Statement Comparing Anesthesiologist Assistant and Nurse Anesthetist Education and Practice

Committee of Origin: Anesthesia Care Team

(Approved by the ASA House of Delegates on October 17, 2007, and last amended on October 25, 2017)

Anesthesiologist assistants and nurse anesthetists both are non-physician members of the anesthesia care team (ACT). Their role in patient care is described in the American Society of Anesthesiologists (ASA) "Statement on the Anesthesia Care Team." The ASA document entitled "Recommended Scope of Practice of Nurse Anesthetists and Anesthesiologist Assistants" further delineates the recommended and safe limits of clinical practice. These documents summarize ASA's view that anesthesiologist assistants and nurse anesthetists share identical patient care responsibilities, a comparable knowledge base, and comparable technical skills, a view in harmony with their equivalent treatment by the Centers for Medicare and Medicaid Services (CMS). The proven safety of the team approach to anesthesia when physician anesthesiologists work with anesthesiologist assistants and/or nurse anesthetists confirms the enduring wisdom of this view.

Nonetheless, differences exist between anesthesiologist assistants and nurse anesthetists with regard to educational program prerequisites, instruction, and requirements for supervised clinical practice. The purpose of this document is to review these for purposes of comparison, to summarize changes that have taken place in the respective curricula, and to assess their current and potential future significance.

1. Historical Background of Anesthesiologist Assistants and Nurse Anesthetists

    a. Nurse Anesthetists

The discipline of nurse anesthesia developed in the late 1800s and early 1900s. Few physicians focused their attention on anesthesia at that time, so anesthesia typically was given by nurses under surgeon direction. There was a recognized need for the development of formal education and training. The first formal nurse anesthesia program was founded at St. Vincent's Hospital in Portland, Oregon, in 1909. The first certification examinations were administered in 1945. A nursing diploma was sufficient for entry into nurse anesthesia programs until 1986, when the prerequisite was established for a bachelor's degree in nursing or a related field. By 1998, all programs were required to provide a graduate level of education, awarding a "Master of Science in Nurse Anesthesia" or MSNA degree. At that time, nurse anesthetists who had graduated from non-master's degree programs were "grandfathered" into the new system, and allowed to continue practicing without further graduate education. Once an accredited nurse anesthesia educational program has been completed, the graduate nurse anesthetist must pass a certification examination administered by the National Board of Certification and Recertification for Nurse Anesthetists (NBCRNA).

In 2007, the American Association of Nurse Anesthetists (AANA) adopted a position statement supporting further graduate education, and recommending that the entry to practice degree for nurse anesthetists be moved to the "doctoral" level by 2025. The degree to be awarded is the "practice doctorate", usually termed the "Doctor of Nursing Practice" degree (DNP) or the "Doctor of Nurse Anesthesia Practice" degree (DNAP). These "practice" or "clinical" degrees differ in rigor and requirements from the more demanding research doctorate (PhD) or the education doctorate (EdD), which are typically required for nurses who wish to ascend in academic rank. A nurse anesthetist with a master's degree may complete a DNP degree with as few as 32 credit hours of online coursework and no additional in-person educational requirement.

The Council on Accreditation of Nurse Anesthesia Educational Programs (COA) has stated that it will not accept any new master's degree programs for accreditation beyond 2015, and that students accepted into an accredited program after January 1, 2022, must graduate with the DNP or DNAP degree. As of July, 2016, more than 40 of the 115 nurse anesthesia programs have finalized the transition to offering a full BSN to DNP/DNAP program, and others are completing accreditation. These programs typically have extended their educational time requirement by six to 12 months, to a total of three years of full-time study or the part-time equivalent. Currently, 14 nurse anesthesia programs offer "completion" training, enabling nurse anesthetists with master's degrees to finish DNP/DNAP requirements. The curricula are described in more detail later in this document.

