

**Position
Statement
Series**

LSU Health
NEW ORLEANS
School of Nursing

CERTIFIED REGISTERED NURSE ANESTHETIST

LOUISIANA STATE UNIVERSITY HEALTH NEW ORLEANS
SCHOOL OF NURSING YEAR OF THE NURSE AND MIDWIFE

LSU Health New Orleans School of Nursing celebrates the Year of the Nurse and Midwife with this position statement series to provide the public with information on the nurse's role within the health care environment, create public awareness regarding nursing's contribution and impact in health care, and disseminate our nursing school's contribution to workforce development and health care.

Louisiana State University Health New Orleans School of Nursing Year of the
Nurse and Midwife

Position Statement Series: Certified Registered Nurse Anesthetist

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Introduction to the Role

Certified Registered Nurse Anesthetists (CRNAs) are advanced practice registered nurses (APRNs) who provide anesthesia for all types of surgical and diagnostic procedures to patients at all acuity levels across the lifespan (Scope of Nurse Anesthesia Practice, 2020). CRNAs practice anesthesia both autonomously and in collaboration with a variety of health providers as part of an interprofessional team to deliver high-quality, holistic, evidence-based anesthesia and pain care services. CRNAs practice in a variety of settings which include: traditional hospital surgical suites and obstetrical delivery rooms; critical access hospitals; ambulatory surgical centers; the offices of dentists, podiatrists, ophthalmologists, plastic surgeons, and pain management specialists; and U.S. military, Public Health Services, and Department of Veterans Affairs healthcare facilities. They may practice in nonclinical roles serving as leaders, clinicians, researchers, educators, mentors, advocates, policy makers, and administrators (American Association of Nurse Anesthetists [AANA] Fact Sheet, 2019).

As independently licensed health professionals, CRNAs are of special importance in medically underserved areas. With CRNAs on staff, health care facilities can offer obstetrical, surgical, and trauma stabilization services when otherwise it would not be possible. In the majority of rural hospitals in this country, CRNAs are often the sole providers of anesthesia services. According to the American Association of Nurse Anesthetists (AANA) 2019 Member Profile Survey, CRNAs safely administer more than 49 million anesthetics to patients each year in the United States (American Association of Nurse Anesthetists [AANA] Fact Sheet, 2019).

Accreditation

The Council on Accreditation for Nurse Anesthesia Educational Programs (COA) is responsible for establishing the standards for accreditation of nurse anesthesia educational

programs. To ensure ongoing improvement, these standards are continually reviewed and periodically revised as indicated. Accreditation of nurse anesthesia educational programs provides quality assurance concerning educational preparation through continuous self-study and review. The ultimate goals of accreditation are to improve the quality of nurse anesthesia education. All accredited programs must offer a doctoral degree for entry into practice by January 1, 2022; all students matriculating into an accredited nurse anesthesia program on or after this date must be enrolled in a doctoral program.

Qualifications

The minimum education and experience required to become a CRNA are set by the COA. The COA Practice Doctoral Standards (COA, 2018) require that nurse anesthesia programs enroll only students who by academic and experiential achievement are of the quality appropriate for the profession and who have the ability to benefit from their education (COA, 2018). The admission requirements include: 1) a baccalaureate or graduate degree in nursing or an appropriate major; 2) an unencumbered license as a registered professional nurse and/or an APRN in the United States or its territories or protectorates; 3) a minimum of one-year full-time work experience, or its part-time equivalent, as a registered nurse in a critical care setting (COA, 2018, p.16). Further, “the applicant must have developed as an independent decision maker capable of using and interpreting advanced monitoring techniques based on knowledge of physiological and pharmacological principles” (COA, 2018, p.16).

The COA sets minimal educational standards and outcome measures for graduation from a nurse anesthesia program which include requirements for didactic course content and clinical case and skill numbers. Graduation from an accredited program is a prerequisite for eligibility

for national certification by the National Board for Certification and Recertification of Nurse Anesthetists (NBCRNA). Further, graduation from a COA accredited program is a requirement for licensing agencies and employers. Finally, the CRNA must maintain certification through the Continued Professional Certification (CPC) program administered by the NBCRNA (American Association of Nurse Anesthetists [AANA] Fact Sheet, 2019).

Historical Aspects

Nurse anesthetists have been providing quality anesthesia services in the United States for nearly 150 years. Catholic nuns played an important role in the development of nurse anesthesia practice. Sister Mary Bernard, at St. Vincent's Hospital in Erie, Pennsylvania was the first nurse to specialize in anesthesia in 1877 (Hanink, n.d.). Alice Magaw, another pioneer nurse anesthetist, began working for Dr. Charles Mayo at St Mary's Hospital in 1892 at Rochester, Minnesota (Hanink, n.d.). She has been referred to as the "Mother of Anesthesia" for her mastery of the open drop ether technique (Hanink, n.d.). Ms. Magaw administered approximately 14,000 anesthetics with no recorded deaths. Agnes Mc Gee, was a nurse anesthetist who founded the first educational program on anesthetics at St. Vincent's Hospital in Portland, Oregon (AANA, 2020). Nineteen other anesthesia schools were later opened between 1912 and 1920 (MacKinnon, 2019).

