The history of nurse anesthesia education: Highlights and influences
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Monographs from the National Commission on Nurse Anesthesia Education will be published beginning with this issue of the AANA Journal. The main topics for these monographs include the History of Nurse Anesthesia Education, Accreditation, Certification, Current and Future Perspectives on the Educational Framework, Costs/Funding, the Nursing Shortage, CRNA Manpower Study, and other Issues. The Report of the National Commission on Nurse Anesthesia Education was published in the October 1990 issue of the AANA Journal.

The history of nurse anesthesia is traced from its beginnings at the turn of the century to the present. The crucial role of the military in the profession's growth is explored. The sequence of events leading up to AANA's founding in 1939 are recounted. With the profession's often-contentious relationship with the anesthesiologists as a recurrent theme, AANA's strides in enhancing the rights and stature of its members are examined.

Modern anesthesia was introduced in 1846, with the first successful demonstration of the anesthetic properties of diethyl ether at Massachusetts General Hospital. Its developer, William T.G. Morton was hailed for his contribution to American medicine. Morton's demonstration was followed by one by James Simpson in England, who used chloroform. The optimism and promise of these discoveries were immortalized in the inscription on Morton's grave marker at Mt. Auburn cemetery near Boston: "Inventer and Revealer of Anaesthetic Inhalation. Before Whom, in All Time, Surgery was Agony. By Whom Pain in Surgery Was Averted and Annulled. Since Whom, Science Has Control of Pain."

Unfortunately, the discovery of anesthesia occurred before the germ theory and aseptic techniques. As a result, even if anesthesia could make surgery painless, infection led to a high rate of morbidity and mortality among surgical patients. However, some 10 years after the introduction of anesthesia, Florence Nightingale demonstrated the value of cleanliness, good ventilation and hygiene and proper nutrition in British hospitals in the Crimea, where she cut the death rate from injuries from 40% to 2%.

By the late 1860s through the work of Koch and Pasteur, the germ theory had been enunciated, and Lister had begun his attempts at providing aseptic conditions for surgical operations. By the 1880s it was recognized that there was a high mortality rate as a result of anesthesia. Surgeons began to realize that this was because few, if any practitioners were specializing in the administration of anesthesia, leading to the problems of inexperience and incompetence.

The beginnings of the nursing specialty
At the start, anesthesia as a specialty was neither lucrative nor prestigious in the United States. To solve the problem of competence, surgeons turned to the Catholic Hospital Sisters and later to "trained" nurses as those who would be willing to specialize and limit their practice to anesthesia.

The first educational opportunities for nurses in anesthesia were conducted by surgeons, who selected particular individuals to train as their anesthetists. As their teaching methods, they utilized readings and discussions, animal laboratories and, finally, clinical experience on patients. Among the surgeons who achieved much acclaim for their success in utilizing this method of education were the doctors Mayo at St. Mary's Hospital in Rochester, Minnesota, and Dr. George Crile at Lakeside Hospital in Cleveland.

With the endorsement and encouragement of their surgeon-mentor, Alice Magaw, who was called "the mother of anesthesia" by the doctors Mayo, and Agatha Hodgins, Dr. Crile's nurse anesthetist, taught anesthesia to nurses, physicians and even a few lay persons. Once these people...
became proficient anesthesia providers, they in turn taught other nurses and physicians to prepare them as anesthetists.

The widespread acceptance of the use of "trained nurses" in anesthesia in the United States led to efforts to introduce the administration of anesthesia into the curriculum of hospital nursing educational programs. The noted pioneer nursing educator, Isabel Adams Hampton Robb, included a chapter on "The Administration of Anaesthetics" in her 1893 nursing textbook, Nursing: Its Principles and Practices for Hospital and Private Use.5

Educating anesthesia providers

After the turn of the century, discussions in the United States centered on how nurses and physicians could be prepared for providing anesthesia. During the first decade of the 20th century, there were three methods of training anesthetists:

1. that given to graduate nurses in a hospital in which they were to be employed as anesthetists; (2) that provided gratuitously to visitors—physicians and nurses—who went to a hospital to observe and sometimes administer a few anesthetics under supervision and (3) that given by manufacturers and demonstrators of gas machines, who often traveled around the country selling and teaching the operation of the machines to anyone who would buy.4

Among hospital administrators, discussion centered on preparing nurses as anesthetists as a part of their basic nursing or post-nursing education. Some hospitals set up programs to educate their own nursing students, or at least some of their students, for anesthesia within their basic nursing educational programs. Massachusetts General Hospital and Maine General Hospital were two of the hospitals involved in this type of education before 1910.5

In 1909, at a meeting of Nurses' Associated Alumnae of the United States (the forerunner of the American Nurses' Association) in Minneapolis, Florence Henderson, a nurse anesthetist from Mayo's who had succeeded Alice Magaw, presented a paper entitled, "The Nurse as Anesthetist."