It appears clear that a chief objective in establishing the "practice" doctoral programs is to bolster the argument that nurse anesthetists should have the right to practice independent of any supervision, medical direction, or other involvement with a physician anesthesiologist or any other type of physician or dentist. Current controversies related to the question of whether nurse anesthetists should have the legal right to practice independently are the result of their history, tradition, philosophy of education, and political activism.

b. Anesthesiologist Assistants

The anesthesiologist assistant profession was established in the 1960s by three chairmen of academic anesthesiology departments: Joachim Gravenstein, MD, John Steinhaus, MD, PhD, and Perry Volpitto, MD. Concerned with the shortage of anesthesiologists in the US, they analyzed the tasks and skills required during anesthesia care and studied the educational pathway for physician anesthesiologists and nurse anesthetists. The result of this anesthesia workforce analysis was to introduce the formal concept of the anesthesia care team, and to define a new type of anesthesia practitioner whose work would always be linked with a supervising anesthesiologist. The three founders of the anesthesiologist assistant profession created a new educational paradigm for a master's degree anesthesia practitioner, emphasizing a premedical college background in science rather than in nursing. Their vision came to fruition in 1969, when the first training programs for anesthesiologist assistants began to accept students at Emory University in Atlanta, Georgia, and at Case Western Reserve University in Cleveland, Ohio.

Today, anesthesiologist assistant training programs are 24 to 28 months in duration, and the degree awarded is a Master of Science in Anesthesia or a Master of Medical Science. There are currently 11 anesthesiologist assistant educational programs accredited by the Commission for

Accreditation of Allied Health Education Programs (CAAHEP), all of which are associated with the anesthesiology department of a medical school and are directed by a board-certified physician anesthesiologist. The anesthesiology department must have the educational resources to qualify it to meet the criteria of the Accreditation Council for Graduate Medical Education (ACGME) for sponsorship of an anesthesiology residency program. Graduates or senior students in their last semester must pass a certifying examination administered by the National Commission for Certification of Anesthesiologist Assistants (NCCAA) in collaboration with the National Board of Medical Examiners (NBME).

Once fully trained, the anesthesiologist assistant fills the same clinical role as a nurse anesthetist, but shares a common practice philosophy with physician anesthesiologists and works exclusively with them. Anesthesiologist assistant education was designed to incorporate the basic principles supportive of the ACT. The founders recognized the advantages of a strong premedical background, and anticipated that some anesthesiologist assistants would choose to go on to medical school and careers as physician anesthesiologists. Thus by history, tradition, philosophy of education and personal preference, the anesthesiologist assistant is trained to work within the ACT under the supervision of a physician anesthesiologist.

2. Prerequisites for Entry

Nurse anesthetist schools admit baccalaureate-prepared students who have taken the science curriculum for general practice nursing, have current registration as a professional nurse, and have a minimum of one year of acute care experience. Some schools specify that the acute care experience must be in intensive care unit nursing; others permit emergency department experience to qualify. Some programs will not consider applicants with less than a 3.0 grade point average (GPA). Some programs require the Graduate Record Examinations (GRE) test for all applicants; some will waive it if the GPA is above a certain level, and some do not require the GRE for any applicant.

Anesthesiologist assistant programs require a bachelor's degree emphasizing premedical, science-based coursework and laboratory experience, including biology, general chemistry, organic chemistry, physics, and advanced college mathematics, with a GPA greater than 3.0. The required coursework is the same as that generally required by American medical schools. Prior health care experience is preferred though not required. Applicants must take either the Medical College Admissions Test (MCAT) or the GRE test.

There are two substantive differences between prerequisites for anesthesiologist assistant and nurse anesthetist education. Anesthesiologist assistants are not required to have clinical patient-care experience before they enter training. Nurse anesthetists are not required to have as comprehensive a background in basic science at the undergraduate level as the foundation for their clinical education. There is no objective evidence that either of these facts results in a detectable difference by the completion of training. The experience reported by physician anesthesiologists who work simultaneously with anesthesiologist assistants and nurse anesthetists is that there are no significant differences in skills, training, knowledge base, or clinical expertise.

