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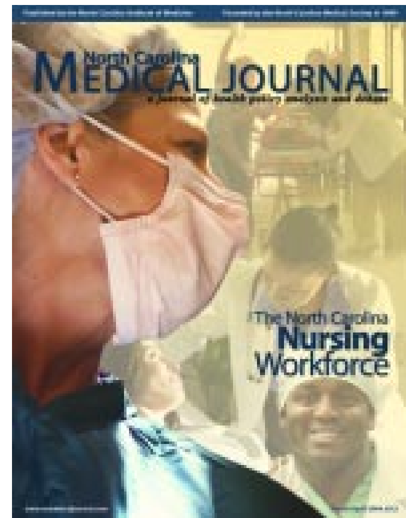

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Universal Childhood Vaccine Distribution Program: North Carolina's Strategy to Ensure All Children are Age-Appropriately Immunized

As one of the greatest public health achievements of the twentieth century, immunizations have been described as both cost-efficient—saving $15 for each $1 spent—and effective in reducing incidences of disease throughout the world.

North Carolina's immunization program was developed to prevent and control transmission of vaccine-preventable diseases, with emphasis on accelerating interventions to improve the immunization coverage rates of children under two years of age. In 1994, the North Carolina Department of Health and Human Services, Division of Public Health, Immunization Branch, instituted the Universal Childhood Vaccine Distribution Program (UCVDP) to keep children in their medical homes and remove cost as a barrier to age-appropriate immunizations.

The UCVDP program provides all of the required childhood vaccines—at no charge—for any child present in the state of North Carolina from birth through 18 years of age. More than 97 percent of providers who administer immunizations in North Carolina (more than 4,200 physicians) have signed up for the UCVDP program. Because of the success of this program, North Carolina ranks fifth in the nation, with an immunization coverage rate of 85.6 percent.

The benefits of the UCVDP program for health care providers are numerous and include:

- ✓ one-stop shopping for ordering vaccines;
- ✓ reduction of risk of paying for vaccines for which payment may not be collected;
- ✓ vaccine consultation;
- ✓ elimination of the need to keep two sets of vaccine supplies for most vaccines;
- ✓ health care provider 'friendly' program; and
- ✓ minimal paperwork.

For information about becoming a participant in the UCVDP program, call the North Carolina Immunization Branch at 1-800-344-0569 or visit the Branch online at **www.immunizenc.com**.

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FORWARD

Policy Forum:
The North Carolina Nursing Workforce

Recently, a family member was in a local hospital for an extended period. The experience reminded me once again that, in the midst of all of the wonderful miracles and technology at our disposal in today's modern hospitals, nurses are still of critical importance in the process of caring for patients. My family's inevitable questions (What is happening? What should we expect? Where is something located? What hours is a service available?) were all directed to the nurse of the hour. And the nurse invariably could calm the anxious patient and the family with professionalism and expertise. Such is the expectation that our society places on the nursing profession.

Yet, those of us who work in healthcare recognize the challenges that are before the profession today. These challenges are enumerated in detail in the report of the Task Force on the NC Nursing Workforce, summarized in this issue of the *North Carolina Medical Journal*. This important and timely report includes some suggestions and recommendations for improvements and modifications in the way nurses are recruited to the profession, trained, and practice in North Carolina. Some of the subjects discussed have been with us for decades; others are ever-changing and call for new and clear thinking about the possibilities for the future.

The Duke Endowment, as one foundation, has long supported projects to address some of these challenges. However, at a meeting of our Board of Trustees in May 2002, there was a lively conversation about how we might best support a statewide discussion of the issues that could lead to a consensus for new actions. The North Carolina Institute of Medicine gave wonderful leadership by developing the format of such a process, and provided the all-important neutral voice in the discussions needed to arrive at the printed recommendations that appear in this report. The members of the Task Force were indispensable. They came to the meetings with enthusiasm, interest, and high ideals for the future of nursing in North Carolina. The final product would not have been nearly as valuable without their participation and contributions.

We believe the groundwork for the future is being laid by this report. Already, work has begun to assist foundations like the Endowment as we strive to understand where we can maximize our investments to address nursing workforce issues. We encourage your thoughtful consideration of the information and recommendations contained in these pages. And we encourage lively and constructive discussions of the actions that will lead North Carolina toward a more healthy future.

In hospitals, in nursing facilities, in home visitation, in public health, in school health centers, in rural health centers, in nursing education classrooms, and in many other locations, nursing is vital to the care that we all wish to receive—for ourselves and for our communities. It is our collective responsibility to do what we can to ensure that we have an excellent nursing workforce in 2004, and for many years to come.

Please join with us in moving these dreams to reality.

Eugene W. Cochrane, Jr.
Executive Vice President
and President-Elect
The Duke Endowment

Eugene W. Cochrane, Jr. can be reached at gcochrane@TDE.org or 100 North Tryon Street, Suite 3500, Charlotte, NC 28202-4012. Telephone: 704.376.0291.

ISSUE BRIEF

North Carolina Institute of Medicine Task Force on the North Carolina Nursing Workforce (2004)

Cynthia M. Freund, RN, PhD, FAAN, Joseph D. Crocker, Pam C. Silberman, JD, DrPH, Kristie K. Weisner, MA, and Gordon H. DeFriese, PhD

Background and Purpose of the Task Force

By 2002, several states were reporting severe nursing shortages. At the same time, some North Carolina employers were reporting difficulties filling nursing positions. Whether there is currently a nursing workforce "shortage" or "crisis" in North Carolina is open to debate. Yet, there is little question that, without some intervention, North Carolina is likely to experience a severe nursing shortage in the coming decade due to the combination of an aging population and an aging nursing workforce. Long-range forecasts of registered nurse (RN) supply and demand in North Carolina predict a shortage of anywhere from 9,000 nurses in 2015 to almost 18,000 by 2020.

Rather than wait until North Carolina is in the midst of a full-blown nursing crisis, the North Carolina Institute of Medicine (NC IOM), in partnership with and at the request of the NC Nurses Association, the NC Center for Nursing, the NC Area Health Education Centers Program, the NC Board of Nursing, and the NC Hospital Association, decided to act proactively to prevent a future nursing shortage. In the fall of 2002 the NC IOM created the Task Force on the North Carolina Nursing Workforce to undertake a major study of issues surrounding the present and future supply of and demand for nursing personnel in this state. Co-Chairs of the Task Force were Cynthia M. Freund, RN, PhD, FAAN, Dean Emerita of the School of Nursing at the University of North Carolina at Chapel Hill, and Joseph D. Crocker, Senior Vice President, Wachovia and Manager of Community Affairs of The Carolinas Bank in Winston-Salem.[1] The 55-member Task Force included representatives of all levels of licensed nursing personnel, the NC Board of Nursing, NC Division of Facility Services (charged with registration of nursing aides), professional nursing associations, the NC Center for Nursing, the University of North Carolina System, the NC Community College System, the NC Independent Colleges and Universities, the NC Hospital Association, the NC Healthcare Facilities Association, home health and assisted living services providers, the NC Area Health Education Centers Program, school health nurses, and mental health nurses. The work of the Task Force was supported by a grant from The Duke Endowment.

The Task Force examined the current and projected demand for nursing professionals and paraprofessionals in all segments of the North Carolina healthcare industry. The Task Force also studied the degree to which current and developing educational and in-service educational programs are meeting, and are likely to meet, these demands. In addition, the Task Force examined school-to-work transitions, as well as the work environment for nursing personnel and methods to recruit and retain nurses. The Task Force tried to examine these issues for the full range of nursing personnel, including nurse aides, Licensed Practical Nurses (LPNs), Registered Nurses (RNs), Advanced Practice Registered Nurses (APRNs), as well as other registered nurses with graduate degrees at the master's and doctoral-levels. However, most of the Task Force's attention focused on Registered Nurses, who make up approximately 82% of the state's licensed nursing workforce.

Cynthia M. Freund, RN, PhD, FAAN, is Professor and Dean Emerita at the University of North Carolina at Chapel Hill School of Nursing and co-chair of the Task Force on the NC Nursing Workforce. Dr. Freund has had extensive experience in all aspects of nursing education and is herself a nurse practitioner who has practiced in North Carolina.

Joseph D. Crocker is Senior Vice President for Wachovia and Manager of Community Affairs of The Carolinas Bank in Winston-Salem, NC and co-chair of the Task Force on the NC Nursing Workforce. Mr. Crocker is an experienced hospital trustee, member of the North Carolina Medical Care Commission, Chair of the Board of Trustees of Western Carolina University.

Pam C. Silberman, JD, DrPH, is Vice President of the NC Institute of Medicine and helped staff the Task Force on the NC Nursing Workforce.

Kristie K. Weisner, MA, is Assistant Vice President of the NC Institute of Medicine and helped staff the Task Force on the NC Nursing Workforce.

Gordon H. DeFriese, PhD, is President and CEO of the NC Institute of Medicine and helped staff the Task Force on the NC Nursing Workforce. The authors can be reached at gordon_defriese@nciom.org or at 5501 Fortunes Ridge Drive, Suite E, Durham, NC 27713. Telephone: 919-401-6599 ext. 27.

The Current and Future North Carolina Nursing Workforce

Determining the exact number of nurses that will be needed in North Carolina in the future is difficult, as both the supply of nurses and the demand for nurses are constantly changing. But there are good reasons to believe that without some intervention, North Carolina will experience a shortage of registered nurses and other nursing assistive personnel over the next two decades. North Carolina's population continues to grow at a rapid pace and the age groups most likely to use healthcare services (those aged 65 and older) are among the fastest growing age groups. The nursing workforce in North Carolina is aging at an even faster rate. The average age of the North Carolina workforce in general grew from 37.7 (1984) to 40.4 (2001),[1] but the average age of RNs increased from 38.3 in 1983 to 43.6 (2001), and the average age of LPNs increased from 40.5 (1983) to 44.9 (2001). Traditionally, registered nurses move out of full-time employment rapidly after the age of 55. In 2001 about 14% of the RN workforce and 18% of the LPN workforce was age 55 or older. Another 31% of RNs and 32% of LPNs was between the ages of 45 and 54. These two factors, along with others, will exert enormous pressure on the balance between supply and demand for nurses in North Carolina over the next ten to 20 years.