Agatha Hodgins discussed Henderson's paper following her presentation. Evidently, this sparked a discussion among members of the audience with regard to the training of nurses in anesthesia, its present weaknesses and plans for the future.6 Nursing leaders such as Annie F. Goodrich (nursing education),7 Sophia F. Palmer (who established the first nursing journal)8 and Annie Damer, president of the Nurses' Associated Alumnae of the United States, took part in that discussion. Damer suggested a cautious approach to the issue, opening the way for Agatha Hodgins to turn her thoughts to helping resolve the dilemma.9

Before 1914 and the beginning of World War I, several of the hospitals of note that had set up anesthesia educational programs for preparing their own anesthetists (and sometimes anesthetists for neighboring hospitals) were St. Mary's (Mayo's), the Hospital of the University of Pennsylvania and Presbyterian Hospital of New York, (later to become Columbia-Presbyterian Hospital). True postgraduate courses in anesthesia began in at least four hospitals before the end of 1914: St. Vincent's Hospital, Portland, Oregon (1909), St. John's Hospital, Springfield, Illinois (1912), New York Post-Graduate Hospital (1912) and Long Island College Hospital in Brooklyn (1914).10 Their courses included lectures by surgeons and anesthetists on physiology, pharmacology and anesthetic techniques, as well as supervised clinical practicums. The courses usually were six months in length.

The effect of World War I

Agatha Hodgins' plans for a formalized educational program at Lakeside Hospital had to be postponed when World War I began. Lakeside Hospital sent a surgical and research team, including Crile and Hodgins, to France in December 1914. However, while in France, Hodgins taught both physicians and nurses to administer anesthesia. The nurses she taught included some from the United States, England and France.

When it became apparent that the United States would enter the war, both the U.S. Army and Navy sent some of their nurses to St. Mary's Hospital in Rochester, Minnesota, and Pennsylvania Hospital in Philadelphia for six weeks of training to prepare them as anesthesia providers and as educators of other military nurses, corpsmen and officers.

These military nurse anesthetists set up programs for graduate nurses in various military hospitals both in the United States and overseas. Most of this educational effort was carried out through on-the-job training and resulted in many nurses becoming proficient in the art of anesthesia practice. To be sure, not much of a science of anesthesia existed at this time.

While many nurses were prepared as anesthesia providers during World War I, the end of the war brought an even greater demand for the services of nurse anesthetists, so more programs were established.

Between 1915 and 1922, programs were begun at major hospitals in Cleveland; Minneapolis; Milwaukee; Chicago; Tacoma; Washington and Worcester, Massachusetts. Other notable locations included Charity Hospital, New Orleans (1917), Johns Hopkins Hospital, Baltimore (1917), Grace Hospital, Detroit (1918), University of Michigan Hospital, Ann Arbor (1919), Barnes Hospital, St. Louis (1921) and Grady Memorial Hospital, Atlanta (1922).10 These hospitals set a trend by preparing graduate nurses as anesthetists, rather than trying to prepare them within basic nursing educational programs.

Unfortunately, because no professional association of nurse anesthetists existed, there was no one prepared to set educational standards for these programs. As a result, the only requirements for conducting a program were cited by Thatcher11 as being:

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"obtaining the consent of the hospital and the surgeons and a willingness on the part of the instructor to impart a knowledge of the technics to the student apprentice. Such texts as did exist and were used emphasized technics, and the student, with few exceptions, was expected to acquire a smattering of the science of anesthesia from a few lectures or through osmosis. The courses presented all shades of adequacy, depending on the native intelligence and the teaching ability, the experience and the education of the instructor."

Decisive decades

Beginning in the second decade of the 20th century, professional and legal challenges were made concerning the practice rights of nurse anesthetists by a few physicians who were trying to initiate a medical specialty for the administration of anesthesia. The key challenges came in Ohio, Kentucky and California, and all resulted in court and legislative decisions affirming the right of nurses, practicing under physicians' direction, to perform anesthesia. However, in the third decade of the 1900s, during which the Dagmar Nelson case was tried in California, there were five other events of importance to nurse anesthesia education. They included (1) the refusal of the American Nurses' Association to set up a separate section within its structure for nurse anesthetists; (2) the formation of the National Association of Nurse Anesthetists; (3) the alliance between AANA and the American Hospital Association; (4) the formation of the American Society of Anesthesiologists and the American Board of Anesthesiology; and (5) efforts by the American Board of Surgery in 1938 to bring about a positive relationship between the AANA and the American Board of Anesthesiology.