3. Curriculum

For student nurse anesthetists matriculating on or after January 1, 2015, the minimum number of anesthesia cases required is 600, and the minimum number of clinical hours is 2000. These requirements have not changed for the programs that now offer the DNP/DNAP degree, nor is there any new didactic educational component. Experience with a minimum of 10 cases each is required for spinal and epidural anesthesia. The requirement for experience with peripheral nerve blocks may be satisfied in part by "simple models and simulated experiences"; the requirement for experience with placement of central venous catheters may be satisfied entirely with models and simulation.

The only respect in which the practice doctoral program differs from the traditional master's program in nurse anesthesia is in the requirement for a "substantial final written work product." Per the "Standards for Accreditation of Nurse Anesthesia Programs – Practice Doctorate", revised in June, 2016, this work product "may be in the form of a manuscript submitted for publication, a poster presented at a national meeting, design of innovative clinical practice model, or other effective means of dissemination. The structure and process of the scholarly work will vary according to the requirements of the governing institution and conform to accepted educational standards at the practice doctoral level."

For student anesthesiologist assistants, the minimum number of anesthesia cases required is 600, and the minimum number of clinical hours is 2000, the same as for nurse anesthetists. The requirement for regional anesthesia (unspecified) is the management and administration of 40 cases. There is a requirement for insertion of five central venous catheters, which cannot be satisfied by models or simulation. No change is anticipated in the fundamentals of anesthesiologist assistant education in the next five years, and there are no plans in process to consider implementing a doctoral program.

Anecdotally, training programs for anesthesiologist assistants and for nurse anesthetists vary in how much teaching and clinical practice students receive in regional anesthesia and in the placement of invasive monitoring lines. The decision to limit the teaching is based on the reservations expressed by many physician anesthesiologists about the safety of these techniques when performed either by anesthesiologist assistants or nurse anesthetists. The limitation on teaching is voluntary, consistent with ASA policy and with a view to patient safety. There is no evidence to suggest that the clinical abilities or technical skills of students in either profession limit their suitability for this aspect of practice. The ASA "Statement on Regional Anesthesia" allows for the supervising physician anesthesiologist to delegate, when appropriate, certain technical aspects of regional anesthesia procedures to a non-physician anesthetist.

It is noteworthy that the AANA-defined scope of nurse anesthesia practice includes services in acute, chronic, and interventional pain management, and the use of ultrasound, fluoroscopy, and other diagnostic technologies. However, there are no curriculum requirements currently in place to educate student nurse anesthetists in these modalities. In November, 2015, the AANA announced a partnership with Hamline University School of Education to offer an "Advanced Pain Management Certificate" for nurse anesthetists who have already completed the master's

degree. This program requires four semesters (19 academic credits) of online study, and a supervised clinical component of 240 hours.

4. Physician Involvement in Anesthesia Care Delivery

The principle of physician supervision, present since the beginning of nurse anesthesia, has been maintained to this day, primarily through federal regulation, state statute, and hospital medical staff rules. The majority of anesthetics in the US are delivered within the care team model, where a physician anesthesiologist works with anesthesiologist assistants, residents, and/or nurse anesthetists. Anesthesiologist assistants invariably work under the medical direction of physician anesthesiologists, analogous to the way in which physician assistants work with physicians in other specialties.

In the majority of states, nurse anesthetists function in an ACT model with a physician anesthesiologist or under the supervision of the operating surgeon, dentist, or other non-anesthesiologist physician, thereby satisfying CMS requirements for physician supervision of nurse anesthesia. In limited circumstances, nurse anesthetists are authorized to practice without the involvement of a physician as a result of state law. State governors may also decide unilaterally to opt out of the CMS patient safety requirement for physician supervision of nurse anesthetists, though hospital rules, employment agreements, or other state regulations may retain the requirement for physician supervision. Individual state opt-out decisions appear to be motivated chiefly by political – not patient safety – reasons.