As the general population ages, the use of healthcare services will increase. But this is not the only factor that drives demand for nursing services. Demand is driven by the number of people needing services, the acuity level of patients, healthcare technological and informatics changes, medical advances, labor productivity, regulatory and market changes, and advances designed to improve quality of care (including required nurse staffing levels). The current and future *supply* of nurses in North Carolina is also affected by a variety of other factors, including: the rate at which North Carolina can enroll and graduate new professionals from our educational institutions, the capacity of our educational system to expand or contract to meet market demands, the rate at which nurses move out of or into our state from other states or other countries (in- and out-migration), new and expanding career options for women and people with nursing degrees, demographic trends that affect the size and age of the labor force now and in the future, and workplace issues such as wage levels and working conditions that affect people's willingness to work in certain environments.

An obvious solution to a pending nursing shortage is simply to produce more nurses. However, before encouraging more people to enter the nursing profession, it will be necessary to expand the capacity of the state's nursing education programs to accommodate new students.

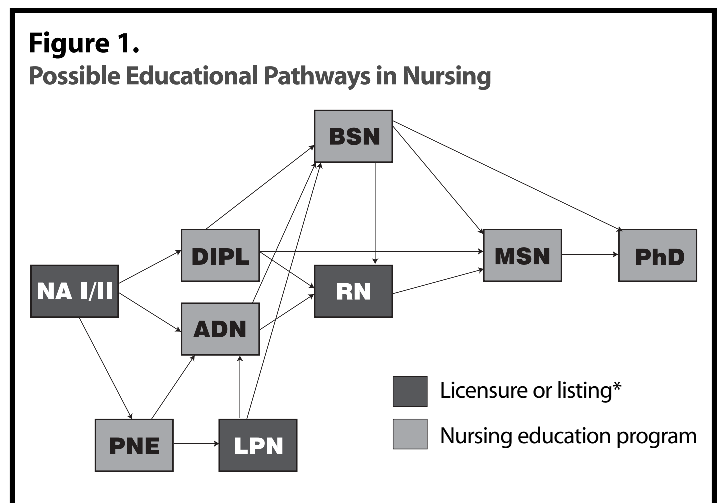
The state should also take additional steps to attract a more diverse workforce into nursing, as the characteristics of North Carolina nurses do not reflect the diversity of the state's population. For example, only about 6% of the RN workforce and about 5% of the LPN workforce is composed of men, compared to 52.8% of the state's workforce in general.[1] Twelve percent of RNs and 26% of LPNs represented racial or ethnic minority groups in 2001. In contrast, racial or ethnic minorities account for 28% of the state's population. These statistics are not inconsistent with national profiles of the US nursing workforce.

While the nursing workforce situation in North Carolina has not yet reached "crisis" proportions, the projected loss of our most experienced nurses due to aging and retirement, at a time when demand for nurses will be increasing, will undoubtedly lead to a severe shortage of nursing personnel by the end of the decade unless remedial steps are taken. The Task Force recommendations are aimed at attenuating what many have anticipated will be a "crisis" in regard to our state's nursing workforce.

Educating the Future Nursing Workforce

The entry-level credential for nursing practice is the basic license as a Registered Nurse (RN) or Licensed Practical Nurse (LPN). Nurses obtain their RN or LPN licensure by completing a basic course of study from a baccalaureate (BSN), associate degree (ADN), hospital-based diploma, or practical nursing education (PNE) program and passing the National Council Licensure Examination (NCLEX-RN or NCLEX-PN). Once licensed, there are also multiple routes to obtain advanced professional education (Figure 1).

Figure 1.
Possible Educational Pathways in Nursing



There were 64 nursing education programs in North Carolina offering credentials for entry-level RN licensure (BSN/ADN/Diploma) in 2004 (Figure 2). Among states in the Southeastern Region (i.e., those states served by the Southern Regional Education Board or SREB), only Texas has more nursing education programs than North Carolina. Moreover, North Carolina has the lowest proportion of BSN programs in relation to ADN and hospital diploma programs of any of the SREB states.

While we have many geographically dispersed educational programs to educate nurses and nursing assistive personnel, our educational system lacks the necessary infrastructure to significantly

* North Carolina does not "certify" nurse aides. These personnel are "listed" after successfully completing the required training and competency evaluation program of the Nurse Aide I or Nurse Aide II Registry.

Figure 2.
North Carolina Nursing Education Programs Preparing Graduates for Entry-Level RN Licensure, 2003

UNC System BSN Programs	Private College & Univ BSN Programs	Community College Associate Degree in Nursing (ADN) Programs	Hosp ADN Prog (2) / Indep Coll ADN	Hosp Dipl Progs
(9)	(4)	(45)	(1)	(3)

→ **RN Licensure By NC BON** Graduates of 64 Total Programs

An additional BSN program is in the second phase of development as of February 2004.

increase the number of new nursing students at this time. Increased funding for faculty positions, faculty recruitment and retention and securing appropriate clinical sites for nursing education are key components affecting the capacity of these nursing education programs to educate students. Our problem is not one of needing to attract more young people into nursing. Each year we are turning away hundreds of applicants who meet entry requirements from our North Carolina nursing programs. Altogether more than 5,446 potential new RNs and 1,707 potential new LPNs were denied admission to North Carolina nursing education programs last year because these programs were unable to add more faculty, more clinical practice sites, and/or more space for students, due largely to budget constraints. Once admitted to nursing education programs, tuition support and student support services (such as academic and educational financial counseling) are critical to the success of nursing education programs.

North Carolina must increase the number of nurses in every category (LPN, ADN, BSN, Diploma, MSN and PhD), and expand education programs that have demonstrated acceptable levels of quality, accessibility, effectiveness and efficiency. However, the issue isn't just the numbers of new nurses produced, but the mix of nurses with a range of educational credentials. In the future, with changes in medical technology and acuity levels of patients seen in certain inpatient or institutional settings, North Carolina is likely to need not just an increased number of new nurses, but nurses who have enhanced educational preparation. For example, there is growing evidence that hospitals that have smaller staff-to-patient ratios and more staff with higher levels of nursing education, also have decreased mortality rates, fewer medical errors and nursing practice violations, and better patient outcomes.[2,3,4,5,6]

Regardless of how nurses enter the profession, they should be offered opportunities to enhance their educational preparation for nursing practice. By greatly expanding the opportunities to pursue education at higher levels, the overall educational level of North Carolina nursing care will increase, and, in turn, provide a variety of nursing career options to a broad spectrum of North Carolina citizens. By expanding prelicensure BSN, RN-to-BSN, and accelerated BSN programs, the Task Force envisioned that the current ratio of 60% ADN/Diploma and 40% BSN nurses could gradually change over the next 10-15 years to 40% ADN/Diploma and 60% BSN. This ratio change is also important because it will increase the number of nurses qualified for graduate programs that prepare nursing faculty.

School-to-Work Transitions

Unlike the experience of other professionals, nurses are often expected to practice fully in a relatively short time span after licensure. However, studies have shown that new nurses often have difficulties translating their educational experience into practice, particularly as it relates to skills in recognizing abnormal findings, assessing the effectiveness of treatments and supervising care provided by others.[7] This, in turn, causes new graduates to feel insecure in their job responsibilities and be less satisfied in their jobs. To better prepare nursing students for the transition into the workplace, students should be given a more intensive clinical experience during their final semester of school, followed by a more intensive orientation or internship opportunity once the new nurse begins practice. Once employed, new graduates should be provided supervised on-the-job skills training, along with a system of peer support. Ensuring an adequate school-to-work transition will help new nurses understand their job responsibilities and obtain the confidence and skills necessary to provide higher quality care.

The Work Environments of North Carolina Nursing Personnel

Nurses report lower job satisfaction than other professionals. This is problematic because job satisfaction is strongly correlated with turnover and retention. In North Carolina, only about half of all nurses report being happy with their jobs; close to one-fifth of all nurses report being unhappy with their work situations (19.9% of staff RNs and 17.7% of staff LPNs), and the rest are neutral.[8] The aspects of job satisfaction vary among work settings, with nurses in hospitals and long-term care settings being least satisfied with their jobs; and those in community settings much more satisfied. Job dissatisfaction in nursing often results in low morale, absenteeism, turnover, and poor job performance.

When nurses are dissatisfied at work, they are more likely to change jobs. Not only does staff turnover reduce the number of experienced staff who are familiar with the organization, it brings added expense to employers. Some North Carolina nursing employers reported significant financial outlays to recruit and train new nursing staff. A recent study suggested that the cost of turnover for one hospital nurse ranges between $62,000-$68,000.[9]

In addition to affecting turnover and performance in a particular job, job satisfaction can also affect satisfaction with nursing as a career. Nurses, especially those working in inpatient hospital settings, were less willing to recommend nursing as a career to other people. Only 40% of hospital inpatient RNs, and 50% of inpatient LPNs reported that they would encourage others to become a nurse.

The Task Force considered the role of nurses in different workplace settings in North Carolina, including institutional settings (e.g., hospitals, psychiatric institutions), long-term care facilities (nursing homes and assisted living facilities) and community-based settings (home health and hospice, public health and school nursing). There are several critical elements for a successful nursing work environment that cut across workplace settings. These include: management support and skilled nurse managers; an environment that promotes positive team relationships with coworkers; orientation and mentoring programs; the involvement of nurses and nurse aides in policy and decision making at both the institutional and unit level; competitive salaries and benefits; reasonable work loads; a safe working environment; career ladders and opportunities for advancement; minimizing paperwork and administrative burdens; flexible scheduling; supporting nurses in their role as patient care integrators; and professionalism and process standards in all departments with accountability.

Advanced Practice Nursing

There are four types of advanced practice registered nurses (APRNs) practicing in North Carolina: nurse practitioners (NPs), certified nurse midwives (CNMs), clinical nurse specialists (CNSs), and certified registered nurse anesthetists (CRNAs). All APRNs are licensed registered nurses, have advanced academic preparation and many categories of APRNs are nationally certified. The Task Force heard testimony that advanced practice registered nurses in North Carolina are not currently permitted to practice to the full extent of their educational preparation. Although the education and certification requirements for each APRN group are similar across the country, the allowable scope of practice for each type of APRN varies depending on the state in which they practice. The Task Force was unable to fully explore these issues, but recommended further study of APRN practice issues.

Summary of Recommendations and a Blueprint for Action

The Task Force built upon these findings to formulate a series of recommendations to prevent a future nursing workforce crisis. These recommendations were grouped into seven areas: (1) nursing faculty recruitment and retention, (2) nursing education programs, (3) transition from school to work, (4) nursing work environments, (5) Advanced Practice Nursing, (6) building an interest in nursing as a career, and (7) cross-cutting issues. Absent new faculty, the state may be unable to expand the production of new nurses, and absent the production of new nurses, North Carolina may have insufficient nurses to meet the demands of the nurse workforce environment. In addition, efforts need to be made to smooth the transition from school-to-work, so that nurses are better prepared to assume clinical responsibilities. Finally, the Task Force recognized that North Carolina needs to address workplace issues in order to retain nurses in their jobs and the profession.

