, either on a social or professional level, were eliminated from this study to avoid skewing the data because of prior knowledge of a provider's profession.

Anesthesia: "Anesthesia is the art and science of rendering a patient insensible to pain by the administration of anesthetic agents and related drugs and therapeutic procedures" (Jordan, 1994).

In this study all forms of anesthesia including general, regional, spinal, and local combined with monitored anesthesia care were included if provided by either a nurse anesthetist or anesthesiologist. No anesthesia care provided by student nurse anesthetists or medical students was included in this study to avoid patient confusion in completing the post-anesthesia survey. Due to the possibility of more than one provider being involved in administering patient anesthesia, the one who maintains major responsibility for the patient's care will be considered the anesthesia provider.

Certified Registered Nurse Anesthetist: "A CRNA is a registered nurse who is educationally prepared and competent to engage in the practice of nurse anesthesiology" (Jordan, 1994).

The nurse anesthetists chosen for this study are active duty military anesthetists who have successfully completed the certification examination administered by the American Association of Nurse Anesthetists (AANA) Council on Certification of Nurse Anesthetists or its predecessor.

Anesthesiologists: Anesthesiologists in this study are physicians practicing anesthesia as a specialty regardless of board certification status. Physicians selected for this study

are also active duty military personnel who are administering anesthesia as their primary medical duties within the hospital utilized as the location for this investigation.

In summary, it is the fundamental right of patients to be offered choices relative to their patient care. In fact, patients prefer the opportunity to make choices which do not require them to possess advanced medical knowledge (Thompson, Pitts, and Schwankovsky, 1994). Many factors may prevent pre-operative patients from choosing their anesthesia provider including lack of knowledge of existing professions, pre-operative anxiety, confusion based upon dress or introductions made by anesthesia providers, and systems which facilitate confusion due to the fact that the provider completing the pre-operative assessments is not the one performing the anesthesia. This lack of knowledge hinders the patient's fundamental freedom of choice in deciding which professional will administer the anesthesia and may compromise the future viability of nurse anesthesia as a profession, as a result of public ignorance of the quality and extent of the services of a nurse anesthetist in an era of increased competition with anesthesiologists.

Chapter 2

Theoretical Framework

Imogene King's Theory of Goal Attainment is applicable to this study. This theory deals with the central questions of interactions between nurses and clients (Meleis, 1991) which encourages active client participation in mutual goal-setting, decision-making, and interactions to achieve the mutual goals in relation to health care (Porteus and Tyndall, 1994). King's theory is based upon explicit and implicit assumptions related to patient participation in health care. The first explicit assumption applicable to this study portrays the individual as a social, sentient, rational, reacting, perceiving, controlling, purposeful, action-oriented, and time-oriented being (Meleis, 1991). This assumption emphasizes the individuals inherent need to accurately perceive their environment and to exercise some control over circumstances that will effect the individual's health care. This need is partially met by the study's second implicit assumption which pertains to obtaining information.

King's second explicit assumption states, "Human beings as patients have rights to obtain information, to participate in decisions that may influence their life, health, and community services, and to accept or reject care" (Meleis, 1991). This assumption places clear emphasis upon the patient's right to make informed decisions. Patients who are not aware of the availability of a nurse anesthetist as an anesthesia provider are limited in exercising this right.

The third relevant explicit assumption presented by King is that of the responsibility of health care members to inform individuals of all aspects of health care to help them in making "informed decisions" (Meleis, 1991). Patients who are not fully aware of their options related to anesthesia providers are clearly not receiving the full benefit of this assumption. It is therefore important to identify the degree to which patients are lacking

the necessary information to make "informed decisions," such as who will provide their anesthesia, as a prerequisite to correcting deficiencies in patient knowledge.

King also presents two implicit assumptions in her Theory of Goal Attainment. The first is that patients want to participate actively in the care process. This assumption was reinforced in the study performed by Thompson, Pitts, and Schwansky (1994), which found patients desire to be involved in decisions relevant to their care when they felt qualified to do so. This author feels that all patients would be qualified to decide on their anesthesia care giver if given adequate information.

Finally, King assumes patients to be conscious, active, and cognitively capable of participate in decision making (Meleis, 1991). This assumption further enhances the role of the patient in making decisions which impact their care. Assuming these qualities exist in our patients requires anesthesia providers to ensure that pre-operative patients are fully informed of their right to choose their anesthesia provider when this opportunity exists in the medical treatment facility.

In summary, the pre-operative patient has the right to make "informed decisions." According to King, it is necessary for patients to be fully informed of their health care options as a requirement for reaching health care goals. It is important for health care providers to present information necessary for patients to make these decisions. Anesthesia caregivers have a role in ensuring patients have the benefit of choice of provider when that opportunity exists, by fully informing the pre-operative patient of the right to choose providers as a means of allowing patients to exercise control over their care. The assumptions inherent in this Theory of Goal Attainment are relevant to this study due to the expected lack of patient understanding of their choice of anesthesia care provider and the possibility of correcting this lack following identification of the current patient knowledge deficit.

Literature Review

The significance of this study is highlighted by the limited amount of previous research done in this area. A review of the literature reveals only two previous studies remotely related to this topic. The first is specific to baccalaureate nursing students and their knowledge of anesthesia as a career choice. The second study reports multiple areas of patient knowledge about anesthesia during their peri-operative period, including knowledge of who provided their anesthesia. This study was completed in a British hospital where only "physician anesthetists" are utilized as anesthesia providers.

Lebeck (1992) surveyed 272 Bachelor of Science in Nursing (BSN) students attending two universities. The survey included 20 questions regarding knowledge of the role, practice, educational requirements, legal responsibility, and employment opportunities of nurse anesthesia. Seventy-six percent of the students surveyed indicated there was little or no information offered about nurse anesthesia within their BSN program. Only 17 percent of the students surveyed were considered to possess adequate knowledge of nurse anesthesia as a career choice. When a group of students enrolled in a program that is a prerequisite of nurse anesthesia cannot adequately identify anesthesia as a career choice, it is likely that the general public will also be lacking in knowledge of the existence of certified registered nurse anesthetists.