The refusal of the American Nurses' Association to set up a separate section for nurse anesthetists within its organization, which led to the formation of the National Association of Nurse Anesthetists, set the stage for a schism within nursing, causing nurse anesthetists to leave the nursing mainstream.

The young organization had on its original agenda the setting of educational standards for nurse anesthesia educational programs and the credentialing of both educational programs for preparing nurse anesthetists through an accreditation mechanism and the registration, licensure or certification of nurse anesthetists. However, it was not until 1934 that AANA was able to agree on the curriculum for nurse anesthesia educational programs. In addition, it was recognized that its goals were ambitious and would take time, money and support for implementation.

The group decided that the real test of an educational program's worth was the knowledge and skills of its graduates. It felt that educational programs really should be rated on the basis of the percentage of their graduates that could eventually pass national examinations (both academic and clinical) in anesthesia. In order to provide guidance to the educational programs, in 1935 AANA promulgated minimal standards for the curriculum of schools of anesthesia consisting of:

1. Length of course: six months, but with one year recommended.
2. Classroom instruction: 95 hours.
3. Hours of operating room instruction (class): 18 hours.
4. Number of anesthetics administered: 325, of which 250 had to be general, 25 obstetrical, 25 dental and 25 regional, divided among spinals, locals, etc.

The association then set about making provisions for a national certification examination, having dismissed a plan for legislating a separate licensure statute for nurse anesthetists as being too costly.

The alliance between the AANA and the American Hospital Association (AHA) came about to assist the young nurse anesthetist association get started, as well as to provide assistance in holding its meetings. In addition, AANA recognized that the AHA's support for either an accreditation or certification program for nurse anesthetists was highly desirable. In 1937, AANA occupied space in the AHA's offices in Chicago.

Helen Lamb, program director at Barnes Hospital in St. Louis (and anesthetist for surgeon Evarts A. Graham, MD), was chairman of the NANA Education Committee in 1937–1938. She felt it was essential that NANA have the support of another organization in the implementation of an accreditation program and/or certification program. She knew that the AHA's Council on Professional Practice or the American Board of Surgery could serve that purpose, so she contacted both groups regarding the matter.

Concurrently, in 1937, the American Board of Anesthesiology (ABA) was formed under the aegis of the American Board of Surgery (ABS) for the purpose of devising a plan for certifying physicians in the field of anesthesiology. The ABS felt that having one board to attend to matters of education and certification of both physicians and nurses in the field of anesthesia might be fruitful and talked with the ABA about opening its ranks to the nurses. But the ABA was unhappy being under the aegis of the ABS. It resented the ABS "pressuring it to embrace the national organization of nurse anesthetists and to put them into a happy relationship. It was pointed out that no other specialty board was acting as a supervisor of training for a technician group and that neither should it so be involved."

It was well that the ABA felt this way, because when the possible affiliation was discussed with NANA leaders, they did not have an interest in joining with the ABA. As a result, an alliance with the AHA was pursued further.

In 1937, a survey of the existing nurse anesthesia educational programs was conducted, and a list of programs published. In 1939, the National Association of
Nurse Anesthetists became the American Association of Nurse Anesthetists, with the adoption of a plan that called for future accreditation of nurse anesthesia programs based on an "inspection" method and national certification of nurse anesthetists by examination. In 1940, Hodgins, who was then a member of the education committee of the association, announced that a department of education was being formed within the association. Those who have subsequently served as AANA directors of education include Clarene Carmichael, Betty J. Smith, Edward Kaleita, John Garde and the current director, Lorraine Jordan.

World War II delays credentialing and expansion

World War II interrupted AANA's plans and mandated additional efforts to prepare enough nurse anesthetists to meet both military and civilian needs for providers. Even the plan to lengthen nurse anesthesia education to a minimum of one year had to be dropped during the war.

Though the U.S. Army had developed some educational programs for nurse anesthetists, it again utilized civilian schools to prepare additional nurse anesthetists while simultaneously recruiting civilian nurse anesthetists into the Army. The Navy also utilized some civilian educational programs to prepare Navy anesthetists. With the advent of World War II, the Army identified the need to conduct its own educational programs, and such programs were set up in so-called general hospitals. Ruth P. Satterfield, a CRNA trained at Lakeside Hospital, entered the army and was sent to an Army general hospital to set up a school of anesthesia, as were other nurse anesthetists. Satterfield was instrumental in making Army education of nurse anesthetists a model program and subsequently was appointed as consultant to the Army Surgeon General for Nurse Anesthesiology, making her the first person to serve in such a capacity.

