
Introduction
During the past 20 years, changes in healthcare delivery have had a significant impact on the need for healthcare professionals and services. While the demand for anesthesia services was increasing, the nurse anesthesia profession was experiencing a dramatic shortfall in the number of providers. As attention focused on our educational systems, it was determined that the number of educational programs had decreased by greater than half over 15 years. It was striking to learn that while there were 195 educational programs in 1975, that number had decreased to 89 in 1989 (Council on Accreditation of Nurse Anesthesia Educational Programs [COA], unpublished data, 1999). Challenged by a marked reduction in annual graduates and a shortage of Certified Registered Nurse Anesthetists (CRNAs), the National Commission on Nurse Anesthesia Education (NCNAE) was appointed by AANA President Richard Ouelttte, CRNA, Med, to evaluate CRNA educational programs and uncover barriers to increasing manpower to meet the needs of a changing healthcare environment.

This is the first of a 2-part article that addresses the CRNA shortage and educational crisis of the late 1980s that served as the impetus for appointment of the NCNAE. It discusses legislative and political issues that ultimately led to the manpower shortage, outlines the NCNAE’s purpose and goals, and identifies steps taken by the NCNAE’s Implementation Task Force to actualize these goals.

The commission years: historical background leading to formation of the commission
Traditionally, changes in supply/demand ratios result from many influences: political, economic, and social. The drastic changes in CRNA manpower in the late 1980s resulted from the effects of these influences on nurse anesthesia education. Closure of 85 programs between 1975 and 1983 was alarming, even though some closures resulted from introduction of stronger accreditation requirements as programs, unable to meet the challenges, closed voluntarily (COA, unpublished data, 1999). However, in spite of fewer programs, the number of graduates increased as the remaining programs expanded to accommodate more applicants. This brief period of optimism vanished in the early-to-late 1980s when programs continued to close, and the annual number of graduates dropped substantially from 1,063 to 592 (Council on Certification of Nurse Anesthetists, unpublished data, 1999). The trends in program closures and number of graduates are depicted in Table 1 and Figures 1 and 2.

Table 1. Summary of nurse anesthesia programs

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<tr>
<td>Total programs</td>
<td>195</td>
<td>147</td>
<td>110</td>
<td>91</td>
<td>90</td>
<td>83</td>
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<tr>
<td>New programs</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>1</td>
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<tr>
<td>Closed programs</td>
<td>0</td>
<td>7</td>
<td>14</td>
<td>2</td>
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Several legislative issues during that time period contributed to the decline in program graduates. In 1983, prospective payment legislation was passed by the US Congress and implemented in October of that year. This legislation inadvertently created reimbursement disincentives to the use of CRNAs because their services were reimbursed as a part of the diagnosis-related group (DRG), while anesthesiologist reimbursement was unaffected. The incentive made it possible for hospitals to eliminate their CRNA costs by terminating CRNA employment and shifting these services to anesthesiologists, thus reaping a windfall from the DRG. In addition, the DRG would not fully reimburse hospitals for their CRNA services.

This legislation served as a basis for AANA to seek regulatory and/or legislative relief from the Health Care Financing Administration (HCFA, now known as Centers for Medicare and Medicaid Services) and the US Congress. A direct reimbursement bill for CRNA services

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**Figure 1. Numbers and types of nurse anesthesia programs, 1976-2001***

*Data used with permission from the Council on Accreditation of Nurse Anesthesia Education Programs, 2001.

**Figure 2. Number of nurse anesthesia graduates, 1974-2002***

*Data used with permission from the Council on Certification of Nurse Anesthetists, 1999.
under Part B Medicare was introduced in 1983, signed into law in 1986, and implemented by HCFA in 1989. Successes in 1 area were paralleled by setbacks in others as tensions exacerbated between the American Society of Anesthesiologists (ASA) and the American Association of Nurse Anesthetists (AANA). Nurse anesthesia programs, the pipeline for future generations of CRNAs, were in the direct line of fire. Practice restrictions were invoked by the ASA and student experiences curtailed. Of interest, 46 programs closed between the time direct reimbursement was introduced in 1983 until it was signed into law in 1989 (Council on Certification of Nurse Anesthetists, unpublished data, 1989). Thus a shortage emerged, with CRNA vacancies reported in 12% of medical facilities.

The reason for closure of nurse anesthetist educational programs remains controversial. Physician colleagues cited several influences: (1) closure of hospital-based diploma programs due to stronger accreditation requirements including a mandatory master’s degree; (2) fewer resources in academic medical centers to support both physician and nursing programs; and (3) a generalized shortage of nurses, especially critical care nurses.