The second study, completed by Hume and Kennedy (1994), surveyed 166 pre-operative patients presenting for surgery in a Glasgow hospital. About 23 percent did not know that their anesthesia provider was a physician even though only physicians provide anesthesia in this country. The results of this study further indicate a need for identifying the degree of patient confusion regarding provider identification as a baseline for measuring outcomes of interventions to eliminate public confusion and enhance the professional status of nurse anesthetists.

These two studies emphasize the need for assessing patient knowledge of their anesthesia provider. The cornerstone of patient choice is the provision of adequate information necessary for the patient to make "informed" health care decisions. Not only are patients lacking the knowledge to decide who will provide their anesthesia, as identified by Hume and Kennedy, but a significant deficit in knowledge about nurse anesthesia providers exists among students who should be aware of anesthesia as a career choice.

Chapter 3

Methodology

Introduction

It is important that patients are well informed about their intended surgery. Reliable information helps prepare patients for their surgery and anesthesia (Egbert, Battit, Turndorf, and Beecher, 1963). This study is intended to provide a quantifiable baseline of patient knowledge about which type of provider administered their anesthesia. Future studies testing specific interventions toward enhancing patient knowledge of anesthesia provider may then use the results of this study to assess outcomes.

Instrumentation

A multiple choice questionnaire was developed as the data collection tool (see Appendix B). Demographic information includes patient age, sex, occupation or previous occupation if retired, education, and type of surgery. Occupation information solicited may be useful in determining any significant differences in patient knowledge between persons surveyed who are or have previously worked within the health care setting and those who never have been employed in this setting. A discriminating question relevant to patient knowledge of their anesthesia provider on a personal or professional level is included to identify patients who responded positively. Study participants are also asked about their knowledge of who conducted their pre-operative interview and assessment and which type of provider administered the anesthesia. A possible potential relationship between accuracy of patient knowledge and frequency of interaction with a specific provider prompted the author to ask both of these questions. Questions regarding the length of time since the most recent surgery and whether they have had previous surgeries are included to assess the relationship between frequency of interacting with anesthesia providers and ability to identify correctly the anesthesia

specialist. Finally, a visual analogue scale is provided for the participant to note satisfaction with anesthesia care received.

To prevent taxing post-operative patients with a lengthy form, the questionnaire was limited to one page in length. Completion required five to ten minutes. The questionnaire was tested for content validity through review by members of the thesis committee comprised of two experienced certified registered nurse anesthetists and a research consultant. "Experts in the content area are often called upon to analyze the items to see if they adequately represent not only the content universe or domain, but also the correct proportions" (Shelley, 1984). A readability level of four has been calculated for this instrument using the Fog Index method (Burns & Grove, 1993). A possible weakness in this survey lies in the fact that no reliability measures have been established for this instrument.

Data Collection Procedures

A pilot study was completed on five post-operative patients to ensure the questionnaire can be easily understood and to give the researcher experience with the subjects, setting, methodology, and amount of time required for completion. No problems were identified. Subjects indicated no difficulty understanding the questions. Completion time was five to ten minutes.

The sample population was surveyed in their post-operative period or during their post-partum stay if anesthesia was provided. Patients who underwent outpatient surgical procedures were surveyed immediately prior to discharge by the researcher or a staff member assigned to the Ambulatory Surgical Unit. Staff members willing to participate in this study underwent a briefing relevant to the purpose of the study and surveying techniques prior to administering questionnaires to patients.

There were no risks to the study participants. Written consent was given by all participants to the researcher or staff member prior to the administration of the questionnaire (see Appendix C). Patients were informed that they might withdraw from

the study at any time or refuse to participate without jeopardy to themselves. Results of this study will be made available to participants upon request (see Appendix C).

Inpatients were surveyed at a time deemed convenient to them. All patients received verbal instructions prior to receiving the questionnaire and were presented with the option to refuse to participate. Only patients described in the previous sample section were solicited for participation and were assessed to be fully alert and oriented prior to completing the questionnaire.

Patient confidentiality was maintained through eliminating names from completed questionnaires. Consent forms requiring signatures were separated from the questionnaires immediately following completion of the survey and were filed separately from the responses. Only the last four numbers of participants' or military sponsors' social security numbers or the inpatient hospital number was used for identification. No other personal information was solicited that could identify the patient. The use of the last four numbers of the social security number is necessary for locating medical records in the hospital's filing system in order to link survey results with anesthesia records. Completed questionnaires remain in the custody of the researcher or under the control of participating surveyors in the Ambulatory Surgical Unit at all times.

Following completion of the questionnaire, anesthesia records for each patient were reviewed. The accuracy of patient responses was determined based upon a comparison of responses with the completed anesthesia record and pre-operative interview and assessment form. The signatures of the provider on each form were compared to a list of practicing certified registered nurse anesthetists and anesthesiologists in the hospital to assess which type of provider conducted the interview and which type administered the anesthesia.

Research Design

Data collected was analyzed descriptively (Burns and Grove, 1993). Relationships between demographic variables including age, sex, occupation, education levels, type of surgery, and the percent of survey participants correctly identifying their provider were assessed for statistical significance. Differences between patient's accurate identification of nurse anesthetists and anesthesiologists as providers were also analyzed for statistical significance. Type of anesthesia provided, (general, spinal or epidural, and regional) was compared to accurate patient identification of provider to assess the relationship between surgery type and accuracy of provider identification. The ability of patients to identify correctly which type of provider performed their pre-operative interview and assessment was also evaluated. Finally, the relationship between patients' previous surgical history, (presence or absence of past surgeries and length of time from last surgery and surgery being studied) and ability to identify accurately the anesthesia provider were analyzed.