The National Association of Nurse Anesthetists, which eventually became the American Association of Nurse Anesthetists, was founded by Agatha Hodgins on June 17, 1931 in Cleveland, Ohio (AANA, 2020). This organization was the first national association representing anesthesia providers in the United States. Agatha Hodgins was elected as honorary president as the Association's First Annual Meeting which was held in Milwaukee in 1933 with 120

attendees. In 1934, the California Supreme Court affirmed the legality of the practice of nurse anesthesia in the ruling of the historical *Chalmers-Francis v Nelson* case (AANA, 2020). Eleven years later, in 1945, ninety women from 28 states took the first certification exam for nurse anesthesia (AANA, 2020).

Nurse anesthetists have played an important role in the military, particularly in combat. The first evidence of nurses administering anesthesia is found in accounts of the Civil War, where Catherine S. Lawrence recorded her practicing anesthesia as a Union Army nurse in her autobiography (Nagelhout et al., 2014). In World War I, nurse anesthetists served as the primary anesthesia providers (Nagelhout et al., 2014). The number of nurse anesthetists who served in World War I is unknown because at the time nurse anesthetists were counted as part of the general nursing staff (Nagelhout et al., 2014). Prior to World War I, anesthesia grew more sophisticated with the invention of anesthesia machines (Nagelhout et al., 2014). Surgeons and hospitals sought nurse anesthetists who were capable of using the machines. When World War II began, nurse anesthetists once again distinguished themselves by serving at home and in all theaters of military operations. For example, nurse anesthetists were serving in Hawaii when Pearl Harbor was attacked (Nagelhout et al., 2014). Wartime greatly expanded the need for anesthetists in both military and civilian hospitals. “By the end of World War II, the Army Nurse Corps had educated more than 2000 nurse anesthetists” (Nagelhout et al., 2014, p. 6).

Early in their history, nurse anesthetists were challenged by lawsuits claiming they were illegally practicing medicine. Landmark decisions in Kentucky (1917) and California (1936) established that nurse anesthetists were, in fact, practicing nursing, not medicine (Nagelhout et al., 2014). As of 2020, CRNAs practice in all 50 states, providing anesthesia services to all

segments of the population including substantial numbers of Medicare, Medicaid, public employee, veteran, and indigent patients.

Workforce Statistical Data

According to the AANA (2019), CRNAs practice in all 50 states and safely administer more than 65 percent of all anesthetics given to patients each year. The nation's nearly 53,000 nurse anesthetists deliver more than 49 million anesthetics to patients each year (AANA, 2019). Nearly 90 percent of the nation's nurse anesthetists (including CRNAs and student registered nurse anesthetists) are members of the AANA. More than 40 percent of nurse anesthetists are men, compared with less than 10 percent of nursing as a whole (AANA, 2019).

Across the United States, CRNAs are the sole anesthesia providers in approximately two-thirds of all rural hospitals. In some states, CRNAs are the sole anesthesia professionals in nearly 100 percent of rural hospitals. CRNAs provide tens of millions of rural Americans access to surgical, obstetrical, trauma and pain management services without having to travel long distances to receive needed care. Without those services, local hospitals in rural communities could not exist. And without local rural hospitals, the viability of rural communities would be very much at risk (AANA, 2019).

According to statistics from AANA 2019, of the 49 million anesthetics given annually, about 20 percent are administered by CRNAs practicing independently and 80 percent by CRNAs in collaboration with physician anesthesiologists. Working in the oldest of the advanced nursing specialties, CRNAs administer anesthesia for all types of surgery in settings ranging from operating rooms and outpatient surgery centers to dental offices. For over 150 years,

CRNAs have been providing anesthesia care to patients in the United States, and they provide the majority of anesthesia care in the Veterans Administration and U.S. military (AANA, 2019).

