The need to establish clinical doctorate nurse anesthesia educational programs is discussed, as is the need for experienced program directors to take a leadership role in attracting qualified applicants to such programs. Holders of such advanced degrees are viewed as critical to meeting the challenges of the profession's future.

Throughout the history of nurse anesthesia education, there has been much concern and controversy with respect to the level of preparation of the certified registered nurse anesthetist (CRNA). In the latter part of the 19th century and early 20th century, the question was whether anesthesia should be a part of the basic nursing curriculum, as was obstetrical and pediatric nursing (later to become maternal and child health), or should it be provided after graduation from the nursing education program? By the end of World War I, the latter approach had won out. Despite the fact that nurse anesthesia education had remained outside the framework of traditional nursing education until the past couple of decades, it has been significantly affected by it.

By the end of World War II, most of the identified specialties within nursing were evidencing need for education beyond basic nursing, so a series of post-nursing educational courses were offered to prepare specialty nurses. In addition to courses in nurse anesthesia, courses were also offered in obstetrical, operating room, public health, pediatric and medical and surgical nursing. Many of these courses were four to six months in length and aimed at enhancing knowledge and skills in these specialties; some provided the basic elements for preparing specialty nursing's future leaders.

Also following World War II, sufficient leadership had emerged to make it possible to move expeditiously to change the educational system for nursing. Furthermore, the GI Bill furnished the money many ex-military nurses needed to obtain the educational credentials to lead this movement.

Studies regarding nursing and its educational system had long supported their movement out of the hospital into the mainstream of higher education. Leaders within the profession believed that the baccalaureate degree in nursing should become the entry level for professional nurses and that nursing specialists should be prepared at the master's level. Development of nursing as a discipline within which doctoral education could be made available has been a natural outgrowth of such thinking. The fact that the entry level problem has not been resolved does not detract from the significance of this educational philosophy.

Unfortunately, as nursing education has evolved, there has been serious confusion and even controversy over the extent to which nursing should be offering professional or academic degrees, including the titles for those degrees. For instance, the bachelor of arts degree was considered a liberal arts degree and was never intended to prepare its recipients for specific professions or occupations. On the other hand, the bachelor of science degree was aimed at beginning preparation within a discipline or a profession, and the degree requirements often took longer to complete, e.g., five, rather than four academic years. For instance, pharmacy and engineering were two professions prepared at this
Beginning level in a 5-year framework. (In England and some other countries, even medicine has been offered at a baccalaureate level.)

Early nursing baccalaureate degrees were placed in a 5-year framework, offering two years of liberal arts courses, some of which were identified and were required specifically to support the 3-year nursing component of the curriculum. Subsequently, these programs were shortened from 5- to 4-year programs. Unfortunately, it was the clinical education portion that was shortened. While nursing leadership contended that few, if any, professions prepared their graduates to a level where they were fully capable of moving into practice without preceptorships, clerkships or internships, these same leaders did not take the lead in developing such additional supervised professional practicums within institutional or agency settings, as had leaders in medicine.

Once the baccalaureate programs in nursing had been established, it was only natural that nursing should want to implement its philosophy with regard to graduate programs in nursing, e.g., a master’s for specialization, with a doctorate as a research degree. Controversy developed over these philosophies, since many nurses were being prepared as specialists in certificate-type educational programs or on the job. In addition, there was a period when both functional (education and administration) and clinical specialization at the master’s level were offered. Furthermore, because of the small number of persons being prepared at the doctoral level, many schools or colleges of nursing utilized their master’s programs to try to offer a significant curricular component in statistics and research methodology.

Since nursing was conceived as a unique discipline, it needed a theoretical base for its research, so nursing theory was also added to the curriculum as it developed. Because the master’s degree would most likely be the terminal academic degree many of these nurses would receive, leadership and nursing issues were added to the curricular component, along with a functional component in education or administration for clinical majors, or a clinical component for functional role majors. As a result, a nursing master’s often became a 45 semester hour graduate degree rather than the 30-36 semester hour degree found in many academic disciplines. Even with this, many nurses ended up taking additional credit hours, because of their perceived personal need for additional depth.