In 1945, shortly before the end of World War II, the AANA gave its first national certification examination, deciding upon a single written examination rather than combination written/clinical examinations.

World War II served as the major impetus for the formalization of the physician specialty in anesthesia. Only seven residency programs in anesthesia of at least a year's duration had existed prior to World War II. At the end of the war, the American Society of Anesthesiologists set about eliminating nurses from the field.

Through the use of articles published in women's magazines and its ethical code, the ASA tried to create a lack of public confidence in nurse anesthesia and preclude anesthesiologists in good standing with the organization from participating in the education of nurse anesthetists. A large number of anesthesiologists chose to ignore the ethical code and continued their support of nurse anesthesia education.

The schism between the mainstream of nursing and the nurse anesthesia specialty, which occurred as a result of the American Nurses' Association's decision not to create a section under its organization for nurse anesthetists, led nurse anesthesia not to follow the mainstream of nursing education into institutions of higher learning following World War II.

At the same time, many anesthesiology residencies were opening up in a number of university hospitals. Unfortunately, leaders in nursing education were often swayed by chairmen of medical school anesthesia departments to believe that anesthesia was a medical specialty into which nurses should not be admitted. This perspective was to become a barrier to moving nurse anesthesia educational programs into graduate nursing frameworks.

The beginning of a federal relationship

In 1952, the AANA established an accreditation program for nurse anesthesia education. The requirements called for a combined theoretical/clinical program of at least one year's duration. The association called upon consultants from the field of education to assist it in the development and implementation of the program.

In 1955, to ensure that nurses who had served during the Korean War could obtain GI Bill of Rights benefits for nurse anesthesia educational programs, the AANA sought and gained recognition from the Commissioner of the U.S. Office of Education (USOE), which later became the U.S. Department of Education (USDE). AANA kept this recognition until 1975, when it requested transfer of recognition to its Council on Accreditation, a multidisciplinary body created as a result of new USOE criteria published in 1974.

Unfortunately, the efforts of the ASA to close anesthesia to nurses after World War II caused a drop in applications to nurse anesthesia educational programs at a time when there were less than one-third of the trained physicians and nurses needed for anesthesia. The shortage of American medical school graduates seeking admission to anesthesiology residencies grew. And so increasingly larger numbers of foreign medical graduates were recruited into anesthesiology residencies.

By the late 1960s, there was a rebound in nurse anesthesia educational programs, with sufficient applicants to fill them. In addition, ASA held a conference on the future of the specialty, at which decided differences of opinion arose regarding the organization's position on nurse anesthesia education. Following this conference the ASA made efforts to turn its liaison committee with the AANA, which had been set up several years earlier, into a vehicle for more meaningful dialogue on issues of mutual concern. A milestone during this period was agreement on and simultaneous publication of a joint statement in 1972 that recognized the need for both providers in the field. However, the ASA withdrew its support for the statement shortly thereafter.

Between 1970–1972, the ASA Manpower Committee requested a grant from the U.S. Department of Health.
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Education and Welfare to perform a demographic study relating to anesthesia providers in the United States. As part of the grant request, it stated that the study would be performed in cooperation with the AANA. The only information the AANA received concerning this study was a request from the ASA Manpower Committee for a list of AANA members and their addresses. When the study was reported, the cover page indicated AANA's so-called cooperation. Several recommendations the ASA committee made as a result of the study were problematic to AANA, including one that entailed greater physician involvement in nurse anesthesia education. Most educators within the AANA interpreted this as a desire for control by anesthesiologists, based on the published rhetoric of ASA members.

In 1973, the USOE contacted AANA with regard to a meeting of representatives of the ASA, the AANA and USOE. When AANA asked the purpose of the meeting, it was told that it was being called to discuss how the recommendation pertaining to education resulting from the manpower study could best be implemented most effectively.

AANA's Executive Director told John Profitt, who was then director of the division of accreditation and institutional eligibility, that AANA had not been a party to that recommendation and saw no need to meet to discuss the matter. Furthermore, in 1972, two physicians, John Steinhous from Emory University and J.S. Gravenstein, had become interested in starting physician assistant programs within anesthesia, and to accommodate another anesthesia provider, the ASA-AANA joint statement would either have to be amended or revoked. Thus, the relationship between the two organizations, which at best had been tenuous, once again dissolved into open conflict.

The ASA chose to use its ad hoc Committee on the Anesthesia Care Team to challenge AANA's recognition by the USOE as the accreditor of nurse anesthesia education. This led to major confrontations at the U.S. Office of Education, every time the AANA or its council came up for recognition. These incidents occurred despite the fact that the AANA had brought anesthesiologists into the membership of its Council on Accreditation in January 1975. Selected anesthesiologists also were being utilized as volunteer onsite reviewers as a part of the accreditation process.

