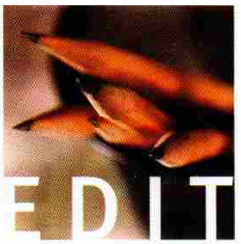


GUEST EDITORIAL

Sandra M. Ouellette, CRNA, MEd, FAAN
Winston-Salem, North Carolina

Nancy Bruton-Maree, CRNA, MS
Raleigh, North Carolina

Eileen Kohlenberg, RN, PhD
Greensboro, North Carolina

EXPANSION OF NURSE ANESTHESIA EDUCATIONAL PROGRAMS: WHERE ARE THE BARRIERS?

Key words: **Barriers, educational programs, nurse anesthetist.**

The United States faces many challenges regarding the delivery of anesthesia services in the new millennium. Although the demand for anesthesia services is rapidly increasing, shortages exist for both Certified Registered Nurse Anesthetists (CRNAs) and anesthesiologists.[1,2] One reason for the shortage of CRNAs was the marked decline in nurse anesthesia programs in the 1980s. While there were 91 programs in 1995,[3] that number decreased to 85 in 2001.[4] Fifty-one programs closed between 1982 and 1989, with a marked reduction in the number of annual graduates.[5-7] While modest gains were made in the number of annual graduates since 1988,[6] there are only 85 programs today to meet society's need for delivery of anesthesia.[4]

We believe it is critical that the profession immediately correct this serious problem. New programs must be opened, and existing programs must increase enrollment. The purpose of this nonscientific poll was to identify barriers to nurse anesthesia program expansion.

Methods

The purpose of this inquiry was to better understand the barriers to nurse anesthesia program expansion, given the acute shortage of practicing CRNAs. A nonscientific online poll was conducted with the entire population of anesthesia program directors (N = 85) in the United States. Fifty-two (61%) of the program directors responded.

The survey instrument included 4 demographic questions regarding the anesthesia program. Additionally, 4 yes/no questions with a checklist of 37 potential barriers to expansion were included. The final 2 questions required short answer responses regarding manpower shortage and additional comments.

• *Demographics.* The length of program most often cited was 27 months (n = 16). Thirteen directors responded that their programs were 24 months in length, 8 reported 30 months in length, 8 reported 28 months, and 2 reported 33 months. One director each responded that lengths were 29 months, 29 months, and 36 months (Figure). Two directors did not respond.

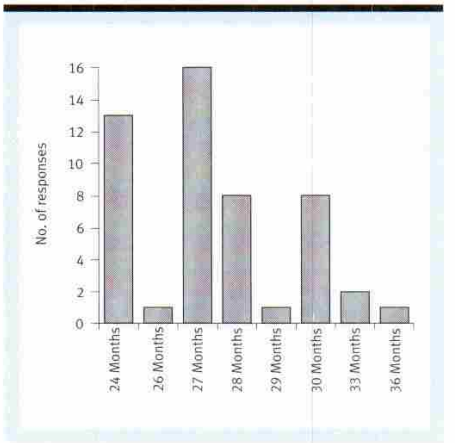
The number of students currently enrolled in each program ranged from 10 to 119 with a mean enrollment of 36. The number of students graduated per year for each program averaged 16. The number of program directors who plan to increase enrollment in their programs within the next 2 years was 24, while 27 indicated no plans for enrollment expansion.

• *Barriers to program expansion.* On a checklist of 37 potential barriers to program expansion, at least 25% of the program directors indicated factors listed in Table 1 inhibited program expansion. The majority of inhibiting factors for program expansion were specific procedures that students would complete while enrolled in the anesthesia program. Factors, such as insufficient number of applicants, quality of applicant pool, and budget shortfalls, were cited by 6 or fewer of the program directors.

Program directors were asked if any of the 37 potential barriers would place them in a position of decreasing current enrollment after January 1, 2001. Fifteen (29%) of the directors responded affirmatively to this question. Specific procedural requirements (as noted in Table 1) and case numbers in specialty areas for students were most frequently cited as barriers. Program directors also noted the 30-month program requirement as problematic.

The final short answer questions on the poll asked program directors how the profession should address the current CRNA manpower shortage and asked for additional comments. Several program directors indicated that a combined effort between the American Association of Nurse Anesthetists (AANA) and the Council on Accreditation of Nurse Anesthesia Educational Pro-

Figure. Length of program



grams (COA) should be implemented for aggressive recruitment and support of programs preparing CRNAs. Existing anesthesia nursing programs should be expanded to meet workforce needs. Aligning with other major nursing organizations to lobby for better working conditions for nurses also was suggested as well as appealing to local hospitals for program support and clinical site expansion.