In total, the Task Force made 47 recommendations, which, if implemented, would expand the numbers, educational level, and retention of nursing personnel. The 16 *highest priority* recommendations are identified in shaded cells. Recommendations that require legislative action are separately noted, as are those that can be addressed through educational institutions, employers, foundations, the NC Board of Nursing or other organizations. The full text of all recommendations can be found in the corresponding chapter listed after the summary recommendation (for example, Rec. #4.1 refers to the first recommendation in Chapter 4). We hope that segmenting the Task Force recommendations in this way will facilitate a more systematic response to the findings and recommended actions discussed throughout this report.

RECOMMENDATIONS	ACTION TO BE TAKEN BY ORGANIZATION, INSTITUTION OR GROUP						
	Legislature	Educational Institutions or AHEC	Employers	Nursing Community	Foundations	Board of Nursing	Other
Nursing Faculty Recruitment/Retention							
Priority Recommendation:							
The Faculty Fellows Program (as proposed in House Bill 808 in last session of NC General Assembly) be enacted and funded to support the effort of BSN nurses who wish to pursue MSN degrees in preparation for nursing faculty careers. (Rec. # 3.25)	✓				✓		
Other Recommendations:							
The NC General Assembly should increase funding to the NC AHEC to offer off-campus RN-to-BSN and MSN nursing programs using a competitive grant approach which is available to both public and private institutions statewide. (Rec. # 3.20)	✓	✓			✓		
Nursing doctoral programs should be expanded. (Rec. # 3.21)	✓	✓			✓		

	ACTION TO BE TAKEN BY ORGANIZATION, INSTITUTION OR GROUP						
RECOMMENDATIONS	**Legislature**	**Educational Institutions or AHEC**	**Employers**	**Nursing Community**	**Foundations**	**Board of Nursing**	**Other**
RN Education Programs							
Priority Recommendations:							
Production of prelicensure RNs should be increased by 25% from the 2002-2003 graduation levels by 2007-08. The NC Community College System (NCCCS), UNC System, private colleges and universities, and hospital-based programs affected by these goals should develop a plan for how they will meet this increased production need and report to the NC General Assembly in the 2005 session. Greater priority should be placed on increasing production of BSN-educated nurses in order to achieve the overall Task Force goal of developing a nursing workforce with a ratio of 60% BSN: 40% ADN/hospital diploma graduates. (Rec. # 3.1a-c)	✓	✓				✓	
Nursing education programs in the community colleges should be recl assified as "high cost" (therefore increasing per capita funding of these programs). (Rec. # 3.6)	✓						
The NC General Assembly and/or private philanthropies should invest funds to enable NC community colleges to employ student support counselors specifically for nursing students and to provide emergency funds to reduce the risk of attrition for students in ADN and PNE programs. (Rec. # 3.8)	✓				✓		
The NC General Assembly should restore and increase appropriations to enable UNC System institutions to expand enrollments in their prelicensure BSN programs above current levels. These funds should be earmarked for nursing program support and funneled to university programs through the Office of the President of the UNC System. Funds should be allocated on the basis of performance standards related to graduation rates, faculty resources, and NCLEX-RN exam pass rates. (Rec. # 3.15)	✓						
The NC General Assembly and private foundations are encouraged to explore new scholarship support for nursing students in NC's schools of nursing. (Rec. # 3.19)	✓				✓		
Nurse Scholars Program should be expanded, per-student loans increased and new categories of eligible students added (as specified in Chapter 3). (Rec. # 3.24a-f)	✓						
Private institutions offering the BSN degree should be encouraged to expand their enrollments. (Rec. # 3.17)		✓		✓			
NC residents with a baccalaureate degree who enroll in an accelerated BSN or MSN program at a NC private college of nursing should be eligible for state tuition support equivalent to students in these institutions pursu-ing the initial undergraduate degree. (Rec. # 3.18)	✓						
The Comprehensive Articulation Agreement between community colleges and UNC System campuses should be further refined and implemented fully. a. Associate Degree nursing curricula should include non-nursing courses that are part of the Comprehensive Articulation Agreement (CAA) between the NCCCS and the UNC System. b. The UNC System and Independent Colleges and Universities offering the BSN degree should establish (and accept for admission purposes, UNC System-wide) General Education and Nursing Education Core Requirements for the RN-to-BSN students who completed their nursing education in a NC community college or hospital-based program after 1999. (Rec. # 3.28a-b)		✓					

RECOMMENDATIONS	ACTION TO BE TAKEN BY ORGANIZATION, INSTITUTION OR GROUP						
	Legislature	Educational Institutions or AHEC	Employers	Nursing Community	Foundations	Board of Nursing	Other
Other recommendations:							
Approval for (and funding to support) enrollment growth should be limited to those nursing education programs where attrition (failure to complete) rates are lower than the three-year average attrition rate for that category of education program (BSN, ADN, or PNE) and the pass rates on the NCLEX-RN or NCLEX-PN examination exceed 80%.) (Rec. # 3.2)		✓			✓	✓	
NC BON-approved "slots" should be realigned with current enrollment in NC nursing education programs by 2006. (Rec. # 3.3)		✓				✓	
Clinical facilities, in collaboration with local/regional nursing education programs, should identify and make available more clinical training sites for nursing education. (Rec. # 3.4)		✓	✓				
Nursing education programs and clinical agencies should work together to develop creative partnerships to enhance/expand nursing education programs and help ensure the availability and accessibility of sufficient clinical sites: a. AHEC should convene regional meetings of nursing educational programs and clinical agencies to develop creative educational opportunities for *clinical* nursing experiences. b. Nursing education programs of all types at every level should work together to develop creative educational collaborations with clinical facilities and programs that promote educational quality, efficiency and effectiveness. (Rec. # 3.5)		✓	✓				
An alternative method of financing the expansion of community college-based nursing programs should be considered by the NC General Assembly (instead of the dependence on external resources for such expansions). (Rec. # 3.7)	✓						
Funding should be made available to enable every nursing education program to apply for and attain national accreditation by 2015. (Rec. # 3.9)	✓	✓					
The Community College System should include in the comprehensive data and information system being developed data on nursing student applications, admissions, retention and graduation. (Rec. # 3.10)	✓	✓					
A consistent definition of “retention” (or “attrition”) should be developed by the Community College System and used in every community college. (Rec. # 3.11)		✓				✓	
A consistent standard should be developed and used within the Community College System for the evaluation of retention-specific performance criteria for each nursing education program. (Rec. # 3.12)		✓				✓	
The NC General Assembly or private philanthropies should fund the Community College System to undertake a systematic study of the relationship between competitive, merit-based admission policies and graduation/attrition rates. (Rec. # 3.13)	✓	✓					
Admission criteria in community college nursing programs should be coupled with competitive, merit-based admission procedures in all community college-based nursing education programs. (Rec. # 3.14)		✓					
The UNC Office of the President, utilizing data provided by the NC Board of Nursing, should examine the percentage of first-time takers of the NCLEX-RN exam who are BSN, ADN and hospital-based school of nursing graduates. If necessary, the UNC Office of the President should convene the UNC System deans/directors of nursing for baccalaureate and higher degree programs to plan for increases in funding to support enrollment that will assure, at a minimum, a 40% or greater ratio of BSN prelicensure		✓					

RECOMMENDATIONS	ACTION TO BE TAKEN BY ORGANIZATION, INSTITUTION OR GROUP						
	Legislature	Educational Institutions or AHEC	Employers	Nursing Community	Foundations	Board of Nursing	Other
graduates (in relation to ADN and hospital graduates) and, where possible, a gradual increase in the BSN ratio over the next decade. These ratio increases should take into consideration increases in prelicensure BSN program enrollment, as well as ADN-to-BSN and accelerated BSN program productivity. (Rec. # 3.16)							
Hospitals and other nursing employers are encouraged to consider tuition remission programs to encourage their nursing employees to pursue LPN-RN, RN-BSN, MSN or PhD degrees. (Rec. # 3.27)			✓				
An RN-to-BSN statewide consortium should be established to promote accessibility, cost-effectiveness and consistency for these programs. (Rec. # 3.29)		✓					
PN Education Programs							
Priority recommendation:							
Production of prelicensure LPNs should be increased by 8% from the 2002-2003 graduation levels by 2007-08. NCCCS and private institutions affected by this goal should develop a plan for how they will meet these increases. NCCCS should convene this planning group, including representatives of private institutions offering these nursing programs, and a plan should be reported to the NC General Assembly in the 2005 session. Each year thereafter, the PNE programs should provide a status report to the NC General Assembly showing the extent to which they are meeting these goals; and whether production needs should be modified based on job availability for new graduates, changes in in-migration, retention or overall changes in demand for nurses in NC. (Rec. # 3.1d-e)	✓	✓				✓	
Other recommendations:							
All NC BSN and ADN nursing education programs should explore creative LPN-to-ADN and LPN-to-BSN pathways to facilitate career advancement and avoid unnecessary duplication of content in these curricula. (Rec. # 3.30)		✓					
The State Board of Education and the NCCCS should promote dual enrollment programs for PNE programs in high schools. (Rec. # 3.31)	✓	✓				✓	
All PNE programs in NC should seek and attain national accreditation by 2015 with adequate funding provided for faculty resources, student support services, and NLN accreditation application fees. (Rec. # 3.32)	✓	✓					
Nursing Assistant (Nurse Aide) Education Programs							
NC DHHS should develop special designation for licensed healthcare organizations providing LTC services that choose to meet enhanced workplace environmental and quality assurance standards. (Rec. # 4.5)			✓				✓ NC DHHS
The NC General Assembly should appropriate funds to be used as a wage pass-through to enhance the salaries of nursing assistants, especially within LTC facilities that have chosen to enhance workplace and quality assurance standards. (Rec. # 4.9)	✓		✓				
Efforts of NC DHHS, NC BON and NCCCS to create “medication aide” and “geriatric aide” classifications should be encouraged and supported. (Rec. # 3.33)				✓			✓ NC DHHS
NC Division of Facility Services in conjunction with the NC BON should develop a standardized Nurse Aide I competency evaluation program, to include a standardized exam and skills demonstration process. (Rec. # 3.34)		✓					✓ NC DHHS