The Louisiana State Board of Nursing Report (2018) indicates that there are approximately 67,428 registered nurses (RNs) licensed in LA. Only 7,674 (13.45%) of the registered nurses in Louisiana hold a Master's or Doctoral degree in nursing as their highest educational credential and only 5,794 (10%) are advanced practice nurses. Only 1,355, or 2%, of the registered nurses in Louisiana are CRNAs (Louisiana Center for Nursing, 2019). The latest statistics published by the Louisiana State Board of Nursing in 2018 report a total of 1,329 CRNAs holding an APRN license in the state (Louisiana Center for Nursing, 2019). The last demographics of CRNAs were reported by the LSBN Survey report in 2015. At that time, the average age of Louisiana's CRNAs was 47 years old and females slightly outnumbered males 51 percent compared to 49 percent. Regarding racial distribution among CRNAs in Louisiana, the LSBN Survey of 2015 reports: White (92%), followed by Black (5.1%), Hispanic (1.7%), and American Indian and Native Hawaiian/Pacific Islander (< 0.4%). Over 70 percent of Louisiana's CRNAs plan to work for at least 11 more years with 38.9 percent planning to work for over 20 years.

Role and Scope of Practice

The profession of nurse anesthesia, established in the late 1800's as one of the first clinical nursing specialties, (Louisiana Nurse Practice Act, 2010) has continued to grow. CRNAs provide the majority of anesthesia services in the United States. Nurse Anesthetists provide anesthesia care in many different environments including rural, urban, and military

settings both home and abroad (AANA, 2020). Certified Registered Nurse Anesthetists are the primary anesthesia providers in the majority of medically underserved areas.

As an Advanced Practice Registered Nurses, CRNAs provide anesthesia care for patients across the lifespan. Licensed as independent providers, CRNAs provide general anesthesia, regional anesthesia and monitored anesthesia care, as well as pain management services (AANA, 2020). Certified Registered Nurse Anesthetists play active roles in providing airway management and central venous access to patients outside the operating room such as in emergency departments and intensive care units. CRNAs are often the first line responders for critically ill patients requiring Advanced Cardiac Life Support (ACLS).

CRNAs provide safe and effective anesthesia care to the patients requiring anesthesia for surgical, obstetrical and other diagnostic procedures. Anesthetic management is delivered to protect patients who are rendered unconscious and/or insensible to pain and emotional stress while maintaining continuous protections of life functions and vital organs during anesthesia regardless of race, age, sex, creed, color, national origin or economic status.

In the preoperative setting, CRNAs provide patient education and counselling as well as a detailed history and physical for each patient. This care is provided in a variety of settings that include hospitals, ambulatory surgery centers, and office-based locations. When necessary, CRNAs seek consultation from other healthcare experts.

CRNAs develop an anesthetic plan uniquely specialized for each patient while considering any underlying conditions to account for (AANA, 2020). During the administration of anesthesia, the CRNA is responsible for the following (AANA, 2020):

- Selecting and administering the anesthetic for that patient while continuing to monitor and address any physiological changes during surgery
- Induction and maintenance of anesthesia at the required level safely, to include general anesthesia, subarachnoid blocks, epidural blocks, intravenous regional, and peripheral regional anesthesia
- Providing airway management and support during the procedure which includes securing the airway via and this endotracheal intubation or insertion of a laryngeal mask airway
- Supporting hemodynamic stability taking appropriate corrective action when necessary for abnormal patient responses to anesthesia or surgical stimulation
- Determining the appropriate invasive and noninvasive monitoring to be used and insertion of peripheral, central venous access and arterial catheters
- Titration of anesthesia medications and adjuvant medications to allow for a prompt, pain free recovery (AANA, 2020)
- Facilitate emergence and recovery from anesthesia
- Select and prescribe multimodal pain management and discharge recovered patients from the recovery unit

In critically ill patients in other departments such as intensive care units and emergency departments, CRNAs assist with cardiac resuscitation care and provide airway support when intubation or ventilatory support is needed. CRNAs provide professional observation and resuscitative care to support critically ill patient's control of vital functions. Additionally,

CRNAs communicate and understand the needs of patient and families and to care for the patient as pertains to the age groups: Neonatal, Pediatric, Adolescents, Adults, and Geriatrics.

CRNAs are certified and credentialed to practice and must have active certification approved by the National Board of Certification and Recertification for Nurse Anesthetists (NBCRNA). Certified Registered Nurse Anesthetists are also granted privileges to provide anesthesia services at each facility that they are employed. In addition, CRNAs participate in continuing education and fulfill the requirements for continuing education established by the NBCRNA.

Research on Impact of Role in Healthcare

As the face of the healthcare industry changes CRNAs must maintain competence and adapt anesthesia practice based on current research evidence. Research efforts in the anesthesia specialty aim to improve the quality of care, patient outcomes, patient satisfaction, and to inform policy and policy makers (Nicolescu, 2017) In addition, research is conducted to determine cost effectiveness, value of interventions, care delivery models, reduction in health care disparities, and cutting-edge technologies in anesthesiology (Nicolescu, 2017).

Specifically, research in the field of perioperative anesthesia has been used to identify side effects of drugs and different anesthetic techniques to ensure anesthesia care is safe and based on the best scientific evidence. Anesthesia research seeks a better understanding of genomics, lung biology, pharmacology and other basic science related to anesthesia to ultimately improve outcomes for patients in need of anesthesia and pain management.