During this period of time, leaders within the ASA, namely some academic chairmen, chose to pressure AANA through planning alternative accreditation and certification mechanisms for nurse anesthesia education and nurse anesthetists. They also formed an organization of physician faculty of nurse anesthesia educational programs that they quickly converted to the Faculty of Nurse Anesthesia Schools (FNAS).

The AANA had long had an Assembly of School Faculty that met twice yearly and permitted both CRNA and physician faculty to participate and vote on matters pertaining to recommendations about educational standards. The FNAs' membership was intended to be restricted to one physician and one CRNA from each program. AANA leaders felt that with the physicians' strong influence and control of clinical access to training and hiring of CRNAs such an organization would be essentially controlled by anesthesiologists, which meant it would control nurse anesthesia education. Nurse anesthetists had come too far to permit anesthesiologists to usurp their profession's control over nurse anesthesia education.

New educational models

In 1972, AANA mandated a 2-year program of education for nurse anesthetists, after having established an 18-month requirement for the period between 1962 and 1972. Greater curricular requirements were added within both the didactic and clinical components of the program. The minimal didactic requirements included an equivalency of about two semester courses of advanced anatomy, physiology and pathophysiology; two semester courses of advanced pharmacology; two to three semester courses of principles of anesthesia practice; one semester course of chemistry and physics and one semester course of professional aspects of anesthesia practice. Clinical correlate conferences also were required.

The armed conflict in Vietnam, which started in the early 1960s and reached peak intensity with the Tet offensive in late 1967 and early 1968, led to the increasing need for anesthesia personnel in the military for the fourth time in the century.

The Army program had maintained four permanent nurse anesthesia educational programs at Walter Reed, Brooke, Fitzsimmons and Letterman General Hospitals following World War II and the Korean War. With the advent of the Vietnam War, three additional programs were opened at William Beaumont, Madigan and Tripler Army Medical Centers to supplement graduates of the original four programs. The Navy opened a program at Bethesda Naval Medical Center in the 1960s, and the Air Force opened a program in its medical center at Lackland Air Force Base.

At this time, the military programs of the Army and Navy were involved in the further evolution of nurse anesthesia education. As the length of these educational programs increased, there were nursing and nurse anesthesia leaders both within and outside the military who began to envision placing nurse anesthesia education within institutions of higher learning, with the goal of obtaining a degree at the completion of the program.

The Army, seeing the need for nurses with baccalaureate and advanced degrees for future leadership positions, began stressing additional education for Army Nurse Corps officers following the Korean War. After placing its nurse anesthesia programs within a sound academic framework in the 1950s, it realized the need for having faculty prepared at the baccalaureate and graduate levels.
Unlike the civilian community, where most nurse anesthesia education programs existed outside the framework of nursing, the Army Nurse Corps envisioned development of a graduate program in nurse anesthesia for nurses with baccalaureate degrees in nursing as a basis for preparing faculty for its programs.

Ruth Satterfield, who had obtained her baccalaureate in nursing education at the University of Rochester and her master's in education from Columbia University Teachers College in New York, identified the need for sending a nurse anesthetist for her doctorate.

Geraldine Felton, currently dean of the school of nursing at the University of Iowa, who had a master's of science in nursing degree from Wayne State University in medical-surgical nursing, was chosen for such advanced education.

The author, who was then a major in the Army Nurse Corps and held a master's degree in nursing, was completing a tour at the Walter Reed Army Institute of Research. She was sent to Tripler Army Medical Center in Hawaii in 1965 to set up a nurse anesthesia educational program.

There, she saw the opportunity to work out a cooperative arrangement with the School of Nursing at the University of Hawaii, where Marjorie S. Dunlap was then dean. She obtained permission from the Office of the Army Surgeon General to pursue such development.

By the time Major Felton completed her doctorate, a cooperative arrangement between the university and the Army had been agreed upon that placed the Tripler program in a master's framework. The author, who had since been promoted to lieutenant colonel, was brought back to Washington to take over the consultant's position held by Colonel Satterfield, who was retiring after 28 years of service. The post entailed overseeing all nurse anesthesia affairs within the Army.

Major Felton and Captain Neil Collins, who had obtained his MSN from the University of Texas College of Nursing, were designated the principal faculty members for the program. Its curriculum had been designed as a subspecialty within the graduate medical-surgical program, with selected courses such as physiology and pharmacology being taken with students in the School of Medicine.