RECOMMENDATIONS	ACTION TO BE TAKEN BY ORGANIZATION, INSTITUTION OR GROUP						
	Legislature	Educational Institutions or AHEC	Employers	Nursing Community	Foundations	Board of Nursing	Other
Transitions from Nursing School to Nursing Practice							
Priority recommendation:							
NC BON should convene a group to study options to improve school-to-work transitions, including: ■ intensive clinical experience in direct patient care during the final semester of study for nursing students, and ■ a supervised/mentored clinical internship experience either pre- or post-licensure. (Rec. # 4.3)		✓	✓	✓		✓	✓
Nursing Work Environments							
Priority recommendations:							
Employers should take steps to create "positive work environments" (meeting several defining criteria). (Rec. # 4.1)			✓		✓		
AHEC and the professional nursing schools should offer educational opportunities for leadership development, conflict resolution and communication skills training, interdisciplinary team building, and preceptor training. (Rec. # 4.2)		✓	✓				
NC BON and Division of Facility Services should implement regulations to prohibit nurses from providing direct patient care more than 12 hours in a 24 hour time period, or 60 hours in a 7 day time period. (Rec. # 4.10)						✓	✓ NC DHHS
Other recommendations:							
NC nursing organization leaders and healthcare trade associations should develop model programs and best practices (e.g., Magnet Hospital principles) for statewide dissemination. (Rec. # 4.4)			✓	✓	✓		✓
Trade associations, AHEC and private philanthropies should take the lead in disseminating best practices that help create a positive workplace culture for nursing personnel. (Rec. # 4.6)		✓	✓		✓		✓
NC Nurses Association should promote consumer advocacy efforts toward a well-educated, adequately staffed healthcare system in the interest of higher quality of care. (Rec. # 4.7)				✓			✓
Philanthropic organizations should support the provision of technical assistance to healthcare organizations as they attempt to make the changes necessary to improve the nursing workforce environment and enhance the quality of patient care. Financial assistance should be targeted to those facilities that would be unable to make these changes without financial assistance. (Rec. # 4.8)					✓		
Advanced Practice Registered Nurses							
The NC IOM should convene a workgroup to study issues specific to the practice of APRNs. (Rec. # 5.1)				✓		✓	✓ NC IOM
Trade and professional associations in NC should initiate an aggressive statewide effort to effect changes in federal and state legislation and regulations that affect Medicare, Medicaid and commercial managed care reimbursement in order to promote the full utilization of APRNs in long-term care and in other healthcare arenas. (Rec. # 5.2)			✓	✓			✓

RECOMMENDATIONS	ACTION TO BE TAKEN BY ORGANIZATION, INSTITUTION OR GROUP						
	Legislature	Educational Institutions or AHEC	Employers	Nursing Community	Foundations	Board of Nursing	Other
Building an Interest in Nursing as a Career							
Priority recommendation:							
Existing programs via AHEC, the health science programs in community colleges, universities and colleges, the NC Center for Nursing, and employers that target a diverse mix of middle and high school students to encourage them to consider health careers and prepare them for entry into programs of higher learning need to be strengthened and expanded. (Rec. # 3.22a-d)	✓	✓	✓	✓	✓		
Other recommendation:							
High school and college-level guidance counselors should receive additional training in the requirements of NC's nursing education programs, with counselors designated to provide nursing-specific advice to interested students. (Rec. # 3.23)		✓					
Additional Cross-Cutting Recommendations							
Employers of nurses (RN and LPN) who hold licenses in compact states other than NC should be required to report annually the names, states in which licensed, and period of employment of these nurses working in their facilities and programs. (Rec. #2.1)	✓		✓				✓
Any NC resident enrolled in a public or private nursing education program should receive a state income tax credit to offset their nursing education expenses. (Rec. # 3.26)	✓						

Summary

North Carolina is indeed fortunate to have avoided many of the extreme shortages of nurses reported in other states. Yet, there are important developments on the horizon that have the potential to cause such shortages. Taking action today to expand the production of new nurses, enhance their education, augment school-to-work transitions, and improve the nursing workplace environment can help reduce the likelihood of a future nursing workforce crisis. Some steps will require new financial commitments either from public or private sources. Others will require a renewed commitment on the part of employers, educators, regulators and the nursing community. However, these steps are necessary if we are to recruit and retain well-prepared and motivated nurses who are needed to meet our healthcare needs now and in the future. Nursing, especially nursing at the bedside in hospitals and in long-term care, requires increasingly sophisticated technical skills and continues to demand intellectual, physical and emotional energy beyond what would be required in many other professions and occupations.

It is hoped that the recommendations offered here will help focus the efforts of legislators, educators, employers, the nursing community, trade associations, foundations and the public at large to ensure an adequate supply of well-trained nursing personnel for the future. **NCMJ**

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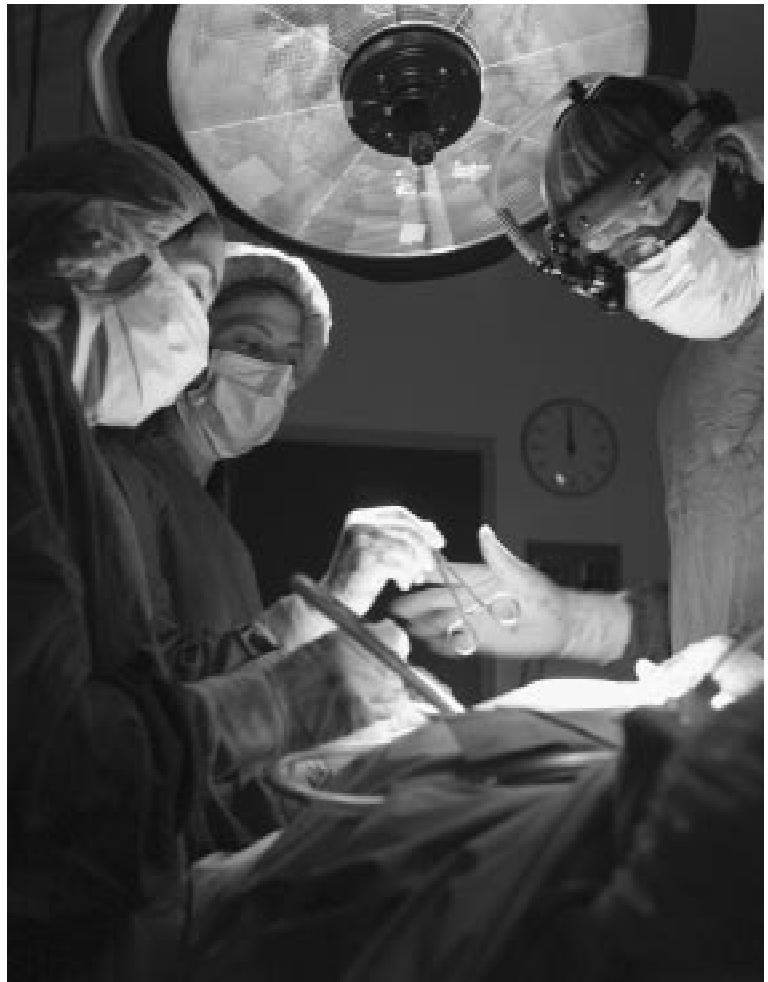

COMMENTARY

Why is Nursing Important?

Susan F. Pierce, PhD, RN

As defined by the American Nurses Association, nursing is the protection, promotion and optimization of health and abilities, the prevention of illness and injury, and the alleviation of suffering.[1] Nursing has its historical roots in the poorhouses, the battlefields, and the industrial revolutions in Europe and America. Nurses cared for the sick in their homes, the wounded on battlefields and the suffering in institutions. While tending to the needs of their patients, nurses also observed their patients' progress or lack thereof, and the environments that either promoted or impeded their recovery.

This is not work that can be "outsourced." This is not work that can be "moved overseas." This is not work that can be performed by robots. Rather, this is hands-on, human-to-human, intimate work that all persons will need at some point in their lives. It is work that is intellectually challenging, physically demanding and spiritually enriching. Nurses bear witness to birth, death, and the many joys and sufferings in between. Nurses are not only providers of direct care, but are also designers, managers and coordinators of care.

As Virginia Henderson said in an excerpt from *Principles and Practice of Nursing (6th edition)*,[2] "Nursing is helping people in the performance of those activities that they would perform unaided if they had the necessary strength, will or knowledge." Thus, nurses are helping people at their most vulnerable, dependent times—when they need help the most. At every working moment, nurses are responsible for the lives of the patients in their charge and the peace of mind of their anxious visitors. While providing this complex care, nurses are also advocates and educators of these patients and their families.

To succeed in all of these roles, professional nurses have been taught a set of core values which they continue to embrace: altruism, respect for human dignity, integrity, and social justice. Nurses have been the eyes, ears, hands and minds of those in need for over 100 years. About 2.7 million registered nurses in the United States (75,000 in North Carolina) go to work each day and accomplish just that. And according to repeated Gallop polls, people have come to know, respect, expect and trust that nurses will continue to do so.

"...this is hands-on, human-to-human, intimate work that all persons will need at some point in their lives."

Why the Task Force Report on the NC Nursing Workforce Is Important

The provision of nursing services is in crisis—both nationally and in North Carolina. The demand for more nurses is increasing faster than the supply, and those in the profession are nearing retirement at a faster pace than they are being replaced. The institutional work environment is not always supportive to the work the nurse is trying to accomplish, making retention of nurses at the bedside a critical problem.

North Carolina has a rich history of taking a leadership role in providing nurses and expert nursing care. In 1903, North Carolina was the first state to establish a Nursing Practice Act that created a Board of Nursing to safeguard the health of the public and provided for the legal registration of women (initially) as nurses based on their education and practice experience.

This hallmark event occurred over 100 years ago, but the tradition of "firsts" continued. In 1989, at the recommendation of the General Assembly's Task Force on the Nursing Shortage, the legislature established and funded the first Nursing Scholars Program in the country. Nursing students were given the opportunity to participate in a scholarship/loan program leading not only to initial licensure but to advanced education in this increasingly demanding field. Two years later, the General Assembly passed legislation that created and funded the North

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Carolina Center for Nursing to monitor supply, demand and utilization of nurses. Another Task Force initiative was to provide funding to the NC Area Health Education Centers (AHEC) Program for recruitment and educational mobility initiatives and grants to institutions to stimulate improvement in nurses' work environments. All of these approaches helped keep North Carolina from experiencing the effects of nursing shortages... until now. After twelve years, it is time to act again.