Several respondents indicated that the length of programs should not be expanded nor should more stringent requirements for specialty procedures be instituted. These were viewed as inhibiting factors for program continuance and expansion.

Table 1. Indicators inhibiting program expansion

Inhibiting factor	No. of programs
Inability to meet proposed requirement of 5 fiberoptic intubations per student	21
Inability to place pulmonary artery catheters	18
Not enough experience placing epidurals (15 required after 2003)	16
Inability to place central venous pressure catheters	15
Insufficient opportunity to participate in cardiopulmonary resuscitation outside the operating room	14
Not enough intracranial procedures	13
Not enough experience placing spinals (15 required after 2003)	13

Table 2. Factors associated with increased demand for anesthesia providers

- Growth in the US population
- Growth in the elderly population
- Increased number of surgical procedures related to progression of disease processes
- Increased complexity of surgical procedures
- Decentralization of anesthesia services
- Increased demand for treatment of chronic pain

Discussion

Many factors are expected to increase the demand for anesthesia services in the new millennium (Table 2). Since 1993, the US population increased from 248.8 million to 270.3 million for a growth of 8.7%. During the same period, those older than 65 years grew 11%, and those older than 84 years grew 34.1%.[2] The Medicare population, or those older than 65 years, is expected to increase by 30% to 100% in the next 30 years.[8]

The number of inpatient procedures performed by nonfederal hospitals in 1998 was 41,500,000.[2] That number, as well as the length and complexity of surgical procedures, is expected to rise with an increase in the elderly population. Aging alone and progression of diseases associated with aging can be expected to increase the need for surgery. The need for anesthesia services outside the operating room, such as diagnostic radiology, dental clinic, etc, increases the need for anesthesia providers. Ambulatory surgery is growing at an annual rate of 5.5%, and office based anesthesia practice is on the rise.[2] All future indicators show a demand for more anesthesia providers.

According to AANA membership figures, the number of CRNAs in July 2001 was 29,007. This represents a growth of 3,697 member CRNAs since 1992 (phone conversation with AANA Membership Department, March 2002). The number of active members in the American Society of Anesthesiologists in 2001 was 24,096, indicating a growth of 2,610 since 1994.[2] The number of all active US anesthesiologists in 2001 was 35,452.[2] In spite of these numbers, a substantive shortfall of 3.6% to 10.9% of anesthesiologists exists. To meet current and future demand, physician leaders are calling for an increase in physician graduates from 1,100 in 2001 to 1,600 in 2005 and 2,000 in 2010.[2]

What about CRNAs? The magnitude of the current shortage was documented by a congressionally mandated study in 1989-1990. This study by the US Department of Health and Human Services reported a shortage of 6,000 CRNAs for 1990 or a 13.6% shortfall. It further reported a need for 30,000 CRNAs by the year 2000 and more than 35,000 by the year 2010. Investigators found the educational system for nurse anesthetists would have to have a capability of graduating 1,800 students annually between 1990 and 2000 and 1,500 a year thereafter.[9] That study took into consideration the increase in the number of anesthesiologists. Since 1990, the number of annual graduates has exceeded 1,000 for 4 years only: 1995, 1,054 graduates; 1996, 1,079 graduates; 2000, 1,075 graduates; and 2001, 1,159 graduates (Council on Certification of Nurse Anesthetists, unpublished data, February 2002). We fear this modest increase is far below the number of CRNAs currently needed.

Challenged by the marked reduction in programs and annual gradu-

ates and the national study completed by the Department of Health and Human Services, the National Commission on Nurse Anesthesia Education was appointed. A final report that included commission goals and recommendations was completed and published.[10] The commission remained active from 1989 until 1994. During that time, the number of programs increased from 92 in 1989 to a high of 95 in 1993.[6,11] The number of annual graduates increased from 592 in 1989 to 990 in 1994 (Council on Certification of Nurse Anesthetists, unpublished data, February 2002). Until 1985, the number of annual graduates had exceeded 1,000 per year (Council on Certification of Nurse Anesthetists, unpublished data, February, 2002).