The program, which first accepted students in the fall of 1969, was two years in length. It was the first nurse anesthesia educational program to exist within a degree framework and served as a prototype for other programs.

The diminishing Army resources that resulted from America's planned pullout from Vietnam and problems created by the distance of this program from Army headquarters in Washington led to its demise about 1974.

Before the author retired from the Army, she and other Army CRNA program directors—Mary Cavagnaro, Marian Waterhouse, Beverly Bochman, Mary Black, Lucy Roberts and Marge Connally—were instrumental in reorganizing the Army Nurse Corps anesthesiology certificate program in 1970.

Because of the increasing need for CRNAs in the Army as a result of its large commitment to Vietnam and other overseas areas, the author proposed a plan to the Army Surgeon General to centralize the academic component of this program at one location and then send small groups of each class of students (approximately six) to the various clinical teaching facilities for their clinical education. She saw such an approach as a conservation of faculty resources with regard to class hours of teaching and more efficient utilization of clinical resources for education. She also felt that it would be much easier to expand and/or eliminate clinical sites based on military requirements, rather than establish and/or disband complete programs.

With the approval of the Army Nurse Corps and the Surgeon General and a realignment of the curriculum, mainly through the efforts of Mary Cavagnaro, who at the time directed the ANC anesthesiology program at William Beaumont Army medical center in El Paso, Texas, the two-phase program was implemented, with phase I at William Beaumont and Phase II at Beaumont and five other Army Medical Centers that had been conducting these programs. This program proved successful and because the forerunner of the regional approach to nurse anesthesia education, The Navy program followed a similar pattern.

Other efforts to upgrade nurse anesthesia education and locate programs within academic institutions were also ongoing in the civilian sector in the late '60s and early '70s.

In the fall of 1969, a continuing education program at New York's Roosevelt Hospital provided the occasion for a meeting of nurse anesthesia educators who were interested in moving their programs into degree frameworks in colleges or universities.

At the time, there was not much interest in such a movement within the AANA itself. Betty J. Smith, CRNA program director at Roosevelt Hospital, communicated with other CRNA program directors who had expressed such an interest and invited them to come to the meeting at their own expense. Somewhere between 30 and 40 educators showed up. Unfortunately, neither minutes nor a list of the attendees was kept, but a lively discussion ensued.

Many of the educators felt that since most of the nurses entering nurse anesthesia educational programs were coming from 2- and 3-year nursing education programs at that time, nurse anesthesia education initially should move into a baccalaureate framework. Since many of the program directors did not have a baccalaureate degree, much less a graduate degree, there was a feeling that perhaps putting the programs within a baccalaureate framework would at least prepare a corps of people with such degrees who would require less time to go on for a graduate degree. There was not much support for moving these programs into schools/colleges of nursing because (1) the 1931 schism still festered among nurse anesthetists,
who felt rejected by the nursing profession and (2) the recognition of nursing's educational philosophy that specialization should be at the graduate level. However, since nursing specialty education had already moved beyond the early stages following World War II, when baccalaureate nursing programs in education, administration and public health were available, there would be little reason for nurse anesthetists to seek affiliation with schools or colleges of nursing unless they were moving into a nursing graduate program.

Sister Mary Arthur Schramm, program director of the nurse anesthesia program in Yankton, South Dakota, was at the time in graduate school pursuing a doctoral degree. She was also planning a program to offer a BS degree in anesthesia from Mount Marty College, with which she was associated. This program was implemented in 1971.

John Garde, who was then program director of the nurse anesthesia program affiliated with Wayne State University, implemented the second baccalaureate program in nurse anesthesia within the School of Allied Health at the university.

While the baccalaureate framework was pursued eagerly by many nurse anesthesia programs, some of the educational leadership of AANA perceived it to be transitional, until faculty credentials could be improved and there were sufficient BSN-degreed or other baccalaureate nurses seeking entry to nurse anesthesia educational programs to move the requirement for entry to a graduate level.

Thus, the '70s saw an upgrading of nurse anesthesia educational programs for two reasons: (1) the natural evolution of professional education programs and (2) challenges by ASA leaders to take over or otherwise control accreditation and certification programs for nurse anesthetists. These anesthesiologists never failed to cite these programs for their lack of academic affiliation. As a result of this challenge, rapprochement with nursing and the ANA began.

A new age of nurse anesthesia education

The new educational standards and guidelines approved in 1976, after having been used in draft form in 1975, were specifically designed and approved not only to upgrade the education of nurse anesthetists, but to bring more formalization to the educational process. In addition, because of the need to comply with USOE criteria for recognized accrediting agencies, many new requirements regarding social issues, such as nondiscrimination, due process and affirmative action, had to be incorporated into the standards. With the institution of a more rigorous accreditation review it became apparent that some nurse anesthesia programs had problems with sexual harassment of students and, to a lesser extent, faculty. There also were some indications of potentially fraudulent billing practices for services rendered by students. To deter such practices, a strong ethical code was incorporated into the standards.