Patients were asked to record their satisfaction with their anesthesia care on a visual analogue scale. Subjects were asked to place a mark through the scale to indicate intensity of feelings regarding overall anesthesia experience, using a ruler to measure intensity. Participant's ratings were aggregated to obtain the average satisfaction of the total sample with their anesthesia care.

Limitations

The greatest limitation to generalizing the results of this study is the lack of definitive data on reliability and validity of the tool used due to no prior experience with this questionnaire. Another limitation is the use of a military facility for surveying patients. It is possible that this population is generally more aware of the status of their provider based upon a closer relationship with their medical system. Also, the small number of subjects surveyed limits generalizing the study results.

Summary

A convenience sample of post-operative and post-partum patients presenting for anesthesia care at a medium sized military facility was surveyed to assess accuracy of their knowledge about which type of provider administered their anesthesia. A questionnaire was developed as the data collection tool. Data analysis utilizes descriptive statistical techniques. Limitations to this study include lack of definitive data on reliability and validity of the data collection tool and limitation of the sample to a small number of subjects in a single military installation.

Chapter 4

Results

Demographics

Following approval from the Institutional Review Board (see Appendix A), a convenience sample of patients requiring anesthesia for surgery or vaginal delivery was selected. Fifty post-operative and post-partum patients who received general anesthesia (54%), spinal/epidural anesthesia (30%), or regional anesthesia care (16%) from a certified registered nurse anesthetist or anesthesiologist were included in the survey (Figure 1).

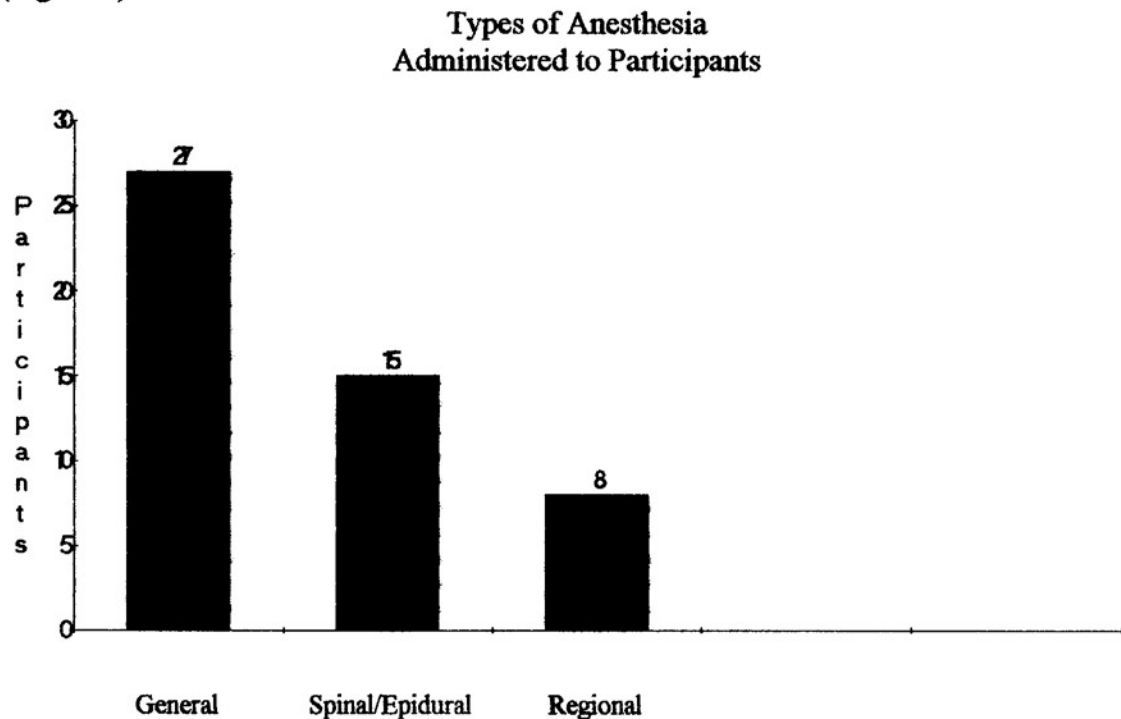


Figure 1. Breakdown of types of anesthesia administered to subjects by number of cases in the categories of general anesthesia, spinal/epidural anesthesia, and regional anesthesia

This sample was drawn from patients treated at a medium sized military medical facility. The sample consisted of twenty-seven males (54%) and twenty-three females (46%) (see Figure 2).