On the other hand, CRNAs described financial, philosophical, and political issues as causes of program closures. Surveys of program directors ranked factors influencing the decision to close programs between 1982 and 1987: (1) lack of support from administration, (2) lack of anesthesiologist support, (3) reduced program funding, (4) the cost of the program to the institution, (5) the belief that there would be an ample supply of anesthesiologists and less need for nurse anesthetists in the future, (6) the necessity to show the dollar value of educational programs to the institution, (7) strained relationships between the ASA and AANA, (8) accreditation requirements, (9) incongruence with the philosophy of the conducting institution and the program, and (10) the trend toward the development of master’s-level nurse anesthesia education.

In response, members of the nurse anesthesia community called for a strategic plan to address declining number of programs and reverse this perilous trend in education.

The NCNAE, appointed in the fall of 1989, was a multidisciplinary group consisting of CRNAs, anesthesiologists, hospital administrators, university deans, and a healthcare economist. The primary responsibility of the NCNAE was to study nurse anesthesia educational systems independently, analyzing issues and trends, and suggesting goals and strategies the profession should use in resolving a growing human resource problem. The NCNAE was primarily responsible for organizing a project that considered a wide range of strategies including but not limited to opening new programs; expanding existing programs; encouraging the development of cooperative educational ventures between universities; multiple clinical sites for existing programs; and preparation, retention, and recruitment of qualified faculty.

The final report of the NCNAE, published in December 1990, concluded that the shortage of nurse anesthetists was of critical proportions and that this problem related to a significantly reduced educational capability for preparing the number of CRNAs needed now and in the future. The commission members also believed that the healthcare cost savings that could be projected through increased use of CRNAs were not only in the public interest but were consistent with future national goals for healthcare. Commission members strongly believed that it was essential that AANA place resolution of its educational problems among its highest priorities. Eight goals along with related strategies were developed (Table 2). An implementation task force consisting of NCNAE CRNA members, a Project Team, and AANA staff was funded by AANA for 3 years to complete the project (Table 3).

The NCNAE Project Team members began their work in June 1991. With tasks in hand, the team set out on a calculated journey to implement the 8 goals so carefully outlined by the commissioners. They too found it necessary to implement fact-finding initiatives to implement effectively and efficiently the activities necessary to prepare the profession to meet current and future manpower obligations. These initiatives will be described as they relate to each goal.

Goal 1: Increase the number of annual graduates from nurse anesthesia educational programs by expansion of existing programs and development of new programs.
Accomplishing Goal 1 appeared quintessential to alleviating the shortage of nurse anesthetists. To satisfy the first message in this goal, it was essential to determine
the expansion capabilities of existing programs. An Enrollment Expansion Survey was issued to all program directors. This survey not only extracted expansion capabilities but also highlighted barriers to expansion. Survey data indicated that approximately 150 unfilled clinical and 225 unfilled didactic positions were available for potential nurse anesthesia students. The barriers to expansion were identified as economic constraints, insufficient clinical opportunities, insufficient faculty, political issues, and that maximum enrollment had been achieved.

In addition to the Enrollment Expansion Survey, a Hospital Administrators Survey was issued to 5,500 institutions to collect data regarding CRNA vacancy rates as well as to gauge interest in serving as a clinical site for existing programs or in developing new nurse anesthesia programs. Of approximately 2,100 responses (38%), more than one fourth of the administrators indicated an interest in nurse anesthesia education. The information gleaned from the surveys was used to develop strategies to meet the desired outcomes of Goal 1. Program directors anticipating little difficulty in expansion were encouraged to meet maximum enrollment capabilities, and their valiant efforts were fundamental to achieving this goal. Through creative negotiating, the number of clinical sites increased from 266 in 1990 to 445 in 1994 (COA, unpublished data, 1993). The Council on Certification of Nurse Anesthetists reported an increase of approximately 360 graduates during that time frame (Council on Certification of Nurse Anesthetists, unpublished data, 1993).

Barriers to expansion were given considerable attention. Those that

Table 2. Goals of the National Commission on Nurse Anesthesia Education

- Increase the number of annual graduates from nurse anesthesia educational programs by expansion of existing programs and development of new programs.
- Make nurse anesthesia education a more attractive career option and establish a recruiting and placement service for Certified Registered Nurse Anesthetist (CRNA) faculty.
- Secure more equitable treatment of CRNAs, nurse anesthesia students, and graduates in all reimbursement guidelines and policies.
- Develop program directors and faculty to provide effective leadership.
- Promote interprofessional collaboration between CRNAs and anesthesiologists to enhance anesthesia education.
- Market nurse anesthesia and nurse anesthesia education.
- Enhance CRNA/nurse anesthesia student awareness and understanding of professional issues as they relate to education, practice, and research.
- Develop funding and staff mechanisms to accomplish the Commission’s recommendations.