These standards led to the closure of many of the small nurse anesthesia educational programs. However, some new programs were begun and existing ones expanded. Between 1975 and 1982, the number of accredited programs dropped from 210 to about 142, but there was a minimal drop in the number of graduates per year from this loss of programs. 

The end of the '70s and '80s has been characterized by a movement of nurse anesthesia educational programs into graduate frameworks in a variety of educational settings: nursing, allied health, basic or applied science departments of medical schools and/or universities and even within a school of education.

As CRNA faculty credentials began to be upgraded and university faculty appointments were awarded, it is important not to lose sight of the pioneers of university faculty appointments. Two appointments of note included Alice M. Hunt, who was first appointed an instructor in anesthesia at the Yale University School of Medicine and subsequently retired as an assistant professor, and Mary Alice Costello, who was appointed an assistant professor in anesthesia at the University of Cincinnati School of Medicine.

At the advent of the '90s, approximately 60% of accredited nurse anesthesia educational programs are already in a graduate framework, with a goal of having all programs offer a graduate degree by 1998. The movement into the baccalaureate framework saw the beginning of regionalized programs in the civilian sector, e.g., programs that maintained their own identity but joined with several other programs to affiliate with a centralized academic facility for the major academic component of the program. This was somewhat at variance with the Army program, which has a centralized teaching facility and several affiliated clinical facilities spread from Washington, D.C. to Honolulu, Hawaii. The difference in these approaches varies with the locus of their overall control. In degree-granting programs, the university maintains control over educational standards and requirements for the awarding of its degree.

The Council on Accreditation of Nurse Anesthesia Education gained recognition by the Council on Post-secondary Accreditation (COPA) in 1985. It is nationally recognized by both the USDE and COPA for the accreditation of generic programs in nurse anesthesia. The generic program constitutes the certificate core that qualifies a graduate for writing the certification examination. With the planned mandatory requirement for nurse anesthesia education to exist solely within a graduate degree framework by 1998, there are a variety of issues the Council on Accreditation will have to deal with regarding its recognized status as an accreditor that will, in all probability, affect many of its accredited programs.

Programs that reside in graduate schools/colleges of

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nursing must also comply with the accreditation standards of the National League for Nursing, the nationally recognized accreditor for nursing education. It should be noted that the Kaiser Permanente program, in conjunction with the School of Nursing at California State University, of which Joyce Kelly is director, was the second program to move into a graduate degree nursing framework, but is the first that has operated continuously since its affiliation with nursing.

There are those within nurse anesthesia education who believe that at least some of these programs will be in doctoral frameworks by the end of the century or that programs will be devised so that selected students can move directly through them to obtain a doctorate. This will shorten the time required for preparing nurse anesthesia leaders for education, practice and research. Margaret Faut-Callahan and the program at the College of Nursing, Rush University, Chicago, is leading the way in utilizing a clinical doctorate framework.

From a federal legislative standpoint, the 1980s were a mixed blessing for nurse anesthesia educational programs. They saw the appropriation and designation of federal funds specifically for nurse anesthesia traineeships and faculty development. But the Nurse Training Act, the federal legislative statute that is utilized to appropriate federal funds for nursing education and students, restricts such funds to those programs and students within accredited schools of nursing, e.g., NLN-accredited or, in some instances, state agency accredited nursing programs. This effectively shuts out nurse anesthesia educational programs and students that are now within a school or college of nursing.

The '80s were also characterized by a major series of closures of nurse anesthesia education programs. Two major factors were involved in these closures. The first relates primarily to financial support for these programs, which has come in large measure from hospitals. The 1983 passage of the Prospective Payment Legislation (PPS) for Part A Medicare created a situation where hospital financial well-being became a major concern. One means for reducing hospital expenditures included closure of some educational programs, and nurse anesthesia educational programs became caught up in these efforts. This has served as an additional impetus to move programs into a university setting, shifting more of these costs to students.

The 1983 PPS legislation also presented a major problem for hospitals with regard to their costs for nurse anesthetists. After analysis of this legislation, AANA felt it necessary to initiate a legislative program which would correct the inadvertent reimbursement disincentives within the legislation. Since only temporary relief initially came from the Health Care Financing Administration and Congress, AANA initiated legislation to gain direct reimbursement for CRNAs under Part B Medicare.