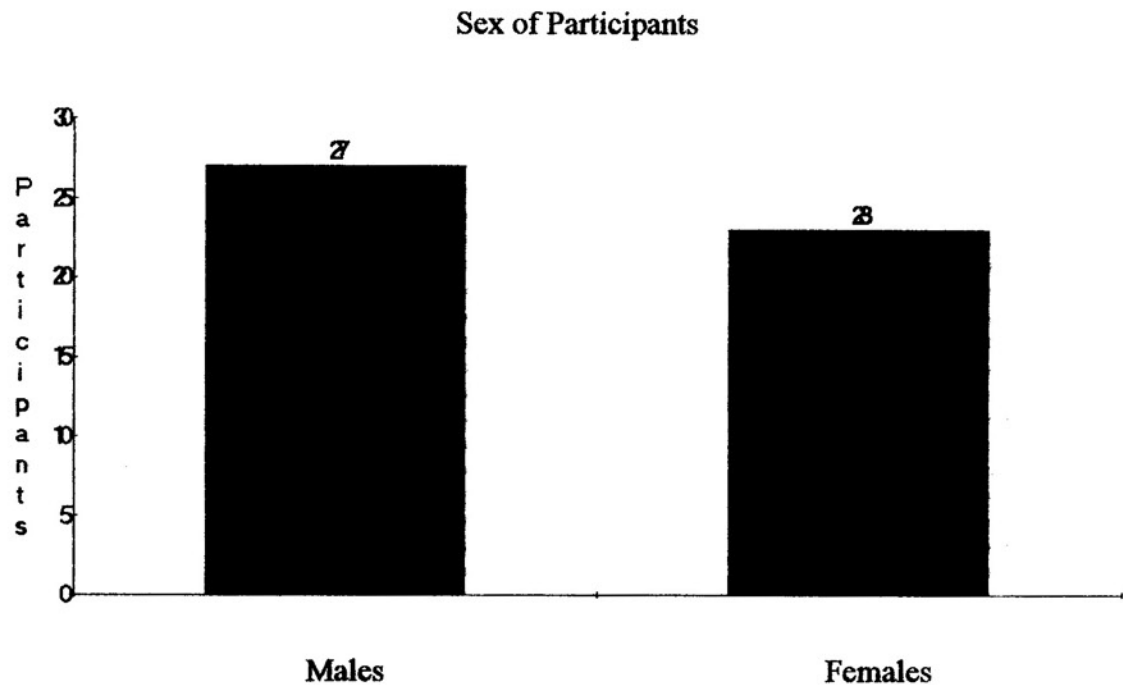


Figure 2. Breakdown of number of subjects; males vs. females.

Age of respondents ranged from 15 to 79 years Mean age was 48 years. Two parents of minor children undergoing surgical procedures requiring anesthesia were included in this study.

Education levels of the sample participants ranged from one with less than a high school education to one with a doctoral degree (see Figure 3).

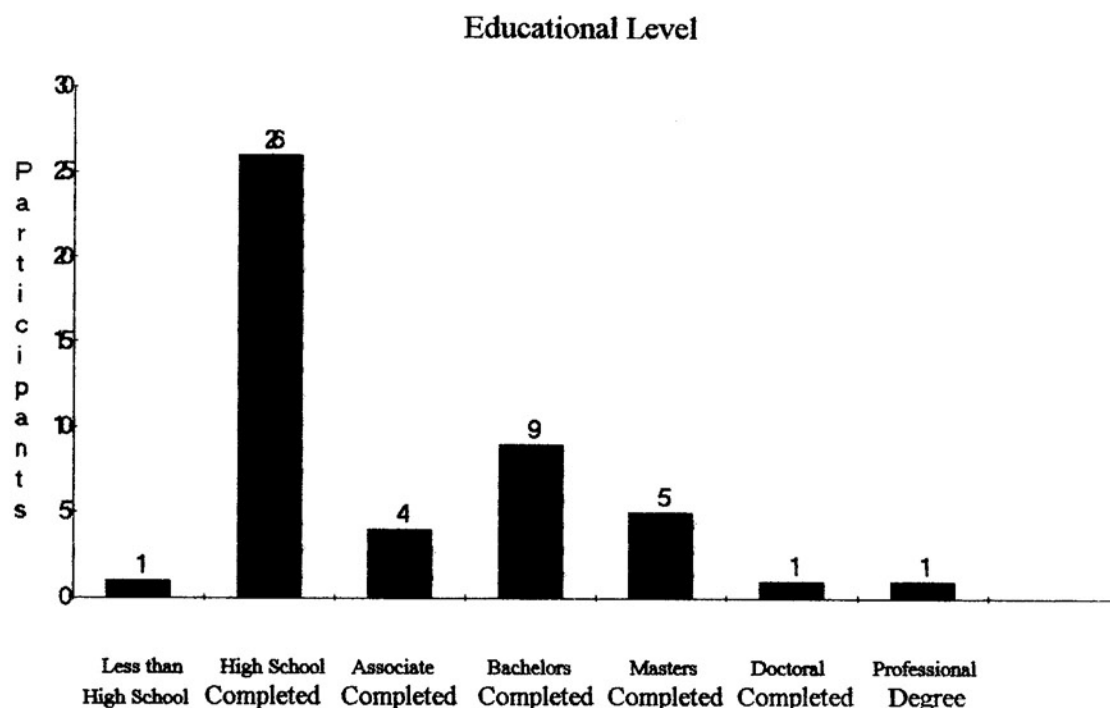


Figure 3. Categories of subject's level of education. Less than high school completed, high school graduate, associate degree completed, bachelor degree completed, masters degree completed, doctoral degree completed, professional degree completed.

Time since the respondent's last surgical experience was also solicited. The range is zero for those with no previous surgery to 56 years prior to the current surgical procedure.

Eighty-four per cent of the respondents had no prior surgical experience or had their last surgery within the past eight years.

Pre-operative history and physical examinations are performed by both anesthesiologists and nurse anesthetists in this facility. Ten subjects received their pre-operative assessment by an anesthesiologist (20%) and 40 from a nurse anesthetist (80%).

Occupations of subjects were categorized as health care oriented (physicians, nurses, dentists) or non-health care oriented. Three subjects (6%) were employed in a health care field while forty-seven (94%) were employed outside the health care field.

As seen in Figure 4, the three most common surgical procedures encountered by subjects were Orthopedic (34%), Obstetric/Gynecology (28%), and General (12%).