As a result of many nursing leaders choosing to situate their graduate programs in academic, rather than professional frameworks, these programs came under the aegis of the graduate school of the university, imposing additional requirements for admission and/or graduation and losing some autonomy over curricular requirements as a part of the approval process within the graduate school structure. While such recognition may have given additional credibility to the degree itself, it appears that nursing, because of its origins outside the university framework, assumed an educational inferiority complex that it has been striving to overcome. One of the mechanisms that appears to have been used to overcome this complex has been to repudiate the professional degree, rather than seizing upon it and utilizing it for legitimate purposes. Often, in the academic framework, the specialization component became squeezed again, but since most nurses had had clinical experience in the specialty in which they were taking the degree, little concern was evident at the university level that the clinical component of the specialty had again become the casualty.

As nursing began planning and implementation of doctoral programs, the dichotomy and ambivalence regarding professional and academic degrees once again became significant factors in the determination of which program to implement, given the resources to do one or the other. Perhaps if all the colleges of nursing that had the resources to offer doctoral degrees had been able to plan and implement both an academic and a professional doctorate simultaneously and appropriately differentiate between the two, the confusion that currently exists regarding the curricula of these programs would not have occurred. A study performed by Lancaster in 1982 found little, if any differences in the curricula of most doctor of philosophy (nursing, PhD) and doctor of nursing science degrees (DNSc or DNS).

However, there are other factors that often are at work within universities that impede faculty in accomplishing their goals, despite all the talk of academic freedom. One planned nursing PhD program with a major university that ran into a major block in the approval process had a college of nursing that existed within a health science faculty structure. The process required going through that structure to obtain approval at the university and state education level.

The basic science representatives had sufficient strength to prevent approval of the degree plan and its offering within the health science faculty structure. They believed nursing was a profession, not an academic discipline, and if the college of nursing was going to offer a doctoral degree, it should be a professional, rather than an academic offering. The college of nursing, with minimal change in the curricula, put the plan through as a doctorate of nursing sciences program and got the necessary approval to begin offering the degree.

Academic gaming is a fact of life in all university settings, necessitating nursing faculty to learn how to play to win or at least achieve most of the goals it seeks for its curricular offerings.

The fact that some nurse anesthetist educators had sufficient commitment to nursing to attempt to mesh nurse anesthesia education with other specialty nursing education, in view of the present state of master’s education within nursing, is somewhat remarkable in itself.
because of the required curricular and clinical content of accredited nurse anesthesia educational programs. Furthermore, since nurses entering these programs would not have had prior clinical experience in anesthesia, the clinical component of these programs was crucial. Acute or critical care nursing experience is invaluable to the nurse who seeks to become an anesthetist, and therefore, one year's experience in such a field of nursing became mandatory for entry into these programs. That these graduate nursing programs for preparing nurse anesthetists have worked exceedingly well is a tribute to the CRNA program directors and faculty and other nursing faculties and administrators as well as their students, who have made the commitment to make it work. Because of a lack of adequate numbers of doctorally prepared CRNA faculty, the master's program has been the most appropriate place to begin preparing CRNAs within a graduate framework.

Other nurse anesthesia educational program directors who have located their programs in other academic departments or schools have at times found that additional course requirements have been placed on them, along with those requirements for nurse anesthesia education per se. The graduate degrees to prepare nurse anesthetists often require students to take from 45-64 semester hours, depending upon the number of semester hours assigned to the clinical component of the program and regardless of the school or academic department within which these programs exist.

Since most doctoral degrees entail approximately 72-75 semester hours plus a dissertation beyond a baccalaureate degree, would not a clinical doctorate in the specialty be a better framework for nurse anesthesia education and a more appropriate credential for the academic accomplishments of these students? Or should the credential be optional for those students who are willing to devote the extra time needed to complete such a curriculum?

**A case for the clinical doctorate**

In any attempt to answer this question, it is necessary to define the limits of this discussion. Essentially, despite the confusion within nursing (and other professions and disciplines) about its doctoral degrees, this examination focuses on a clinical professional doctorate, whether within or outside the field of nursing. This degree is not to be equated to a PhD, although its academic rigor is no less than that of a PhD.

While the PhD is often geared to basic research, the clinical doctorate's research will most likely be focused on applied science, although it does not preclude basic research. Furthermore, since some professionals acquire a professional doctorate as part of their preparation, it is possible for those who attain a clinical doctorate to go on for a PhD in a field in which they choose to support their research or additional professional activities or to combine a DNS/PhD program at a later date.