For the last 14 months, the Task Force established by the North Carolina Institute of Medicine has brought together the best minds in North Carolina. These minds have carefully crafted a 21st Century plan to provide our citizens with the continued high quality nursing services they deserve. The solutions to a potentially devastating nursing shortage are in this report. Hence, it is critical that the recommendations in the report come to fruition. The time for study is over. The time for debate has closed. The time for action is at hand if the health and well being of our citizens is to be protected. **NCMJ**

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COMMENTARY

Employers and the Nursing Workforce:
Seeking Local Solutions to a National Problem

J. Luckey Welsh, Jr., FACHE

The nation's healthcare industry is under stress—driven by an increased demand for services from a sicker, poorer and older population, coupled with reimbursement that does not keep up with the cost of caring. At the same time, we are on the precipice of the greatest shortage of healthcare workers in the state and nation's history. Leading this wave of shortages are registered nurses of the "baby boomer" generation who will be retiring or leaving the workforce in great numbers within the next 10 years. Patients are admitted to hospitals, long-term care facilities, and substance abuse centers because physicians determine that 24-hour nursing care is required. The simple fact is quality patient care cannot be provided without the required number of professionally educated and competent nurses.

There are many employers of nurses in the healthcare industry including hospitals, long-term care facilities, home health agencies, hospices, schools, public health departments, colleges, universities, and physicians. As an employer of approximately 500 nurses in a regional hospital in rural southeastern North Carolina, I appreciate and applaud the role that nurses play. Nurses are there to:

- Provide care to the poor,
- Help make our sick children well,
- Provide comfort and healing to our elderly mothers and fathers,
- Help bring new life into the world, and
- Be there to provide compassion and love to our dying patients.

Much has been written about the impending shortage of nurses in our state and in our nation. I applaud the efforts of the NC Institute of Medicine (NC IOM) for convening a task force with the assistance of The Duke Endowment to study and to develop recommendations toward the resolution of this problem. Many of our state's leading authorities in nursing and nursing education worked side by side with nursing employers and the NC IOM staff to address this most important issue facing the healthcare industry.

It has often been said, "Like politics, healthcare is a local issue." Whether you define "local" as state, a region within a state, a county or a community, that is where healthcare is delivered and where the shortage of nurses will be felt. I, therefore, believe many of the solutions to this problem should be developed and implemented at the local level. Every employer must take ownership of this problem and, more importantly, take ownership of the solutions in their own locale. The work of the NC IOM Task Force on the NC Nursing Workforce provided recommendations that employers of nurses should embrace and commit their time and resources toward implementating. Several of the recommendations that employers can have direct and meaningful impact on are as follows:

- Encourage the youth of our state to consider health careers with a special emphasis on nursing,
- Provide scholarships and loans to beginning students and those seeking to advance their level of educational attainment,
- Support and expand nursing education programs,
- Implement nursing recruitment and retention strategies,
- Provide a positive nursing work environment,
- Advocate collaboratively with state nursing leaders and trade associations for the NC IOM Task Force recommendations to the NC General Assembly.

Promote Healthcare Careers

Employers should begin initiatives to recruit the youth of our state and our nation into the healthcare professions. Employers should meet and develop strategies with public and private schools to expose and encourage young people to consider health as a career. Many examples across our state have already begun to develop, including the establishment of school academies, scouting explorer posts and school partnerships with community colleges, public schools and healthcare institutions. These programs allow middle and high school students to enter the nurses' places of employment to learn firsthand of

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this most rewarding profession. Bringing young people face-to-face with practicing nurses enables them to make a conscious choice in choosing their future area of study.

Provide Scholarships and Loans

Employers of nurses will find it advantageous to help with the educational costs of training new nurses. Employers can provide scholarships and/or loans to students who meet the admission criteria of their educational institutions. Employers can also encourage community foundations to fund these scholarships. "Growing your own" by helping to fund training of local people who have roots in the community is often more successful and less expensive than trying to recruit nurses from other regions or from abroad.

For those nurses already working in your facility, the employer will want to find innovative ways to help them advance in their field through further education and training. The employer can offer support through scholarships, loans and flexible work schedules to accommodate classroom schedules. This kind of support enables NAs to advance to LPN status and LPNs to earn an ADN degree. RNs need support as they work toward their BSN degrees and advance training for careers as CRNAs or NPs.

Support and Help Expand Educational Programs

Employers must proactively support and help to expand nursing education programs in their communities, whether at the community college or university level. For years, hospitals have served as clinical training sites, and we must continue to do so. It is also imperative that we take a look at our clinical site training and re-focus on how we can improve it. Employers with the resources may want to fund a faculty position at a local nursing school for a limited time in order to jump-start the expansion of that program. Finally, we, as employers, can advocate for our legislators to increase funding for nursing education programs throughout the state.

Develop Nursing Recruitment and Retention Strategies

Of course, employers will want to review regularly their pay and benefits for nurses to make sure that these are keeping pace with the state and region. Some hospitals have had success in recruiting nurses from abroad as a short-term measure that can supplement current staffing levels until other long-term efforts, such as those mentioned above, produce results.

One of the best retention strategies is the establishment of a mentorship program wherein a new nurse is paired with a more experienced mentor during the first year of work. This school-to-work transition is proving to be invaluable for the beginning professional, who needs orientation and guidance during the initial phase of employment.

Provide a Positive Nursing Work Environment

Improving the work environment for nurses is an important responsibility for employers. Hospitals, home health agencies, physician offices and other facilities can do many things to increase job satisfaction despite the fact that only about half of NC nurses report satisfaction with their current jobs and about the same percentage would recommend nursing as a career to others. In turn, improved job satisfaction could reduce soaring turnover rates and save the employer resources by cutting down on the burden of costly recruitment of new nurses.

Hospitals, especially, report lower levels of satisfaction among their nurses than in community settings. As employers, we must find ways to address the stress and other work patterns that raise turnover rates and increase the recruiting of new nursing staff. For example, we must develop work assignments that promote a balance between work and home life for the nurse.

Our nurse managers are key players in improving the work environment for staff nurses. Employers must make sure that these managers have the leadership training and support of management to make the workplace both challenging and rewarding for their staff. Employers should invest in new technologies that can cut paperwork and other administrative tasks so that nurses can do what they entered their profession to do—take care of patients. This emphasis on support and collaboration should filter through all levels of the workplace, from administration to other healthcare professionals, including physicians and allied health personnel. Furthermore, employers should familiarize themselves with the principles of the Magnet Hospital and adopt similar strategies for their workplaces.

Advocate Collaboratively

While we work locally to solve nursing workforce challenges, we must also remember that we, as employers, must advocate for statewide and national solutions to the nursing shortage. We can do this by proactively bringing these issues to the attention of the members of the NC General Assembly and the US Congress. We must not leave the solution of these problems to our trade associations or to the state nursing leadership. Although local solutions must be developed and implemented to counter nursing workforce issues, the employer must also take ownership of the grassroots effort to solve this problem through advocacy at both the state and national levels.

Employers of nurses can choose to sit idly by and expect Washington, Raleigh or our educational system to solve the nursing shortage. Or we can choose to implement many of the recommendations of the NC IOM Task Force and to participate actively in the resolution of the nursing workforce challenges we face. The choice is ours! **NCMJ**

COMMENTARY

The Long-Term Care Nursing Workforce:
Who Will Take Care of Our Rapidly Growing Aging Population?

Polly Godwin Welsh, RN, C

Nursing in Long-Term Care Facilities Is Complex

Approximately 40,000 North Carolinians reside in skilled nursing facilities. These patients are often medically complex and functionally frail. The acuity level continues to rise and many patients require intensive nursing rehabilitative services in addition to close medical and nursing supervision. Multiple diagnoses, co-morbidities and confounding complications are common. Nurses employed in nursing facilities work with the highest degree of independence and skill.

Unlike hospital settings, long-term care nurses work without the continuous presence of physicians, emergency teams and advanced practice clinicians. These nurses must thoroughly assess patients who are likely to have communication deficits or some degree of dementia, and then communicate their findings to attending physicians, initiate nursing care plans, and respond to acute changes in patients whose conditions are unstable.

Not only are the keenest of clinical skills required to meet the needs of a medically complex patient population, the nurse working in a skilled nursing facility must utilize exceptional communication skills and navigate artfully through the emotions of patients and families. Patients and families are often overwhelmed by a recent catastrophic health event, immediate need for placement in a nursing facility and the stress of the many decisions to be made. Placement in a nursing facility is a major life event.

The guilt families may feel, along with the new responsibilities they face often render them somewhat in the care of the nurse as well. Nurses in skilled nursing facilities must ease the adjustment to this new phase in life for their patients and families. This nurse must bring the patient and his/her family into the "team" and lead the team in making decisions to face the challenges ahead. Extreme demands are placed on the emotions of the nurse who forges deep and important relationships that endure far beyond rendering immediate care. Nurses in skilled nursing facilities are there for the patient and family over the long term.

"This nurse must bring the patient and his/her family into the "team" and lead the team in making decisions to face the challenges ahead."

Patients in nursing facilities require extensive assistance with activities of daily living such as bathing, grooming, toileting and mobility. Statewide, over 20,000 nursing assistants are employed by facilities to assist with this care. Like the professional nurses with whom they work, they must possess special skills and caring hearts. The professional nurse must interact with these indispensable paraprofessionals with honed delegation and supervisory skills while functioning as the cornerstone for multi-disciplinary teamwork.

A metamorphosis has begun in skilled nursing facilities. The patients traditionally served comprise one facet of needs and expectations. Skilled nursing facilities have begun to see a new generation of customers emerge with a new generation of needs and expectations. Because of this emergence, North Carolina's nursing facilities will be facing an explosion in the demand for services. Not only are adequate numbers of professional nurses essential, but appropriate educational preparation and an assessment of models of care for the future are crucial.

Factors Affecting the Supply of Nurses and Nurse Aides Prepared to Work in Long-Term Care

To embrace these future demographics we must carefully examine the current external and internal factors relevant to the

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supply and demand for nurses. Among the external factors specific to nursing facilities operating in every county:

- Regional access to nursing education
- Bias against long-term care in the academic settings
- Utilization of "slots" in approved nurse aide training programs for nursing students as a prerequisite for nursing programs, thereby greatly limiting the availability of classes for nursing assistants
- Limited supply of experienced faculty with geriatric training and experience
- Uniqueness of the medically complex and frail elderly patient population
- Age-related pharmacological issues

These factors result in few graduates interested in or possessing adequate preparation for the unique challenges demanded by the long-term care healthcare environment. The complexity of the regulatory environment not only limits the skilled nursing facility's access to registered nurses, but also to Family and Geriatric Nurse Practitioners and Clinical Nurse Specialists. There is little research to identify efficacious staffing models for skilled nursing facilities. Even so, there is strong evidence that the presence of advanced practice nurses improve care outcomes. Many barriers make it difficult to infuse these types of practitioners into long-term care.