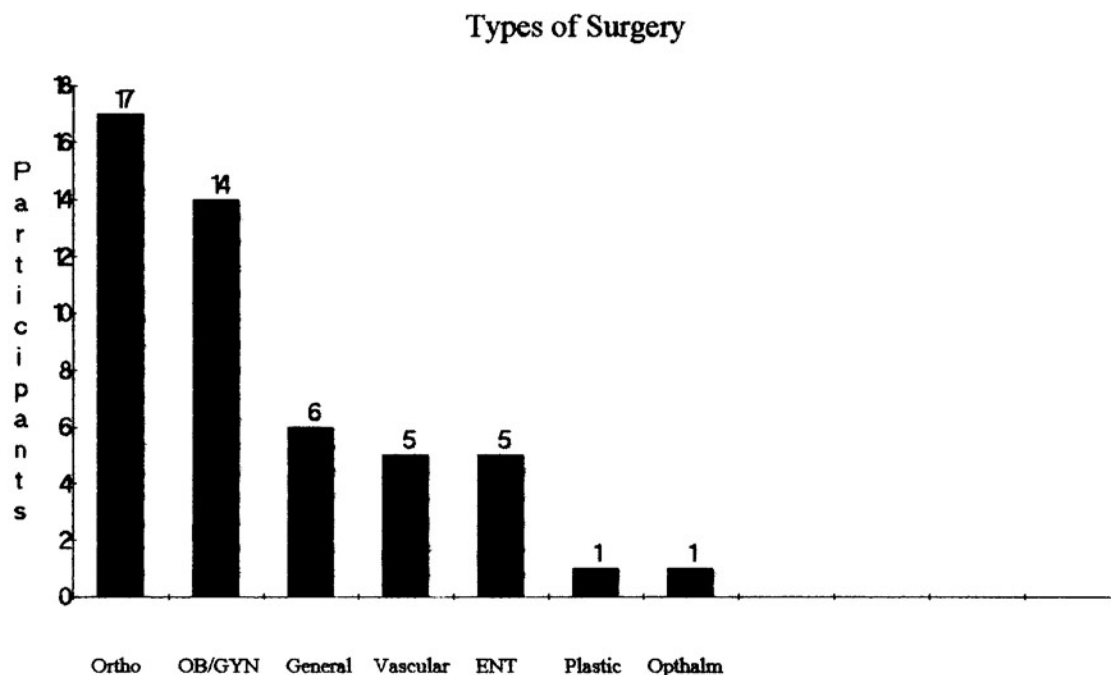


Figure 4. Breakdown of number of subjects in each surgical category. Orthopedic, Obstetric and Gynecological procedures, General surgical procedures, Vascular procedures, Ears, Nose, and Throat procedures, Plastic Surgery, and Ophthalmologic procedures.

Accuracy of Identification of Provider

Subjects who had prior knowledge of their anesthesia provider, either personal or professional, or who were too ill, had defective eyesight, or did not speak English were not included as subjects.

Fifty-two questionnaires were administered over a three month period. Two respondents indicated prior knowledge of their anesthesia provider on a personal or professional level and therefore were excluded from the study. Of the fifty subjects included in this study, four (8%) received their primary anesthesia care from a physician anesthesiologist. Forty-six (92%) of the subjects received their primary anesthesia care from a certified registered nurse anesthetist (Figure 5).

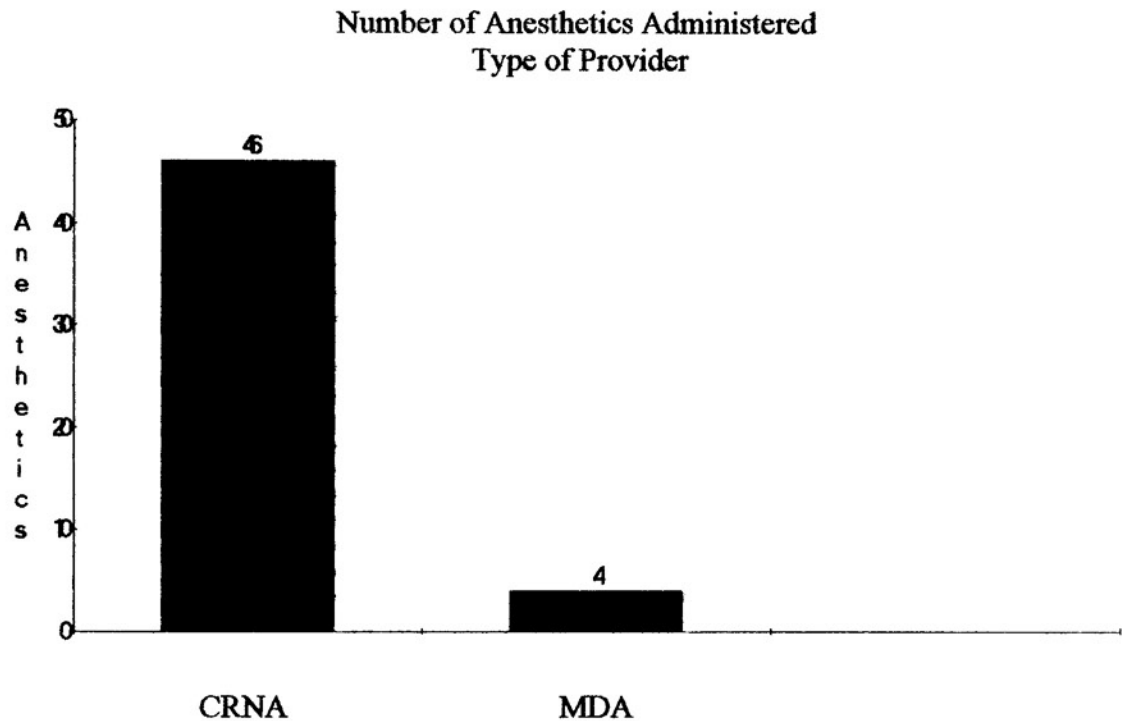


Figure 5. Breakdown of number of anesthetics administered by Certified Registered Nurse Anesthetists (CRNA) and Physician Anesthesiologists (MDA).

Of the four respondents receiving their anesthesia care from a physician, three accurately identified a physician as their anesthesia provider (75%). None of the participants incorrectly identified a certified registered nurse anesthetist as their provider when a physician administered their anesthesia. One respondent (25%) receiving anesthesia care from a physician didn't know if the provider was a physician or a nurse anesthetist.

Seven of the 46 subjects receiving their anesthesia care from a certified registered nurse anesthetist correctly identified their provider (15.3%). Twenty-three participants (50%) incorrectly identified their anesthesia provider as a physician anesthesiologist when their anesthesia had been administered by a nurse anesthetist. Sixteen (34.7%) of participants who received their anesthesia care from an anesthetist did not know if their anesthesia was administered by a certified registered nurse anesthetist or a physician anesthesiologist (Figure 6).