Many CRNA program directors recognize the tightness of their curricula and the lack of time to accomplish all the goals they desire to accomplish within the framework of graduate education. In fact, many programs have gone to a 27-32 month framework. And therein lies the problem. Nurse anesthesia is relatively unique compared to other nursing specialties, in that while nursing provides an excellent generalist base on which to build, the specialty is not merely a single curricular component of undergraduate education on which to concentrate and build. Rather, it must add depth to the generalist base, while at the same time adding the unique anesthesia curricular component.

Since the nurse has not had experience in administering or managing the anesthesia process, the clinical component of the program has to be extensive. It must become the clinical laboratory for the integration of the additional sciences (advanced physiology, pathology and pharmacology), as well as afford skills training and exercises for making clinical judgments. Such judgments must be based upon an analysis and synthesis of the knowledge component of the curriculum, within the context of assessment of patient responses and desired goals for the anesthesia. Furthermore, it is from clinical problems that researchable questions arise; it is through exploring some of these in more depth that theory is generated and tested.

We overload the master's curriculum and the student, and while most of our students complete the curriculum and graduate, it is because their basic qualifications and motivation and willingness to meet the challenge have often been exceptional. However, something is lost in the experience.

Because anesthesia is primarily a practice discipline in which error or lack of vigilance can be life-threatening, every effort is made to assure that the practice component has priority, as it should. It is not to be mistaken for an exercise to gain technical skill. It is the laboratory in which cognitive and psychomotor skills are integrated within a framework of professional values and demonstrated in the implementation of patient-specific care plans under the guidance of master professionals. In a 2-year program, professional role preparation or the research components of the curriculum often have to take a back seat to those components deemed more essential in preparing safe, competent practitioners.

While the Council on Accreditation of Nurse Anesthesia Educational Programs requires a total of 45 contact hours, or the equivalent of three semester hours for the professional aspect of nurse anesthesia practice, this amount of time is sorely inadequate for orienting and preparing these practitioners to deal with the professional issues they will face in practice. They must recognize that while being clinically competent is essential to any nursing specialist, it is not enough to assure the kind
of practice environment within which nurse anesthetists can grow and be rewarded commensurate with their performance and contributions to patient care.

Professional commitment and participation in activities that enhance their professionalism are essential for maintaining a desirable practice environment. A full 3-semester hour course could be devoted to the history of nurse anesthesia and current professional issues, including the legislative and regulatory aspects of practice, while another course could be devoted to quality assurance, risk management and health care liability and tort law.

A proposed curriculum

The goal of a clinical doctorate within the nurse anesthesia specialty would be to prepare a complete professional who has an opportunity to acquire additional education in an area of special interest within the field while also qualifying for certification in the specialty. Such preparation would permit graduates to enhance their contributions to the profession, based on their special interests.

The curriculum for the clinical doctorate to prepare the CRNA of today and the future would be divided into five components shown in Table I.

This clinical doctorate would require a total of 81 semester hours beyond the baccalaureate, of which six would be for the dissertation. The credit framework and the areas of study within the doctorate are comparable to those found within many doctoral programs offered by a variety of accredited universities.

The functional basic science or subspecialty strand within the curriculum allows the student to choose an area in which he or she has a special interest and acquire additional education and laboratory experience within that area while gaining additional background in the area he or she has chosen for a dissertation. In this functional area, the student may take additional course and laboratory work in education or administration and participate in practice teaching or administration projects, while choosing an educationally or administratively focused dissertation. Should the student's interest lie in quality assurance and risk management, and the university has course offerings to support those areas, a student could choose them as his or her area of concentration as a basis for doing a dissertation in the area of quality assurance. The student could choose a subspecialty clinical area of concentration and take additional coursework or self-directed study in that area of concentration, with an additional practicum in support of the dissertation topic. Or the student could do additional coursework in one or more basic sciences, with laboratory time to support a basic research dissertation. Three of those hours could also be utilized for an additional advanced statistics course, if needed, for the study methodology chosen for the dissertation.

While such a program could be accomplished in a 36-month framework, some students might require a 42-48 month time frame to complete the dissertation. In reality, if the author had her preference in such a program and in nurse anesthesia credentialling, unless the clinical doctorate became the required credential for graduation of nurse anesthetists, she would like to have graduates take the certification examination at the end of 30 months and utilize it as one of the qualifying examinations for advancement to candidacy for the doctoral degree. But herein lies a problem with the current credentialling processes for nurse anesthesia educational programs and their graduates.