The commission ended in 1994 as the AANA Board of Directors began to focus their attention and resources on other issues. While internal groups continued with implementation of commission recommendations, nurse anesthesia manpower became less visible than other agendas. The number of programs decreased from 95 in 1993[12] to 85 in 2001.[4] Although the number of graduates has exceeded 1,000 since 2000, largely due to multiple clinical sites and expanded enrollment in existing programs, we believe the workforce issue remains critical. In 1997, it was estimated that 32% of all practicing CRNAs would retire in 10 years. Additionally, current anesthesia students are older when they enter the workforce, and we are impressed with the number of practitioners choosing to work part time.

While nursing school enrollment has declined during the last decade, to date it has not had a negative impact on recruitment to nurse anesthesia programs. It appears the greatest barrier to increasing the number of new graduates may be internal, resting with the beliefs and actions of the accrediting body, leadership of AANA, and membership of the profession.

The formal accreditation process for nurse anesthesia programs began in 1952, and in 1955, the US Commissioner of Education listed AANA as the recognized agency for accreditation of nurse anesthesia schools. The accreditation function transferred from AANA to a semiautonomous Council on Accreditation of Nurse Anesthesia Educational Programs in 1975; the primary reason for this transfer of responsibility is a result of major revisions of the United States Department of Education criteria.[4] In 1978, COA became an autonomous multidisciplinary body for accreditation of nursing anesthesia programs under the corporate structure of the AANA.[13]

The COA has maintained recognition from the Council on Postsecondary Accreditation or its successor, the Commission on Recognition of Postsecondary Accreditation (CORPA) since 1985 and is now recognized by the Council for Higher Education Accreditation (CHEA), which assumed CORPA's recognition function in 1997.[13] The COA maintains CHEA recognition to demonstrate its effectiveness in assessing and encouraging improvement and quality in programmatic accreditation.[13]

The mission of the COA is to grant public recognition to nurse anesthesia programs and institutions that award post-master's certificates, master's, and doctoral degrees that meet nationally recognized standards of academic quality and to assist programs and institutions in improving educational quality.[13] One of the objectives for meeting this mission is promulgating standards of accreditation for nurse anesthesia graduate programs with input from the communities of interest.[4] Periodic review of the accreditation standard by the COA and/or its community of interest results in revision of some or all of the standards. Major (substantive) revisions to the standards may affect the nature of nurse anesthesia educational programs, their mission and objectives, and their resources. Therefore, major revision is a lengthy process that involves several drafts of proposed standards, the first developed by the COA and the subsequent drafts developed by the AANA Education Committee. Each of these drafts must be sent to the community of interest of the COA for review and recommendations. The COA and the AANA Education Committee conduct hearings on the proposed changes as well as accept written comments.

Substantive changes to the COA Standards for Accreditation[13] often garner strong objections intertwined with emotions from program faculty. Such is the case with the recent major revisions recommended by the COA, which concerned proposed experiences for students and program length requirements. There were 3 hearings on 2 drafts of the proposed standards with much opposition from program faculty to several of the proposed changes. Some faculty believed that several of the proposed changes could become barriers to expansion of the programs and/or close programs, and ultimately decrease the output of graduate nurse anesthetists at a time of great shortage of these healthcare providers.

In addition to the proposed experiences listed on Table 1, proposed increased length of programs was identified as a concern by some directors. The first draft of the revisions proposed increasing the minimum length of nurse anesthesia educational programs from 24 to 30 months; the second draft proposed a minimum length of 27 months. While this may be necessary in the future, many program faculty questioned the wisdom of this change in the current environment. Such changes may decrease annual graduates through decreased enrollment or program closures.

Table 3. Recommendations for expansion of CRNA providers

- Place a moratorium on any accreditation revision that would lead to program closures or reduced enrollment unless clearly required by the US Office of Education.
- Complete a CRNA needs assessment immediately.
- Identify areas in the country of greatest CRNA need and greatest potential for a new program. Send a team of experts to that area to discuss developing a new program with decision makers.
- Market education to the same extent as practice; develop a monthly article in the *AANA Newsletter* that addresses manpower issues and membership involvement when necessary to correct shortfalls.

Practice and education do not exist in isolation in the nurse anesthesia world, and what affects one has an impact on the other. Political issues have endangered programs and what students can be taught. For example, the necessary steps to gain direct reimbursement under Part B Medicare between 1983 and 1986 was not without a price. A total of 36 programs closed during that 3-year period.The more recent political issue regarding CRNA supervision coupled with CRNA and anesthesiologist shortages has made a third anesthesia provider attractive to some physicians. Unless correction of CRNA shortages becomes the top priority of AANA, we should not be surprised if more anesthesiologist assistant programs open, and the use of these providers expands into more states.