CMS has structured its payment system for physician anesthesiologist services into four categories: personally performed, teaching, medical direction, and medical supervision. These are indicated by different Medicare billing modifiers, and most commercial payers utilize the same payment system. CMS uses the term "qualified nonphysician anesthetists" to refer to nurse anesthetists and anesthesiologist assistants as a combined group, since in most billing circumstances the rules of payment for their services are the same. One exception is that the "QZ" modifier is specific to nurse anesthetists and does not apply to cases involving care by an anesthesiologist assistant. The "QZ" modifier is defined as nurse anesthetist service "without medical direction by a physician."

The use of the "QZ" modifier in billing does not necessarily mean that a nurse anesthetist was practicing solo without any involvement in the case by a physician anesthesiologist. A 2016 study showed that among 538 hospitals that filed all of their anesthesia claims using the modifier "QZ" in 2013, 48 percent had affiliated physician anesthesiologists. The authors concluded, "It seems likely that the physician anesthesiologists were involved in patient care and had some relationship with nurse anesthetists practicing at the hospitals."[4] Thus, use of the "QZ" modifier in billing for a case does not imply or prove that a physician anesthesiologist was never involved with the management of the anesthesia care. Outcomes data from cases billed using the "QZ" modifier cannot be used accurately as a surrogate for independent nurse anesthesia practice. The results of this study underscore the continuing influence and widespread acceptance of the anesthesia care team concept as critical to patient safety.

5. Maintenance of Certification

Once certified, every anesthesiologist assistant must be continually involved in the recertification process. Each anesthesiologist assistant must submit documentation of at least 40 hours of continuing medical education (CME) credit to the NCCAA every two years. Every six years, each anesthesiologist assistant must pass an examination for continued demonstration of qualifications (CDQ). The examination is administered by the NBME and addresses 16 core competencies.

Prior to August 1, 2016, there was no recertification examination for nurse anesthetists, though continuing education (CE) was required. As of August 1, 2016, the NBCRNA has instituted a new Continued Professional Certification (CPC) program for recertification of nurse anesthetists, comprised of two four-year cycles. The program requires accumulation of credits which may be earned through formal CE and through documentation of a range of professional activities. It also requires completion of "core modules" of educational content. At the end of the second four-year cycle, or every eight years, the nurse anesthetist must take a formal CPC Examination in four "core domains" of nurse anesthesia practice. The first "Performance Standard Exam" will be given between 2020 and 2024, and there will be no negative impact on certification regardless of score. The second "Passing Standard Exam" will be given between 2028 and 2033.

6. Conclusion

The Committee on the ACT studied and compared the prerequisites for program admission, the didactic curricula, and the clinical components of anesthesiologist assistant and nurse anesthetist educational programs with regard to scope of practice and overall quality. Reference was made to published program prerequisites, curricula, graduation requirements, the laws and regulations governing clinical practice, requirements for maintenance of certification, and available information on the safety of anesthesiologist assistant and nurse anesthetist practice.

The Committee concludes that differences do exist between anesthesiologist assistants and nurse anesthetists with regard to the educational program prerequisites, instruction, and requirements for supervision in practice as well as maintenance of certification. These are the result of the different routes that the two professions took toward development, and the stated preference of anesthesiologist assistants to work exclusively on teams with physician anesthesiologists. None of these differences, in the opinion of the Committee, results in significant disparity in knowledge base, technical skills, or quality of care.

References:

1. Council on Accreditation of Nurse Anesthesia Educational Programs. Standards for accreditation of nurse anesthesia educational programs. Approved 2004, revised June, 2016.
2. Council on Accreditation of Nurse Anesthesia Educational Programs. Standards for accreditation of nurse anesthesia educational programs – Practice Doctorate. Approved 2015, revised June, 2016.

3. Commission on Accreditation of Allied Health Education Programs. Standards and guidelines for the accreditation of educational programs for the anesthesiologist assistant. Approved 1987, revised 2009.
4. Miller T, Abouleish A, Halzack N. Anesthesiologists are affiliated with many hospitals only reporting anesthesia claims using modifier QZ for Medicare claims in 2013. A&A Case Reports: April 1, 2016, Vol 6 No 7, 217-219.