Where Will Long-Term Care Facilities Find More Nurses?

In response to the deficits in the preparation of a nursing workforce adequate in numbers to meet the needs of a frail geriatric population, nursing facilities have, for a long time, "grown their own" by indoctrination of new employees to skilled nursing care, by promoting from within, and educating nursing personnel on an on-going basis through their own resources and their professional associations. This pattern will soon escalate and expand through the development of technically trained workers in areas such as dementia, mobility and medication administration.

At a time when the nursing workforce in North Carolina is being analyzed, skilled nursing facilities must be at the forefront of the discussion. The world is preparing to welcome the aging baby-boomer to its rightful place in society, the new "up and coming" senior. Nursing academia must capture the exciting opportunity to join the evolution of healthcare by focusing on the change and challenge of the very population that will demand so much of the expanding field of nursing. **NCMJ**

COMMENTARY

Our Future Nursing Workforce:
A Regulatory Perspective

Polly Johnson, RN, MSN

Our History

North Carolina has the distinction of being the first state in the country, and second jurisdiction in the world, to pass laws in 1903 related to the practice of nursing—to register nurses who had completed formal education programs. Beginning in 1905, nurses also had to successfully complete a licensing exam in order to be registered. In those early years, formal nursing education took place in hospitals scattered across the state. By the mid-20th Century, practical nurse (PN) education programs were developed and registered nursing (RN) education moved beyond the hospitals, first into universities and then into the Community College System.

During this period of nursing education development and expansion, major regulatory emphasis was placed on standardizing and strengthening nursing education in the state—requiring all programs to meet a set of minimum standards for preparing new graduates to provide safe, effective nursing care to the citizens of our state. These standards focused on administrative structure of programs, resources, faculty preparation, curriculum including didactic and clinical learning opportunities, student services and minimum standards for passing licensure examinations. The NC Board of Nursing continues to set standards and approve nursing education programs as we move into the 21st Century. Today, there are close to 100 approved RN and PN education programs across our state.

> *"North Carolina (is)...the first state... to (license) nurses who had completed formal education programs."*

In addition to authorizing the Board of Nursing to set regulatory standards for the approval of nursing education programs, by the early 1920s the Nursing Practice Act began defining the scope (or components) of practice for RNs, expanding to include LPN scope of practice by the mid-20th Century, and then scopes of practice for advanced practice registered nurses (APRNs) by the last quarter of the 20th Century. Through the years, the NC Board of Nursing has worked diligently to assure that these regulatory standards not only meet our mandate for public protection, but also facilitate the evolution of nursing practice within an increasingly complex healthcare environment. Beginning in 2000, North Carolina entered the new age of multi-state nursing regulation through the enactment of the Nurse Licensure Compact-an agreement among states enabling licensees of one state to have the multi-state privilege to practice in other compact states according to the states' practice requirements, but without obtaining a license in those states.

Regulatory Challenges in Our Current and Future Healthcare Environment

Today, we face not only the demands for nursing care in a high tech, high touch, fast-paced acute care environment, but also the demands for care by an aging population and others with multiple chronic care needs. As the NC Institute of Medicine Task Force concludes its study of and makes recommendations to address a nursing workforce that is both aging and declining in number, the NC Board of Nursing is also addressing how best to assure that this future nursing workforce is not only adequately prepared to provide safe, effective care, but also remains competent as practice evolves and expands. Equally important is the regulatory imperative to assure that providers are permitted to practice to the fullest extent of their educational preparation and competence. As a regulatory board whose mandate is to protect the public, we are committed to removing unnecessary barriers that deny full utilization of our nursing workforce in order for our citizens to have access to a full range of appropriately qualified healthcare providers. The Board of Nursing continues to be committed to helping create the appropriate regulatory frame-

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work that provides for the utilization of advanced practice registered nurses to the fullest extent of their preparation without binding them to unnecessary oversight. We look forward to working with the NC Institute of Medicine in expanding this initiative.

Assuring Competence among Healthcare Providers

Following the release of the reports *To Err Is Human* (1999) and *Crossing the Quality Chasm* (2001) by the Institute of Medicine (IOM) of the National Academies[1,2] regulatory and accrediting bodies involved in health professions education and healthcare delivery systems are being challenged to establish standards that will improve patient safety and dramatically enhance the quality of healthcare in this country. Consistent with these initiatives, the NC Board of Nursing has reframed our overall approach to assuring the on-going competence of the North Carolina nursing workforce. Within a quality improvement framework, the Board is committed to supporting individual practitioners with deficits in their knowledge, skills and abilities by keeping them in the work setting while further enhancing their competence to practice safely. To this end, we are piloting a non-punitive, collaborative early intervention program that addresses concerns which have been raised about competency of individual licensees by several hospitals and long-term care facilities across our state. Through mutual agreement with the employer, the licensee and the Board of Nursing, we are offering remedial education and monitored practice to enhance the individual's competence while at the same time addressing mechanisms within delivery systems that could be changed to better support the delivery of safe care. The Board hopes to offer this program statewide within the next few years. More information about this innovative approach to enhancing the delivery of safe patient care can be found on the Citizen Advocacy Center's website www.4patientsafety.net.

As we plan for our future workforce, the Board is also addressing the need to assure the public that licensees maintain competence throughout their careers. Rather than requiring licensees to obtain a certain number of continuing education hours on an annual or biannual basis, our Board, along with nursing representatives from across the state, has developed a reflective practice model for licensees to evaluate their own practice, develop a learning plan, and provide evidence of steps taken to maintain or enhance their competence. Implementation of this continuing competence model will require statutory changes to authorize the Board of Nursing to collect evidence of competence at the time of licensure renewal. The Board plans to seek this statutory authority in the 2005 General Assembly. As our workforce numbers decrease and fewer nursing personnel will have greater patient care responsibilities, it is imperative that regulatory bodies play a primary role in assuring the public that our licensees maintain competence throughout their careers.

Core Competencies Every Healthcare Professional Should Have

Consistent with the challenge to reframe health professions education as proposed by the IOM Report *Health Professions Education—A Bridge to Quality*, (2003),[3] state Boards of Nursing and other health professions oversight bodies are formulating standards to include five core competences that clinicians across all health professions should possess in order to achieve the vision of a 21st century quality healthcare system. These core competencies are: (1) providing patient-centered care; (2) working within interdisciplinary teams; (3) employing evidence-based practice; (4) applying a quality improvement framework for all care provided; and (5) utilizing informatics to communicate, manage knowledge, mitigate error and support decision making. To prepare all health professions to deliver care in this manner will require a significant shift from our traditional "silo" approach of education for each health profession to integrating educational opportunities across the health professions—from pre-licensure through career-long continuing education.

The NC Board of Nursing is currently in the process of drafting revisions to our education program standards to address these core competencies and other requirements for building a workforce prepared to deliver the level of care envisioned by the *Quality Chasm* report. The Board will carefully review the recommendations from the NC IOM Task Force on the NC Nursing Workforce related to enrollment, attrition, National Council Licensure Examination (NCLEX) pass rates, and national accreditation to assure our future standards will support an adequate supply of nurses who are well-prepared to provide care in this complex world of healthcare. We envision program standards that support innovative learning opportunities for nursing students which incorporate new teaching-learning modalities as well as more creative utilization of settings for clinical learning experiences. With the increasing body of evidence that strongly suggests the need for a better transition from education to entry-level practice, the Board, through its Foundation for Nursing Excellence, has begun to explore mechanisms to address this need. Consistent with the NC IOM recommendation for convening a group to study options to improve school-to-work transitions, we plan to work with a wide spectrum of stakeholders to develop, pilot and recommend a transition-to-practice model for statewide implementation within the next five-to-eight years.

Finding Solutions to Other Nursing Workforce Issues

Since the year 2001, the Board has been asked to approve the development of six new PN education programs and four new RN education programs in a state that already has the second highest number of nursing education programs in the southern region of the US. As we look at the number of new programs that are seeking Board approval in light of the projected faculty shortages that will become most acute by 2010, North Carolina

must find a way to share these vital resources across programs if we hope to produce the number of nurses needed for the future. Although the NC IOM report addresses funding needs and mechanisms to assure that current resources are maximized within the existing educational programs, little has been done to address the impending faculty shortage in terms of sharing resources among programs either on a regional or statewide basis. In this new information age, the technology is available to support non-traditional resource sharing and teaching-learning opportunities across programs. If this does not occur, some programs may cease to exist within another 10-to-12 years.

Other Questions that Need to Be Debated (with solutions to be formulated by key stakeholders)

How many nursing education programs can North Carolina support? Should the state institute a more formalized process for the approval of new programs that considers a variety of factors, including type of program, geographic overlap with existing programs, and demographics of the population to be served? Should there be a cap on the number of new programs or should this continue to be a market-driven process?

In addition to NCLEX pass rates, what outcome measures are needed to better assure the competence of entry-level practitioners? As referenced in the NC IOM report, NCLEX pass rates were never intended to be used as a single outcome indicator of the quality of a nursing education program.[4] As we develop further evidence through research studies, how do we articulate and measure the entry-level competencies that one needs in order to practice safely in this complex healthcare environment?

In order to further support the delivery of safe care, should there be limitations set on the number of hours a nurse could work in a 24-hour period and within a seven-day work week? Should there be standards set related to nurse:patient ratios? If so, by whom?

Moving Forward

For more than 100 years, North Carolina has had a rich history of advancing nursing practice to meet the needs of our citizens. We are now at another critical time in our history where changes need to be made in all aspects of our profession—education, practice and regulation—to continue the legacy. Thanks to the coordinating efforts of the NC Institute of Medicine, grant monies from The Duke Endowment, and the commitment of nursing and related healthcare leaders across our state, the Task Force on the *North Carolina Nursing Workforce Report* lays out a plan of action that we must implement if we wish to have a sufficient and well-qualified nursing workforce to meet the needs of our citizens in the 21st Century. The next chapter of our nursing history is in our hands—may we be good stewards of our legacy and committed to meeting the healthcare needs of all North Carolinians. **NCMJ**

"We are now at another critical time in our history where changes need to be made in all aspects of our profession—education, practice and regulation—to continue the legacy."