Impact of LSU Health New Orleans School of Nursing in the role of the CRNA

The Louisiana State University Health New Orleans (LSUHNO) School of Nursing (SON) prepares professional nurses to function in a variety of advance practice nursing roles and has been educating future nurse anesthetists for 17 years. The LSUHNO SON enrolled the first cohort of nurse anesthesia students in 2002 and the first class graduated in May 2004 with a Masters of Nursing (MN) degree. In 2012, the nurse anesthesia program received approval by the Council on Accreditation to transition the program to a Doctor of Nursing Practice (DNP) degree and the first cohort of Bachelor of Science Nursing (BSN) to DNP students enrolled in 2013 and graduated in 2016. The BSN to DNP nurse anesthesia program is 138 credit hours and students complete over 2500 clinical hours. The LSUHNO SON nurse anesthesia program received a ten-year accreditation, the highest level awarded by the Council on Accreditation of Nurse Anesthesia Educational Programs, in 2013 and will host an onsite review in 2022. In addition, our program is one of five programs in the United States with deemed accreditation status by the International Federation of Nurse Anesthetists. Since its inception, the nurse anesthesia program has graduated 17 cohorts and a total of 655 graduates making a significant impact on the nurse anesthesia workforce in Louisiana and beyond.

Conclusion

Throughout the United States, CRNAs provide anesthesia services for all types of surgical, diagnostic, and obstetrical procedures as well as provide emergency airway management and pain management. CRNAs have provided high quality anesthesia care for over 150 years. Anesthesia care continues to evolve as new surgical procedures, medications,

equipment and technology are discovered. It is imperative that CRNAs are committed to lifelong learning as the CRNA role will likely expand in this dynamic healthcare environment.

References

- American Association of Nurse Anesthetists (2020, June 23) *AANA Timeline History*. AANA <https://www.aana.com/about-us/aana-archives-library/our-history>
- American Association of Nurse Anesthetists (AANA). (2019, August 8). *Certified Registered Nurse Anesthetists Fact Sheet*. AANA <https://www.aana.com/membership/become-a-crna/crna-fact-sheet>.
- American Association of Nurse Anesthetists (AANA). (2020, February). *Scope of Nurse Anesthesia Practice*. [https://www.aana.com/docs/default-source/practice-aana-com-web-documents-\(all\)/scope-of-nurse-anesthesia-practice.pdf?sfvrsn=250049b1_6](https://www.aana.com/docs/default-source/practice-aana-com-web-documents-(all)/scope-of-nurse-anesthesia-practice.pdf?sfvrsn=250049b1_6)
- Council on Accreditation for Nurse Anesthesia Educational Programs (2018). Standards for accreditation of nurse anesthesia educational programs: Practice doctorate. <http://home.coa.us.com/accreditation/Documents/Standards%20for%20Accreditation%20of%20Nurse%20Anesthesia%20Programs%20-%20Practice%20Doctorate,%20rev%20January%202018.pdf>
- Hanink, E. (n.d.). The Colorful History of Anesthesia Nursing. <https://www.workingnurse.com/articles/The-Colorful-History-of-Anesthesia-Nursing>
- Louisiana Center for Nursing. (2019, August 14). *2018 Nursing Education Capacity and Nursing Supply in Louisiana Snapshot*. <http://lcn.lsbns.state.la.us/Portals/0/Documents/Nurse%20Education%20Capacity%20and%20Supply%20In%20Louisiana%20Snapshot%202018.pdf>.
- Louisiana Center for Nursing. (2016, June 16). *Nursing Education Capacity and Nursing Supply in Louisiana 2015 Snapshot*. <http://lcn.lsbns.state.la.us/Portals/0/Documents/RNsInLouisiana2015Snapshot.pdf>.

MacKinnon, M. (2019, July). *History of Nurse Anesthesiology*. Nurse Advisor.

<http://nurseadvisormagazine.com/tn-exclusive/history-of-nurse-anesthetists/>

Niculescu, T. (2017). Quality Trends in Healthcare and their Impact on Anesthesiology.

Romanian Journal of Anaesthesia and Intensive Care, Apr; 24(1): 47-52. doi:

10.21454/rjaic.7518.241.qty

Nagelhout, J., Elisha, S., & Plaus, K. (2014). *Nurse Anesthesia* (5th ed.). Elsevier.

Niculescu, T. (2017). Quality Trends in Healthcare and their Impact on Anesthesiology.

Romanian Journal of Anaesthesia and Intensive Care, Apr; 24(1): 47-52. doi:

10.21454/rjaic.7518.241.qty

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Front Cover Photo by: Graham Ruttan/ Adobe Spark

Published September 15, 2020

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