The education of too many CRNAs is not the major threat to individual anesthetists. In contrast, continued imbalances in supply and demand for CRNA providers are critical. Every CRNA has a responsibility to correct the problem through recruitment of applicants and clinical instruction and mentoring of students where possible. The ability to meet a current graduation rate of more than 1,000 annually rests with all who have participated in clinical education of students.

There are several other limitations to this study in addition to those previously mentioned. Only 61% of the directors responded. A large number of the respondents were from 24- or 27-month programs. We believe, however, that those who responded highlighted critical issues that must be addressed.

Recommendations

Table 3 lists our recommendations for expansion of CRNA providers. Serious consideration must be given to any barriers that would reduce enrollment in existing programs or lead to the closure of even 1 program.

Summary

CRNAs have been a major contributor to direct patient anesthesia care for more than 100 years. All indicators suggest a greater need for nurse anesthetist services in the future. Our ability to meet this increased demand will depend on wise decisions in accreditation and professional agendas and support of all CRNAs in this critical issue. As stated by AANA Past President Linda Williams, CRNA, JD, students represent only 10% of our membership but they represent 100% of our future. Let's unite all forces to secure a future in which CRNAs will be indispensable healthcare providers throughout the 21st century.

REFERENCES

1. Mastropietro CA, Horton BJ, Ouellette SM, Faut-Callahan M. The National Commission on Nurse Anesthesia Education 10 years later—Part 1: The commission years (1989-1994). *AANA J.* 2001;69:379-385.
2. Schubert A, Eckhout G, Cooperider T, Kuhel A. Evidence of a current and lasting national anesthesia personnel shortfall: scope and implications. *Mayo Clin Proc.* 2001;76:995-1010.
3. Council on Accreditation of Nurse Anesthesia Educational Programs. *AANA J.* 1995;63:531-540.
4. List of Recognized Educational Programs by Council on Accreditation of Nurse Anesthesia Educational Programs. *AANA J.* 2001;69:492-500.
5. Council on Accreditation of Nurse Anesthesia Educational Programs/Schools. List of Recognized Educational Programs/w/Revisions (Current Status as of December, 1982). *AANA J.* 1982;50:617-627.
6. Council on Accreditation of Nurse Anesthesia Educational Programs. *AANA J.* 1989;57:539-547.
7. Report of the Executive Director: Forecast for Our Profession's Future Is Highly Optimistic. (Figure titled "Graduates and Newly Certified CRNAs"). *AANA News-Bulletin.* Special Supplement. November 1998;52(10):14.
8. Angus DC, Kelley MA, Schmitz RJ, White A, Popovich J Jr. Committee on Manpower for Pulmonary and Critical Care Societies. Caring for the critically ill patient: Current and projected workforce requirements for care of the critically ill and patients with pulmonary disease: can we meet the requirements of an aging population? *JAMA.* 2000;284:2762-2770.
9. National Center for Nursing Research. *Study of Nurse Anesthetist Manpower Needs.* Washington, DC: US Department of Health and Human Services, Public Health Service, National Institutes of Health.1990.
10. Maree SM. Report of the National Commission on Nurse Anesthesia Education. *AANA J.* 1990;58:381-413.
11. Council on Accreditation of Nurse Anesthesia Educational Programs. *AANA J.* 1993;61:629-638.
12. Council on Accreditation of Nurse Anesthesia Educational Programs. *AANA J.* 1993;63:629-638.
13. Council on Accreditation of Nurse Anesthesia Educational Programs. *Standards for Accreditation.* Park Ridge, Ill: Council on Accreditation of Nurse Anesthesia Educational Programs. 1999.

AUTHORS

Sandra M. Ouellette, CRNA, MEd, FAAN, is director, Nurse Anesthesia Program, Wake Forest University Baptist Medical Center, The University Baptist Medical Center, The University of North Carolina at Greensboro, Winston-Salem, NC.

Nancy Bruton-Maree, CRNA, MS, is director, Raleigh School of Nurse Anesthesia, The University of North Carolina at Greensboro, Raleigh, NC.

Eileen Kohlenberg, RN, PhD, is assistant dean and director of Graduate Programs, School of Nursing, University of North Carolina at Greensboro, Greensboro, NC.