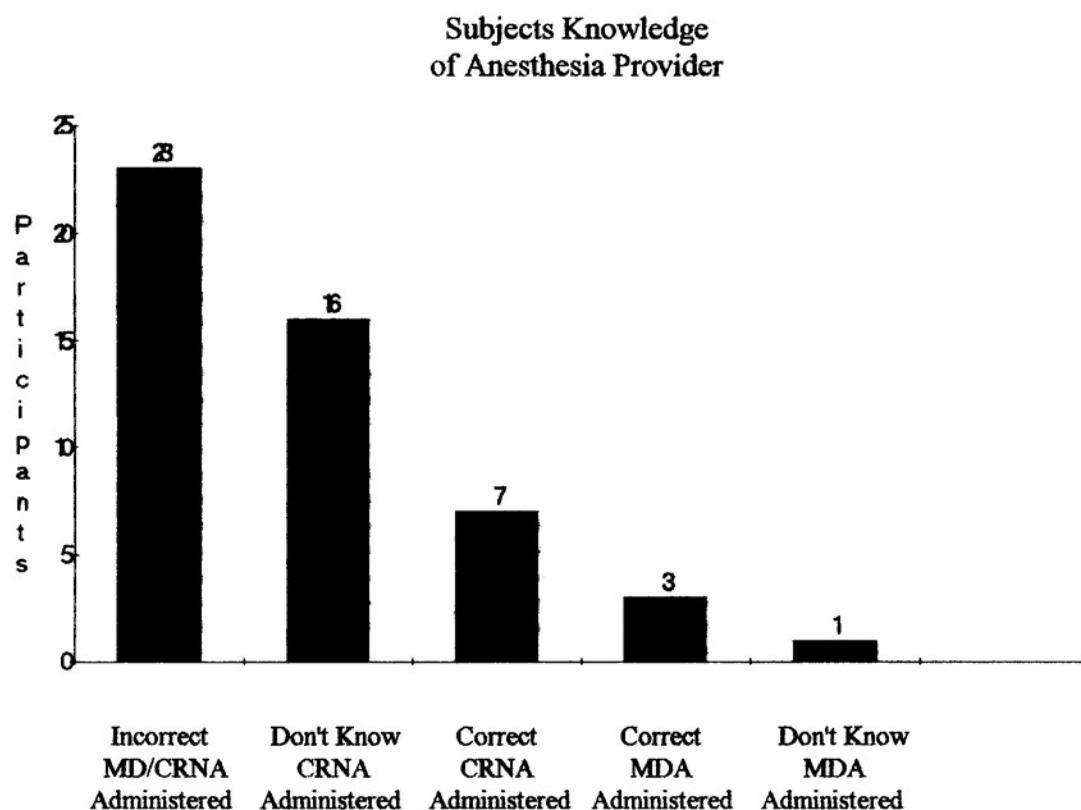


Figure 6. Categories of subjects' knowledge of anesthesia provider. Subject incorrectly identified nurse anesthetist as anesthesiologist, subject didn't know anesthesia administered by a nurse anesthetist, subject correctly identified nurse anesthetist as provider, subject correctly identified anesthesiologist as provider, subject didn't know anesthesia administered by an anesthesiologist.

Use of multiple regression and correlation analysis to analyze relationships among the variables of age, sex, education level, occupation status (health care vs. non-health care), pre-operative assessment provider, type of surgery, and type of anesthesia provided and accuracy of identification of provider did not reveal statistically significant relationship possibly due to the small number of respondents correctly identifying their provider.

The visual analogue scale (VAS) results indicate a high degree of satisfaction for subjects receiving anesthesia from either anesthesiologists or nurse anesthetists. Mean score for subjects receiving anesthesia from physicians (n=4) was 89.5 mm out of a possible 100 mm score (very satisfied). Range of scores are from 75 mm to 100 mm. Mean score for subjects receiving anesthesia from certified registered nurse anesthetists (n=46) was 94.7 mm out of a possible 100 mm score (very satisfied). Range of scores for this group is 51 mm to 100 mm (Figure 7).