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North Carolina's Community College Commitment to Nursing Education

H. Martin Lancaster

The most important task of North Carolina's community colleges is to prepare the people of our state for good jobs with great futures. Now and for the foreseeable future, healthcare, particularly nursing, offers a tremendous number of those jobs.

Health programs make up one of the largest, fastest growing and most important areas of study in the community colleges of North Carolina. Our community colleges educate most of the nurses and allied health personnel working in our state's hospitals, long-term care facilities, home health agencies, health clinics and doctors' offices.

About 60% of North Carolina's registered nurses (RNs) come from community college programs. The report of the Task Force on the NC Nursing Workforce notes that community college nursing graduates do very well, performing above the national average on their licensure exams; and that approximately 90% of our RN graduates stay in North Carolina to begin their nursing careers.

It just makes sense for the NC Community College System to devote time, talent and money to allied health programs, and it makes sense for our state to increase dramatically its investment in those programs.

Community College Nursing Programs

We are working hard to increase the number of associate degree students prepared to sit for their RN licensure exam. Currently, 51 of our 58 comprehensive community colleges campuses have associate degree programs with an enrollment of approximately 5,300 students.

We collaborate with baccalaureate institutions to increase the education level of the state's nursing graduates as well as to increase the number of graduates prepared to complete their degrees to become registered nurses. A number of our community colleges work with institutions within the University of North Carolina (UNC) System to provide degree-completion programs for nurses (RN-to-BSN) who have earned associate degrees in nursing and wish to obtain a bachelor's degree in nursing (BSN). While the bachelor's degrees come from the universities, many of these programs are physically located on community college campuses and linked to universities by distance learning technology. Locating these programs on our campuses increases student enrollment and greatly strengthens the likelihood that underserved rural areas will have community college and university graduates who remain in that area.

We also offer a pre-major within our college transfer program for students who want to transfer into a nursing program at a university. This program is part of the Comprehensive Articulation Agreement with the University of North Carolina.

Our practical nursing programs have also grown in recent years, with more than 1,100 students enrolled in 34 programs. With the support of the healthcare industry, we have put significant effort into establishing and expanding programs for nursing assistants.

We are also involved in early recruitment of talented young people who should consider health as a career. A number of community colleges participated in the establishment of Allied Health Science Academies which provide courses in the health sciences areas to high school students. More than half of the system's colleges administer placement tests to approximately 8,000 students still enrolled in high school to determine the student's readiness for college level work.

In addition to these external partnerships, our community colleges work together to meet the needs of our students and the healthcare industry. These efforts involve collaborative agreements between our colleges. We have more than fifty health-related collaborative agreements between our colleges. These agreements assist in providing educational resources to as many students as possible by:

1. Providing classroom instruction in remote areas of the state;
2. Pooling available resources to provide cost-efficient education;
3. Providing arrangements for joint utilization of clinical sites; and
4. Eliminating the repetition of course requirements for our students.

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Barriers to Community College Nursing Program Growth

Despite all these programs and all these students, we know that we are not keeping up with demand. The nursing shortage is acute and growing. Community college programs at every level need to grow to meet that demand. However, we face significant obstacles to that growth.

First, the state provides funds neither to establish new community college programs nor to expand existing ones. Colleges must depend upon the generosity of private funders, such as The Kate B. Reynolds Charitable Trust, for start-up money. Neither does the state provide sufficient funds through the "FTE"[1] formulas to cover the actual costs of providing nursing education. Because health programs require low student-teacher ratios, specialized equipment and facilities, expensive supplies and highly qualified faculty, they cost much more than does the average community college program.

Second, many students come to us unprepared for the rigor of nursing programs. Most of our students are adults in their thirties and older. Many must strengthen reading, writing and math skills before they start their nursing courses. Many juggle complex family challenges along with their studies. These students can and do succeed; however, they need strong counseling and student support services along the way. Without that support, too many of them switch to less challenging programs or drop out completely, leaving community college nursing programs with a significant problem of student retention. Unfortunately, North Carolina's community colleges simply do not have enough counselors and other student support personnel to do the job that must be done for retaining these students.

Third, we are on the brink of a crisis in recruiting and keeping qualified faculty members. Part of the problem is money, plain and simple. Last year our system celebrated its fortieth anniversary. The dedicated men and women who were "present at the creation" are retiring in great numbers. Will we be able to pay enough to attract the next generation of great teachers? Not if we continue to stay mired at the bottom—literally—of community college faculty salaries in the southeast and near the bottom nationally. Current salary levels make it easy for business and industry to recruit faculty from our system. Another part of the recruitment problem is a shortage of nurses with advanced degrees. Currently, community college nursing directors must have at least a master's degree in nursing. To acquire a voluntary National League of Nursing (NLN) accreditation for each program, all faculty must hold a master's degree. A number of our colleges have had great difficulty in recent years convincing qualified directors prepared at the master's level to move into their communities for the modest salaries they can offer.

Fourth, community colleges compete for clinical space with hospital and university programs and with each other.

"About 60% of North Carolina's registered nurses (RNs) come from community college programs."

Recommendations that Would Bolster Community College Nursing Programs

I am pleased that the Task Force on the NC Nursing Workforce has put forward thoughtful, significant recommendations addressing these important challenges in nursing education in North Carolina's community colleges.

I consider five of them to be of particular urgency.

1. The NC General Assembly should reclassify community college-based nursing education programs (ADN and PNE) as "high-cost" programs and provide additional funds ($1,543.39) per FTE student to cover actual costs of operating these programs. (Rec. # 3.6)

While this would not solve the problem of funding for start-up and expansion, it would help keep community colleges from losing money on every student enrolled in these essential programs.

2. The General Assembly and/or private philanthropies should invest funds to enable NC community colleges to employ student support counselors specifically for nursing students and to provide emergency funds to reduce the risk of attrition for students in ADN and PNE programs. (Rec. # 3.8)

I find it difficult to imagine a better use of new money than this one. According to the report of the Task Force, "If these ADN nursing education programs could increase their retention/graduation rates by just 10%, given the fact that such a high proportion of these ADN graduates stay to practice in North Carolina, it could increase our annual number of new registered nurses by over 450 per year."

I believe that the best way to accomplish that goal is to provide the strongest possible assistance to motivated students who want to succeed and simply need extra attention to make sure they do. Yes, it is tempting to say that we could achieve similar results if we raised admission standards and enrolled only those students who had already succeeded in school. If we do that, however, we will close the "open door" to opportunity for many, many North Carolinians. The "open door" is more than a logo for North Carolina's community colleges; it represents what we do and why we do it.

1. Full-time equivalent student

3. The Comprehensive Articulation Agreement between the Community College System and the UNC System campuses (Associate in Arts degree), and the bilateral articulation agreements for students with an Associate in Applied Science degree (AAS) in Nursing and the UNC System, should be carefully evaluated and improved by the Transfer Advisory Committee (TAC) so that students wishing to advance from one level of nursing education to another will experience these transitions without course duplication. (Rec. # 3.28)

While not every registered nurse educated at a community college wants a baccalaureate degree, those who wish to specialize, teach and take on significant management responsibilities do. Some of our existing programs that help students earn BSNs work well; others, particularly the pre-major, need significant work. Following the mandate of the NC General Assembly in 2003, our System and the UNC System are now working with an independent consultant on a comprehensive review of our transfer programs, including those in nursing.

4. The NC General Assembly should increase funding to the NC Area Health Education Centers (AHEC) to offer off-campus RN-to-BSN and MSN nursing programs using a competitive grant approach which is available to both public and private institutions statewide. (Rec. # 3.20)

Graduate nursing education is not, of course, the business of community colleges. However, we depend upon this education for our instructors and directors and will support its expansion through shared facilities, distance learning technology and innovative collaboration. The Community College System is in strong support of having all of its already NC Board of Nursing-approved programs take an additional step of becoming nationally accredited by the National League of Nursing (NLN) voluntary accreditation process. This voluntary process requires that all nursing faculty hold a master's degree. To achieve this goal requires the availability of nurses with master's degrees and the funds to pay the salaries required.

5. Clinical facilities (hospitals and nursing homes, particularly), through their statewide trade associations, and in collaboration with all nursing education programs in their respective geographic areas/regions, should undertake to foster a more transparent and equitable system for the allocation of clinical training sites among nursing education programs on a sub-state regional basis. (Rec. # 3.4)

Increased collaboration between and among all educational institutions must be done to put into practice the use of all available clinical facilities by all educational agencies, if we are to collectively increase the number of graduates prepared to sit for the licensure exams.

Necessary Resources

How quickly will the NC Community College System and our partners be able to act on these recommendations? As do so many things, a large part of that answer depends on money.

The state of North Carolina has been struggling for the past few years with one of its worst fiscal crises in recent memory. While the NC Community College System has been spared the depth of budget cuts that some other agencies have received, we have had to make many reductions even as we face escalating enrollments. Any more cuts, particularly in health areas, will severely limit colleges' ability to meet student and industry demand.

There is no feasible way, from a budget perspective, that the NC Community College System can maintain its current production and supply additional highly educated and qualified healthcare professionals to the marketplace with the current funding stream. The NC Community College System may soon be faced with enrollment caps, especially in nursing and allied health programs.

We would not be able to provide the quality or number of educational opportunities for our citizens if not for collaborative efforts with our local high schools, universities, local Area Health Education Centers, the NC Board of Nursing and the NC Center for Nursing. Financial support from hospitals and foundations and other state and private agencies is critical for implementing and expanding programs. We must develop a coordinated, comprehensive and systemic resource development framework statewide to capture resources, and include more state funds, which are needed to provide educational opportunities.

With our continued efforts and commitment to meeting the needs of our citizens, we will strive to reduce the shortage of nurses and other healthcare professionals. **NCMJ**

COMMENTARY

The University of North Carolina System and Nursing in North Carolina

Gretchen M. Bataille, DA, and Alan R. Mabe, PhD

For over a year, North Carolinians committed to ensuring a strong nursing workforce within the state have met to review data, study "best practices" in our own and other states, and make recommendations for how North Carolina institutions that educate and employ nurses can best serve our citizens. The University of North Carolina (UNC) is committed to taking the steps necessary to address both the number of nurses needed and the appropriate educational level for those nurses. Board of Governor's Chair J. Bradley Wilson charged the Committee on Educational Planning, Policies and Programs of the Board of Governors to examine the current nursing shortage in North Carolina and to make recommendations for UNC's role in responding to the shortage. The statewide NC Institute of Medicine Task Force on the NC Nursing Workforce has been critical to UNC's examination of its own role in responding to the nursing shortage issue. Now that the Task Force has completed its work, Chairman Wilson has appointed a special committee of the Board of Governors to review their findings and develop a set of recommendations for UNC's response to the nursing shortage issue.