Physicians have long held that the right to bill patients directly for health services is solely a physician's prerogative and have fought opening up such reimbursement to non-physicians. Furthermore, a small percentage of nurse anesthetists have practiced in a fee-for-service mode since the late 1920s, contracting with hospitals and/or surgeons to do the billing. Anesthesiologists felt that such legislation, if enacted, would lead to a major increase of the number of CRNAs who would switch to such a billing practice, increasing CRNAs' potential to compete more fully with anesthesiologists for anesthesia services.

Closure of educational programs and the nurse anesthetist shortage

In 1983, a major series of closures of nurse anesthesia educational programs began, particularly among those in academic health center settings. Some of these programs, such as Johns Hopkins and the University of Michigan, had been in existence for more than 60 years. The reason cited most frequently was that there were an increasing number of medical school graduates seeking to enter anesthesiology residencies, and clinical resources were needed for these additional residents. Some anesthesiologists were willing to admit, off the record, that it was because they did not want to participate in preparing their competitors and therefore were closing or reducing clinical access to nurse anesthesia students. It is also generally known that ASA consultants and anesthesiologists have pressured anesthesiology chairmen to close nurse anesthesia educational programs that coexist within institutions that also have anesthesiology residency programs. Such a trend can only lead to a worsening of the relationship between anesthesiologists and CRNAs.

With these closures of nurse anesthesia educational programs, the number of nurse anesthesia educational programs has dropped to 80. The number of graduates has declined from about 1,100 per year to 600, producing a serious shortage of nurse anesthetists within a very short time. While efforts to open new programs have been ongoing, expansion of current programs has been more successful, and the number of graduates per year is now on a slow rise. Two, possibly three, new programs are to open in the fall of 1990.

Since anesthesia is a pivotal service in keeping hospital beds occupied and operating rooms open, shortages of anesthesia providers cause major problems for hospitals. Furthermore, the decentralization of care through opening of a large number of ambulatory surgical centers has contributed to the increasing need for CRNAs, despite the greater number of anesthesiologists being prepared. In fact, by lengthening the residency program in anesthesiology to four years from three, this increase in residents is not as pronounced as might be thought. Even with an increase in the number of anesthesiologists, practitioners remain for the most part in urban areas, leaving a third of the hospitals in the United States dependent solely upon CRNAs for their anesthesia services. For the most part, these hospitals
are in rural areas, which have been the hardest hit financially by the PPS legislation.

The Health Economics Research, Inc. CRNA manpower study, mandated by the U.S. Congress, projects a need for some 35,000 CRNAs by the year 2010. If this need is to be met, both new educational programs as well as an expansion of current programs will be needed.

The regionalized approach to nurse anesthesia education will allow recruitment of additional clinical sites for already existing programs. There appears to be an adequate number of qualified applicants to fill the increase in educational spaces, but the acquisition of additional clinical sites for education will have to be the result of an improvement in the relationship between at least some anesthesiologists and some nurse anesthetists who are willing to set aside their personal and professional self-interests and work for the public good. The historical problems that have functioned to perpetuate distrust between these providers at organizational levels have sometimes been set aside at institutional levels to permit a cooperative and collaborative relationship. Perhaps this is the place to start if educational opportunities for preparing nurse anesthetists are to be increased.

The history of nurse anesthesia education, with its highlights and influences, demonstrates the commitment of many nurse anesthetists and some physicians who have left their mark on nurse anesthesia education throughout the past century.

For understandable reasons, this account has concentrated on nurse anesthetists. They have come a long way under trying circumstances. But the challenges are not over, and there will be others with which new educators will have to cope. The 21st century will bring surprises as well as fulfill many predictions.

Today’s leaders have laid a sound foundation for the next century of nurse anesthesia education and for those educators and students who represent the profession’s future. History is to be learned from, not repeated. Learn its lessons well and build on its achievements so as to keep faith with all who have been a part of this challenging endeavor.

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AUTHOR’S NOTE
The author wishes to acknowledge her reliance on Virginia Thatcher’s History of Anesthesia With Emphasis on the Nurse Specialist and Marianne Bankert’s Watchful Care, A History of America’s Nurse Anesthetists for that portion of the history of nurse anesthesia education between the turn of the century and 1955–56. Much of the more recent history, with reference of the movement into college/university academic frameworks; two-phase nurse anesthesia educational programs; and the changes in accreditation requirements in 1975, which have had such marked effect on nurse anesthesia education, and the AANA federal governmental affairs program resulting from the PPS legislation in 1983, has been lived by the author and should be considered her oral historical account based on those experiences. She served as project director for AANA in revising its accrediting structure and program to comply with the 1974 USOE criteria and was an AANA governmental affairs consultant during most of the 1980s.