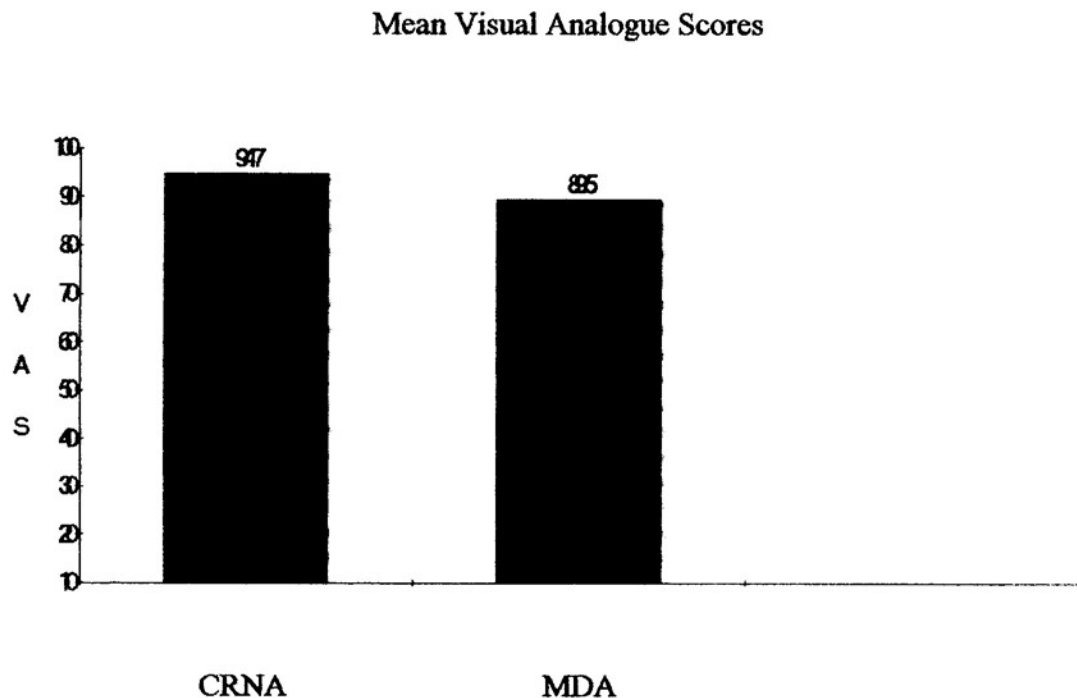


Figure 7. Mean anesthesia satisfaction scores obtained from subject's response (n=50) to a 100 millimeter visual analogue scale, Certified Nurse Anesthetists and Physician Anesthesiologists.

In summary, results of this study reveal a knowledge deficit of provider type in this population of post-operative patients. Participants' knowledge of nurse anesthetists as their anesthesia provider appears to be particularly lacking, 39 out of 46 respondents didn't know that a nurse anesthetist provided their anesthesia or mistook a physician as their anesthesia provider.

Subjects appear to be satisfied with their anesthesia care regardless of which anesthesia professional administered their anesthesia. The small number of anesthesiologists (n=4) prevents adequate assessment of the statistical significance of differences in mean satisfaction scores for anesthesiologists and nurse anesthetists.

Chapter 5 Discussion

Overview of Study

The pre-operative patient is an individual with the right to make "informed decisions" about the health care provided. Specifically, the right to know who is providing their care is protected by the American legal system, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and the American Hospital Association. Military facilities are not exempt from providing patients with this right. Anesthesia providers have a role in ensuring patients have the benefit of knowing who is going to provide their anesthesia care.

King's Theory of Goal Attainment emphasizes the right of patients as individuals to make informed decisions regarding their health care. According to Imogene King, it is necessary for patients to be fully informed of their health care options as a requirement for reaching their health care goals.

A limited amount of previous research done in the area of patient knowledge of anesthesia care is available. One previous study completed by Lebeck (1992) indicates a lack of knowledge about nurse anesthesia providers within a nursing student population. A second study of patients presenting for surgery in Glasgow, Scotland, by Hume and Kennedy (1994) reveals a knowledge deficit concerning anesthesia provider. In this study 23.3 percent of patients did not know their anesthesia provider was a physician even though only physicians provide anesthesia in Scotland.

Overview of Results

Results of this study indicate patients undergoing surgical or obstetrical procedures requiring the administration of anesthesia do not know the professional status of their anesthesia provider. Three of the four patients receiving anesthesia from a physician

anesthesiologist correctly identified their provider. However, the possibility of an accurate "guess" is suggested when this study revealed 23 of 46 (50%) subjects receiving their anesthesia from a nurse anesthetist incorrectly identified their provider as a physician.

Only seven of the forty-six subjects (15.3%) anesthetized by nurse anesthetists were able correctly to identify their provider. This inability to identify accurately their provider indicates a knowledge deficit related to differences in pre-operative teaching and informed consent.

In summary, only ten of the fifty subjects (20%) surveyed were able to identify accurately their anesthesia provider as either a physician anesthesiologist or a certified registered nurse anesthetist. In light of the frequent misconception that anesthesia provided by a nurse anesthetist was administered by a physician, even this number may be falsely elevated due to "guesses" by subjects receiving their anesthesia from physician anesthesiologists. The results of this study support the findings of Hume and Kennedy (1994) in describing a lack of ability of surgical patients to identify accurately their anesthesia provider.

Implications of Results in terms of Theory

The lack of patients' knowledge of the type of provider administering their anesthesia indicates an inadequacy in allowing patients to participate actively in decision-making. Individuals have a need to perceive accurately their environment and exercise some control over the circumstances that will impact upon their health care. The right to choose the type of anesthesia provider they want for their surgical procedure and their right to informed consent are cornerstones toward fulfilling these needs in individuals presenting for surgical care. The results of this study identify the lack of knowledge individuals have relative to their anesthesia provider which is reflected in their inability to make informed decisions. The identified knowledge deficit also indicates a deficiency in patients' ability to exercise control over their environment resulting from lack of

knowledge of provider's availability and capabilities. Fifty percent of respondents thought physician anesthesiologists administered their anesthesia when nurse anesthetists had been their primary anesthesia provider.

Implications for Future Research

Many implications for future research exist. The small number of subjects surveyed in this study indicates the need for replication in larger populations. The survey instrument used in this study was developed by the author and should be utilized in larger sample populations to enhance its validity and reliability. Surveying larger populations would also facilitate correlation of different variables such as age, sex, education level, type of surgery, time since previous surgery, and profession of the individual completing the pre-operative history and physical of the subjects.

This study was completed in a medium sized military hospital. Sample participants should be solicited from civilian populations to determine any differences in survey results. Subjects receiving surgical care in different sized facilities should also be surveyed to identify possible differences in results.

The small number of subjects correctly identifying nurse anesthetists as their anesthesia provider indicates a need for further research aimed at identifying interventions which would increase patient knowledge of anesthesia provider. Correlating the use of business cards or video tapes educating patients to the role of nurse anesthetists are examples of future research which may demonstrate methods which could increase patients' knowledge of nurse anesthetist's capabilities.

Research into subjects' knowledge of the role of nurse anesthetists would provide information concerning patients' perceptions of anesthetists as primary anesthesia providers. This could identify deficits in knowledge of Certified Registered Nurse Anesthetist capabilities. This type of research may be particularly important since findings of this study reveal 50 percent of sample participants mistakenly identified

anesthesiologists as their provider when they actually received their anesthesia care from nurse anesthetists.