Historically, graduation from an accredited nurse anesthesia educational program has been required as an eligibility criterion for taking the certification examination in the specialty. As of 1998, the Council on Accreditation of Nurse Anesthesia Educational Programs is planning to require that all programs offer a graduate degree in the specialty. It also appears that all students who graduate from that program must attain or have already attained that degree prior to becoming eligible for certification.

In the case of a student who has already attained the degree, this accommodates the requirements of those universities which preclude students from earning the same degree twice, even though they fulfill all require-

### Table I

**Components of a clinical doctorate curriculum**

<table>
<thead>
<tr>
<th>Component</th>
<th>Credits</th>
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<tr>
<td>1. Advanced clinical sciences underlying practice: Biochemistry, advanced physiology and pathophysiology and pharmacology, 21 sem. hrs.</td>
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<tr>
<td>2. Basic and advanced principles of nurse anesthesia practice, including clinical practicums, 15 sem. hrs., 12 lab sem. hrs.</td>
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<tr>
<td>3. Nursing theory, research methodology and statistics, 12 sem. hrs.</td>
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<tr>
<td>4. A functional basic science or clinical subspecialty area of concentration supportive of the dissertation; it may include self-directed study courses, 9 sem. hrs., dissertation: 6 sem. hrs.</td>
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<tr>
<td>5. Professional role preparation, 6 sem. hrs.</td>
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* The current chemistry and physics of anesthesia could be integrated in these courses.
** In this curriculum, a maximum of 12 semester hours are awarded for clinical practicum, including the clinical correlation conferences. The rest would be considered noncredit, particularly if it was necessary to use the Carnegie unit for crediting clinical practicum time.
*** Three of the nine semester hours could be utilized as a laboratory or practicum supplement.
Report of the National Commission on Nurse Anesthesia Education

ments for a second major. An example may be a college of nursing that awards a master's of science degree upon completion of its master's curriculum, including a major area of specialization. A student may have been admitted to the college of nursing, fulfilled all the requirements and attained an MS in pulmonary nursing. He or she now gains admittance to the nurse anesthesia major and fulfills all curricular requirements unique to that major, but is neither required nor allowed to take the core courses he or she took previously while enrolled in the pulmonary nursing major. However, while not eligible for another master's, he or she has completed all coursework that students who initially enter the nurse anesthesia major are required to take while fulfilling the requirements for the MS degree. In making this accommodation, a graduate of the nurse anesthesia program must, at a minimum, qualify and have been awarded a master's degree.

In this curricular plan for a clinical doctorate, unless the clinical doctorate became a required credential for all graduates of nurse anesthesia educational programs, students would probably have to be awarded a master's degree at the end of the 30-month period to make them eligible for writing the certification examination at that time. This has decided advantages as well as some disadvantages. The principal disadvantage is the potential loss of students who, once having the credentials to practice and a master's degree, make the decision not to complete the doctorate.

**Required master's, doctoral option**

In effect, under circumstances such as those just described, rather than implementing a mandatory clinical doctorate program, another level in the transitional educational process within nurse anesthesia would have evolved. Perhaps that level is the appropriate stage of development for the next two decades. Rush University College of Nursing is essentially within this mode of operation at this time, although with its own curricular plan.

It might be easier to accomplish such development in colleges of nursing that are either in the planning stages of their first clinical doctoral offering or in those that offer both the PhD in nursing and the doctorate in nursing science. While the clinical doctorate within a nursing framework is addressed here, it does not prevent other CRNA program directors who are more familiar with other university departmental or school structures from determining how it might be possible to offer a clinical doctorate in nurse anesthesia in those structures. However, the author hopes that the PhD degree would not be further bastardized by offering it in nurse anesthesia. Both CRNAs and anesthesiologists who have taken a specialty related PhD have done so in a more basic discipline, such as biochemistry, physiology, pharmacology or some subunit of those disciplines. In all probabil-

ity, they will continue to choose to do so.