Table 3. Commissioners, Project Team, American Association of Nurse Anesthetist (AANA) staff, and consultants for the National Commission on Nurse Anesthesia Education implementation task force*

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<tr>
<th>Project Team members</th>
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<tr>
<td>Cathy Mastropietro, CRNA, MEd, MSN</td>
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<tr>
<td>Lois Frels, RN, PhD</td>
<td>Development manager</td>
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<td>Nancy Lindauer, MA</td>
<td>Marketing manager</td>
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<tr>
<th>Certified Registered Nurse Anesthetist commissioners</th>
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<tr>
<td>Sandra M. Maree, CRNA, MEd, Chairman</td>
<td>AANA past-president; director, Program of Nurse Anesthesia</td>
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<tr>
<td>Nancy Tierney, CRNA, MS</td>
<td>Director, Program of Nurse Anesthesia</td>
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<tr>
<td>Wynne Waugaman, CRNA, PhD</td>
<td>Associate professor and director, Program of Nurse Anesthesia</td>
</tr>
<tr>
<td>Margaret Faut-Callahan, CRNA, DNSc</td>
<td>Associate chairperson, Department of Surgical Nursing, director, Program of Nurse Anesthesia</td>
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<th>AANA staff and consultants</th>
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<tr>
<td>Ira Gunn, CRNA, MLN</td>
<td>Consultant</td>
</tr>
<tr>
<td>Lorraine Jordan, CRNA, MS</td>
<td>AANA director of Education and Research</td>
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pertained to Goal 1 were economic and clinical access deficits. To address the economic constraints, program directors were counseled on mechanisms to successfully write the federal traineeship expansion grant offered by the US Health Resources and Services Administration Bureau of Health Professions Division of Nursing. Open forums, structured lectures, and panel discussions were held at AANA Assemblies of School Faculty to discuss creative ways to finance program expansion and negotiate for clinical sites.

Several mechanisms were initiated to resolve the need for clinical access. Information from the Hospital Administrators Survey was matched with the Enrollment Expansion Survey to determine whether programs and potential clinical sites could be paired. The NCNAE Project Team served as a liaison between parties. Institutions demonstrating interest were evaluated for economic and clinical capabilities, and if criteria were met, the information was provided to programs geographically acceptable to the facility.

The second component of Goal 1 was to increase the number of nurse anesthesia programs. To begin, a comprehensive primer to assist in developing a nurse anesthesia program was created. The primer described options for program configuration, identified funding resources, outlined steps for implementing the process, and provided sample proposals, contracts, course descriptions, due process, and faculty job descriptions. The primer remains available through the AANA Education Department. In addition, feasibility visits, assistance in curriculum development, consultation in preparation for an accreditation visit, and grant reviews were offered by the commission and by the AANA Education Department.

Another successful initiative to increase the number of programs was to target states that did not have a nurse anesthesia program. Discussions involving state presidents, hospital administrators, and deans were fostered. During the 3-year term of the NCNAE Project Team, COA approved 10 new programs, 3 in states that did not previously have nurse anesthesia programs.

**Goal 2: Make education more attractive as a career option and establish a recruiting and placement service for CRNA faculty.**

The NCNAE Project Team was aware that as the number of educational programs increased, the need for qualified faculty would expand. Further, existing faculty members were reporting excessive workloads: increased clinical demands coupled with a reduction in administrative time. To complicate matters, increased workloads were not always financially compensated, and program faculty found themselves earning less than clinical staff. Collectively, these factors created a great disincentive for CRNAs to continue in faculty roles and made enticing qualified individuals into faculty roles more difficult.

The Project Team responded by creating a formula for faculty members to demonstrate their work commitment and distribution. In addition, a salary survey was conducted and data were compiled for directors to use at their discretion. To ease some of the workload, a database of educational resources and a library reference list were compiled to apprise directors of commonly used teaching aids.

Also, annual faculty awards for program director, clinical instructor, and didactic instructor were created to recognize leadership and teaching excellence. The first awards were distributed in 1992, and the recognition is ongoing.

**Goal 3: Procure more equitable treatment of CRNAs, nurse anesthesia students, and educational programs in all federal, state, and private third-party reimbursement guidelines/policies.**

Efforts to improve funding and reimbursement for CRNAs, students, and programs required extensive data collection relating to financing and demographics of educational programs. This information was collated and submitted to the AANA Board of Directors and the AANA Federal Government Affairs office in Washington, DC, for lobbying efforts and testimony in support of nurse anesthesia programs. Information, such as operating budgets, financial underwriters, and numbers of programs receiving Medicare passthrough monies or that coexisted with residency programs, was critical to this initiative. Also, workshops were held in conjunction with the AANA Government Relations workshops to advise program directors of existing funding sources and to encourage grassroots lobbying efforts for proposed funding targeting CRNA education.