Implications of Results in Terms of Practice

When presented with the facts surrounding the provision of anesthesia care by nurses and physicians, patients may feel qualified to decide which professional they prefer to administer their anesthesia care. Results of this study indicate a need for nurse anesthetists to improve their education of pre-operative patients regarding the existence of their profession, the capabilities of nurse anesthetists, and the right of patients to choose nurse anesthetists as their provider of anesthesia care. This is particularly important now that managed care systems are expected to be the prevailing form of care delivery in America's future (Packard, 1993). The trend to make patients more financially responsible for medical care services may increase the desire for patients to select nurse anesthetists as their provider when they are knowledgeable of the high quality of care they provide and the availability of their services.

It is no secret that competition exists between nurse anesthetists and anesthesiologists. Results of this study indicate a lack of patient knowledge of the existence of nurse anesthetists as primary anesthesia providers. Only seven of 46 subjects receiving anesthesia from a nurse anesthetist correctly identified a nurse anesthetist as their provider. If society as a whole fails to recognize the existence of a profession, it is possible for that group of individuals to lose their status and position to a competing group. To ensure the professional status of nurse anesthetists remains strong, it is important for this group to improve the level of knowledge of their quality of care, capabilities, and their existence among the general population.

Summary

The general public may be unaware of the existence of Certified Registered Nurse Anesthetists as a profession. Failure of patients to identify anesthetists as an option for

the provision of their anesthesia has negative consequences for both the patient and anesthesiologists as a profession.

The patient's fundamental right to informed consent and to choose the type of provider administering their anesthesia is in jeopardy. These rights, although guaranteed by the American legal system, JCAH, and the American Hospital Associations are not available to patients who lack the necessary knowledge required to choose between anesthesiologists and nurse anesthetists. The results of this study indicate a definite lack of knowledge in the area of options for the provision of anesthesia care.

According to Imogene King in her Theory of Goal Attainment, it is necessary for patients to be fully informed of their health care options as a requirement for reaching their health care goals. It is important for health care providers to present information necessary for patients to make these decisions. Anesthesia caregivers have a role in ensuring that patients have the benefit of choice of provider when that opportunity exists, by fully informing the pre-operative patient of the right to choose providers as a means of allowing the patient to exercise control over his/her care. This study identifies a problem in patients' right to exercise this control due to a lack of knowledge of their provider options.

Nurse anesthetists must research methods which may improve the knowledge of patients relevant to their existence as an option for the provision of anesthesia care. This is particularly important as a step towards protecting patients' rights, ensuring informed consent is achieved, and enhancing the credibility of Certified Registered Nurse Anesthetists as high quality providers of anesthesia care.

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Appendix A

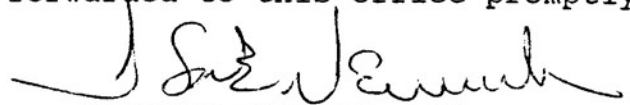
13 Jul 95

MEMORANDUM FOR Captain Moore

FROM: SGI

SUBJECT: Protocol Approval

1. At its 12 Jul 95 meeting the Institutional Review Board approved your study, "Do Post-Operative Patients Know If Their Anesthesia was Administered by a CRNA or an Anesthesiologist?"
2. You may begin your study. Please ensure all required reports including the final report are forwarded to this office promptly.

A handwritten signature in dark ink, appearing to read 'Isadore Neurock', is written over the printed name and title.

ISADORE NEUROCK, DDS
Director of Medical Education

Appendix B
SAMPLE SURVEY

Hospital number: _____

1. Age at last birthday: _____ 2. Sex: _____
3. Occupation: (If retired, occupation prior to retirement) _____

4. I have completed: 1. Less than high school. 4. Bachelor's degree
(Circle One) 2. High School 5. Master's degree
3. Associate Degree 6. Doctorate
Other: _____

Type of surgery: _____

Please circle the numbers below which apply to the anesthesia you received.

5. My pre-operative interview and assessment was conducted by:
1. An Anesthesiologist (Physician specializing in providing anesthesia)
2. A Certified Registered Nurse Anesthetist.
(Nurse specializing in providing anesthesia)
3. Don't know.
6. My anesthesia was provided by:
1. An Anesthesiologist
2. A Certified Registered Nurse Anesthetist
3. Don't know.
7. I knew my anesthesia provider on a personal level prior to my surgery.
(Interacted on a social or professional level)
1. Yes.
2. No.
8. The type of anesthesia I had for this surgery was:
1. General (Put to sleep during the surgery)
2. Spinal or epidural (Anesthetic administered in my back)
3. Regional: Part of my body was made numb (leg, arm, etc.)
9. I have had surgery requiring anesthesia before.
1. Yes. (If yes, how long ago was your most recent surgery? Years _____ Months _____)
2. No

Please draw a line crossing the following line to indicate how satisfied you are with your anesthesia.

Not Satisfied | _____ | Very Satisfied

Appendix C

This is to certify that you agree to participate in the research project conducted by Captain Jeffery W. Moore.

The study and its procedures have been approved by the appropriate people and review boards at Malcolm Grow Medical Center. This study involves no foreseeable risks or harm to you or your family. Your participation consists of completing a questionnaire relative to your understanding of the anesthesia you have received. Participation in this study will take approximately 10 minutes.

Your participation is voluntary; you are under no obligation to participate. You may withdraw at any time without jeopardizing your relationship with the health care team. You are free to ask questions and have received satisfactory responses.

The study data will be coded so they will not be linked to your name. Your identity will not be revealed while the study is being conducted or when the study is reported.

Completion of this study is anticipated in May 1996. For a copy of the abstract describing results of this study you may send a self-addressed stamped envelope to the following address: Captain Jeffery W. Moore

Uniformed Services University of the Health Sciences
4301 Jones Bridge Road, Box 899
Bethesda, Md. 20814-4799

Subject's Signature Date

I have explained this study to the above subject and have sought his/her understanding for informed consent.

Investigator's Signature Date