**The politics of doctoral education**

Debate will be ongoing regarding any movement within nurse anesthesia education to require a clinical doctorate in the field for certification, and well there should be, both within and outside the profession. While the author believes she could plan a more appropriate curriculum for nurse anesthetists, provide them with a better overall educational program and a credential more appropriate to their academic achievement in a clinical doctorate framework, she recognizes that such a degree would not be the solution to many current problems. Some physicians may fight such university offerings for a variety of reasons. Often they have a position of power within health science faculties or they tend to align themselves with the basic scientists more readily than nursing has aligned itself. As a result, marketing strategies are essential to promote the concept and get approval for the degree or additional area of concentration.

Furthermore, hospital administrators are not likely to support such an endeavor, since they believe moving to a master's framework would be a constraint on the number of CRNAs available and increase their personnel costs. Others will also express concerns regarding the cost of education and the potential increased cost to society for services, should nurse anesthesia education move into a clinical doctorate framework. Essentially, CRNAs' earnings today without the doctoral degree outstrip the earnings of many PhDs; therefore, it is highly unlikely that they might be able to compete for higher wages merely as a result of the credential. However, since they would be able to enter the tenure track within university settings more readily, they might be able to advance up career ladders more readily and compete for higher pay based on promotions. In fact, based on the financial return on their education, at least one economist believes CRNAs could actually be expected to pay more for their education.

There will be those within the profession who will want to go for the PhD in the field, rather than a clinical doctorate. PhDs are first in the academic lineup at graduation or other official university affairs requiring a professional, and other professions have developed such degrees. The author would prefer a combined DNS/PhD program for those who plan to seek an education and/or research career. There already are some combined MD/PhD programs. We should not force a professional specialization program into a degree framework that was never intended for such a purpose.

Another typical argument would contend that if so much education is to be required, why not direct those who want a doctorate into medical school?

The author believes that while physicians and nurses fulfill many of the same functions, they should have different roles within the field. Nurses are the ex-
pert one-on-one care givers and often make better hands-on anesthesia care providers. Anesthesiologists would be better prepared for their role as medical consultants in this field if they had more training in internal medicine and less in anesthesia per se.

Nurse anesthetists, who assume junior physicians' roles, rather than roles as advanced nursing specialists, often inadvertently deny their patients many of the benefits nurses traditionally offer their patients. In some of the author's early writings, in identifying the role of the nurse anesthetist as one in which in addition to providing a service to the patient, he or she acted as the patient surrogate, anesthesiology never claimed that role for itself. In fact, medicine and the role of the surrogate may truly be antithetical. However, nurses have traditionally performed a surrogate role in performing those functions for a patient or health client which he or she cannot perform for himself or herself.

Conclusion

We should move with some haste to establish four to six clinical doctorate nurse anesthesia educational programs and make every effort to attract applicants who would consider teaching and/or research as their professional goal. In fact, funding should be available for such programs and for students who would make a commitment to serve as faculty in accredited nurse anesthesia educational programs for a period of four years. Such graduates should be monitored by seasoned program directors, with a view toward their eventual movement into leadership positions in other programs. They should have the opportunity to have joint university hospital appointments, whereby they could not only enhance their clinical skills but also have an opportunity to become proficient in teaching, educational administration and/or research. Such graduates are the answer to nurse anesthesia education's faculty and faculty credentialling problems.

While the proposed curriculum is built on a baccalaureate base, nursing education that leads to entry into professional practice may change significantly in the future. As the number of universities offering the professional entry nursing doctorate (ND) or the current bridge (associate degree to master's) programs increase, it may be necessary to rethink this approach. However, with a core of faculty with clinical doctorates and perhaps some with combined DNSc/PhD degrees, the profession will be in a far better position to meet the challenges of the future than it has been in the past.

One of our notable program directors has lamented that the method by which she and most CRNAs of her generation had to acquire their educational credentials to move into university settings will probably find her qualifying for her doctorate about the same time she is eligible to receive social security benefits. While she said it somewhat in jest, many educators will attest to the fact that they do not want their students to have to follow their own patterns for acquiring the credentials needed to compete for academic rank and tenure within university faculty settings.

What better way is there to prevent that from happening than to begin now with a movement to develop some clinical doctorate programs within this specialty and let the movement grow at its own pace? Fifteen years ago no one would have believed that within this period of time nurse anesthesia education would have moved from all certificate programs to more than 60% graduate programs. Chances are, changes within the next 15 years will be just as amazing.

REFERENCES