**Goal 4: Develop program directors and faculty to provide effective leadership.**

As the number of programs and clinical sites expanded, the need for qualified faculty increased proportionally. Several nurse anesthesia programs developed degree completion programs for CRNAs to meet appropriate qualifications to achieve faculty status. Programs were queried regarding these offer-
ings, and the information was published in a brochure titled “Degree Options for CRNAs” (available through the AANA Bookstore).

In addition, educational offerings during the Assembly of School Faculty meetings taught new faculty members skills in research, grant writing, budget development, effective clinical supervision and evaluation, and effective leadership.

**Goal 5: Promote interprofessional collaboration between CRNAs and anesthesiologists to enhance anesthesia education.**

After much thought, the Project Team concluded that strategies to promote stronger interprofessional collaboration between CRNAs and anesthesiologists to enhance nurse anesthesia education would be best developed at the local level. In this way, specific sensitivities could be addressed and overcome.

**Goal 6: Market nurse anesthesia and nurse anesthesia education.**

Several marketing related activities were introduced during the term of the project team. While some activities were short-lived, AANA continues to use others. The intent was 2-fold: provide information regarding nurse anesthesia to young individuals setting out to select a career and to serve as a source of information for hospitals and universities that expressed an interest in nurse anesthesia education. The team created the following brochures intended for these purposes: “Focus on Your Future,” “Questions and Answers About a Career in Nurse Anesthesia,” “Nurse Anesthesia and the AANA,” “Stand Up and Be Counted,” and “Degree Options for CRNAs.” (All of these brochures, with the exception of “Stand Up and Be Counted,” are available through the AANA Bookstore.)

**Goal 7: Enhance the awareness and understanding of CRNAs and nurse anesthesia students of professional issues as they relate to nurse anesthesia education, practice, and research.**

To meet this goal, the NCNAE submitted a recommendation to the AANA Education Committee to develop a textbook discussing the historical, professional, ethical, and legal issues surrounding the specialty of nurse anesthesia. The first edition of *Professional Aspects of Nurse Anesthesia Practice* was released in 1994. It serves as a reference for both students and CRNAs.

**Goal 8: Developing funding and staffing mechanisms to accomplish the commission’s recommendations for alleviating the shortage of nurse anesthesia educational program graduates and CRNA faculty.**

The Implementation Task Force strongly believed that CRNA educators needed to take advantage of federal grant monies earmarked for education and research. In response, the project development manager published articles in the *AANA Journal* identifying sources for grant support for projects and effective writing grant skills. 10,11

Also, the Capital Campaign for Education was launched in 1993, resulting in an education fund that is available to nurse anesthesia programs. This fund is an independent source of monies for programs needing short-term financial support to expand, assist faculty in obtaining academic credentials, assist programs in transition to the master’s curriculum, and ease critical unanticipated financial hardship. The fund receives contributions regularly. To date more than $50,000 earmarked for this fund has been placed in the AANA Foundation.

**Discussion**

Following an extensive investigation, critical issues in the profession’s educational system were targeted for focused attention. This intense analysis and resulting resolutions contributed significantly toward the curtailment of the shortage of anesthesia providers. Having addressed each goal as thoroughly as possible in the allotted 3 years, the final report of the Implementation Task Force was submitted in 1994. Not only did the report summarize activities of the project years, but it also highlighted recommendations such as ensuring ongoing faculty development workshops and monitoring the number and quality of applicants, trends in education, and CRNA supply and demand to avoid future drastic declines in the number of nurse anesthetists. The recommendations, and a report on their implementation will be detailed in Part 2 of this article.

**REFERENCES**


AUTHORS

Cathy A. Mastropietro, CRNA, PhD, was project manager, National Commission on Nurse Anesthesia Education, and is now chairman, Council on Accreditation of Nurse Anesthesia Educational Programs.

Betty J. Horton, CRNA, DNSc, is director of Accreditation and Education for the American Association of Nurse Anesthetists.

Sandra M. Ouellette, CRNA, MEd, FAAN, was chairman of National Commission on Nurse Anesthesia Education, and is now director, Nurse Anesthesia Program, Wake Forest University Baptist Medical Center and The University of North Carolina at Greensboro, NC.

Margaret Faut-Callahan, CRNA, DNSc, FAAN, was a member of National Commission on Nurse Anesthesia Education, and is now director, Rush University College of Nursing Nurse Anesthesia Program, Chicago, Ill.