Nursing Education Programs and Enrollment

UNC has nine campuses providing prelicensure baccalaureate nursing (BSN) degrees. The same nine campuses also offer Registered Nurse (RN)-to-BSN degrees and, in addition, Fayetteville State University (FSU) and UNC at Pembroke (UNCP) have a joint RN-to-BSN degree program. FSU and UNCP are planning to establish prelicensure BSN programs on each campus to provide increased access to students seeking baccalaureate degrees in nursing in their regions. Two campuses, UNC at Chapel Hill (UNC-CH) and Winston-Salem State University (WSSU), have developed accelerated BSN programs for students who already have a bachelor's degree in some other field, but with intensive study for 14-16 months these students can receive a BSN degree that will qualify them to sit for the nursing exam.

UNC responded to the nursing shortage in the late eighties and early nineties by increasing enrollment and the number of graduates at the bachelor's-level, doubling the number of BSN graduates between 1990-91 and 2000-01 (509 to 1,017). Similar to the national picture, the enrollment and number of graduates at the baccalaureate level began a slow decline in the late nineties. For fall 2003 we have seen a dramatic reversal of this enrollment trend with a 16 % increase over 2002 to 2,303 students, the largest enrollment in undergraduate nursing ever for UNC. The number of baccalaureate graduates has continued to decrease, but we expect a reversal of that trend once these enrolled students complete their programs. At the master's level the number of graduates more than doubled between 1990-01 and 2000-01 (100 to 253). Master's enrollment for fall 2003 has climbed to 794, the highest level ever. The number of graduates for fall 2003 was 244, which was an increase over 2001 but slightly below the previous high of 253. UNC now has doctoral programs at UNC-CH and East Carolina (ECU), and the Board of Governors has approved UNC Greensboro (UNCG) to plan a new doctoral program in nursing. Enrollment in doctoral work is growing. Sixty-two students were enrolled fall 2003, and seven students received doctorates in 2002-03. UNC is well aware that the expansion of nursing

"Each of the existing undergraduate programs turns away qualified students because of limited faculty, space, or insufficient clinical sites."

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programs will require additional nursing faculty, and has particularly focused on producing master's-level (MSN) students in nursing education to respond to the needs for faculty in the community colleges in North Carolina. In addition to the site-based programs, two UNC campuses, ECU and UNCG, offer an online MSN in nursing education accessible from anywhere in the state.

Creating More Nurses and Nursing Faculty

The core recommendations from the Task Force for UNC are for more nurses, for higher levels of education for current and future nurses, and for producing more faculty members for nursing programs at the associate and bachelor's levels as well as for our graduate programs. This means that UNC campuses should expand the number of students enrolled in prelicensure BSN programs and accelerated BSN programs to increase the number of RNs in North Carolina. UNC's contribution to raising the educational level of nurses in North Carolina will involve more nurses coming into the profession at the BSN level, an expansion of the number of nurses enrolled in RN-to-BSN programs, and an expansion of nurses enrolled in master's and doctoral programs. The nursing faculty shortage will be addressed by expanding opportunities in master's and doctoral programs. At the master's level it will be particularly important to expand opportunities in MSN programs in Nursing Education because that credential is crucial for the community colleges to be able to expand their programs to meet accreditation requirements. The Task Force on Nursing recognized this as a critical contribution of UNC campuses.

The Office of the President has been supportive of increasing access to baccalaureate and master's programs using online technologies, having allocated over $500,000 to the campuses to expand online access at both levels in the past two years.

Each of the existing undergraduate programs turns away qualified students because of limited faculty, space, or insufficient clinical sites. The requirement for a 10:1 student/faculty ratio in clinical courses is not consistent with existing enrollment patterns on the campuses and, in this difficult budgetary climate, makes it harder to expand. Some of the campuses have received support from local hospitals that provide classroom space, clinical preceptors or funds to hire additional faculty, and such partnerships need to be explored further. The Area Health Education Centers (AHEC) has been very supportive and helpful in seeking additional clinical sites.

Throughout the year, we have explored with the deans of nursing the conditions that preclude the production of more nurses at every level. The issues are many. There is a need for faculty development funds for existing faculty to learn new skills or for master's trained faculty to seek doctoral degrees. For most campuses, faculty salaries are an issue, making recruitment difficult. Doctoral-level (PhD) trained faculty have opportunities for high-paying positions outside the academic environment. Some campuses have no space to grow larger programs or no large classrooms to accommodate larger classes. Additional graduate fellowships are needed to meet the financial needs of students engaged in doctoral study. All of these issues are compounded by the extensive budget cuts our campuses have faced over the past three years even as the university has received new enrollment funding.

Articulation

UNC supports the nursing programs at the community college campuses and recognizes the importance of seamless articulation of students from the community college Associate Degree in Nursing (ADN) programs to four-year programs. Increasingly, such needs are being met through bilateral or system-wide agreements, and we agree that it is time for another review of general and specific articulation issues as they relate to nursing. We also recognize the need to expand enrollment at every level, including licensed practical nurses (LPNs) and nurse aides.

Student Support

Another need is the expansion of the Nurse Scholars scholarship to provide more support for those students in the program. Graduation rates would be improved if students did not have to work while in school. A Nursing Fellows program modeled on the NC Teaching Fellows program could provide resources to campuses to support nursing students. Rather than a four-year program, this could be a two-year upper-division program for universities as well as a two-year program for ADN students.

UNC and the NC Center for Nursing have provided support for the College Foundation of North Carolina to establish an online module directed to students seeking a career in nursing. Information about existing programs and scholarship support is available at that site (www.CFNC.org). This is part of a larger effort that will need to be expanded to make career opportunities in nursing known to a wider group of students as they make career choices. It will be very important for this work and the work of others to promote a more diverse nursing workforce that will include more underrepresented minorities as well as males.

Conclusion

While our focus has been on those recommendations for UNC, other recommendations are of equal importance, particularly those focusing on retention in the workplace. Our nursing deans look forward to working with the committee on advanced practice nursing proposed in the report.

Few of these recommendations come without costs. The University of North Carolina intends to take the recommendations of the Task Force seriously and to craft the biennial budget request to maximize the use of limited state funds to address the shortage that exists and is anticipated in the future. We are fortunate to be in a state that recognizes that the health of its people is critical to its future. **NCMJ**

Private Colleges and University Nursing Programs in North Carolina

Mary Champagne, PhD, RN, FAAN

American nursing and healthcare are at a critical juncture. We are in the beginning years of a deepening shortage of registered nurses and nurse faculty, and headed toward two possible futures. In one scenario, we look to old solutions or continue as we are: the nurse shortage increases in severity, patient care suffers, and, as noted in the Robert Wood Johnson report (*Healthcare's Human Crisis: The American Nursing Shortage,* April, 2002) a major public health crisis occurs. In the second scenario, we are innovative and proactive in increasing enrollment in nursing programs, improving the educational level of all nurses, and improving the work environment of nurses; and we leverage public-private partnerships in education, industry, government and philanthropic foundations to enhance our efforts. The result is a recovering nurse supply, nurses well prepared to provide excellent care in our complex and increasingly technologically sophisticated care system, and a sufficient investment in the health of the public that ensures all North Carolinians will receive the nursing care they deserve.

We are presented at this time with the proverbial "window of opportunity," with choices to make in securing a preferred future to ensure the health of the public. The North Carolina Institute of Medicine (NC IOM), with financial support from The Duke Endowment, has developed a blueprint for our state's preferred future. The plan is wise and forward thinking, noting that a multi-modal long-term approach is needed, and that all must fully "do their part" if we are to succeed.

Growth of the number of nurses educated at the BSN-level and growth of graduate programs to prepare nurse faculty are key recommendations of the NC IOM report. The private colleges and universities in North Carolina make substantial contributions in each of these areas, and are committed to doing even more. As the report notes, the "privates" educate about one-third of all baccalaureate and master's prepared nurses in North Carolina. The programs are of high quality-retention, graduation and NCLEX pass rates are high; and remarkably between 75% to 95% of graduates stay in North Carolina to practice. In some instances this reflects a greater than expected benefit, as out-of-state students relocate to North Carolina to practice nursing following graduation.

Expanding Private Colleges and Universities

Increasing the capacity of private colleges and universities is largely tied to the funding mechanisms in place in each to allow for expansion. For the most part our schools are funded through tuition dollars and philanthropic gifts. Starting or expanding programs requires "seed money" for the first few years. Philanthropic dollars are incredibly important in this

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effort. Two recent examples illustrate the impact of private foundation support for growth of private colleges and university nursing programs. Our school, the Duke University School of Nursing (DUSON), was able to re-instate a pre-licensure BSN program which now admits 50 students each year thanks to funding from the Helene Fuld Health Trust. And while 50% of the first graduating class was from "out of state," 81% stayed in North Carolina and are providing care at the bedside. Philanthropic funds were also critical to our collaboration with the Southern Regional Area Health Education Center to deliver a master's degree in nurse education to nurses in rural North Carolina. This program, funded by The Duke Endowment, has, in the last two years, graduated over 30 students, who will teach in community colleges and hospitals in underserved areas of our state.

The Importance of Student Support

A unique challenge faced by private colleges and universities is providing sufficient scholarship support to students. The majority of students in the "privates" are North Carolinians, and need help in financing their education. They are not wealthy. I know from my personal experience as dean, that scholarship support often makes the difference between a student pursing or not pursuing education in nursing. My experience is validated by the comments of other deans and directors in North Carolina's private colleges and universities. Expanding the North Carolina Nurse Scholars program, extending the state tuition support to second degree baccalaureate and master's degree nursing students, and enacting the Faculty Fellows Program would markedly impact the ability of private colleges and universities to increase enrollments. Most important to this effort, is philanthropic scholarship support in the form of endowments from private foundations to the private schools of nursing. Philanthropic support of students has long lasting and far reaching effects. This investment in students reaches all the patients they expertly care for over the years of their nursing career; it is an investment with untold dividends.

Hospitals and other healthcare agencies can also play a critical role in supporting students in private colleges and universities. Innovative examples include "loan repayment" programs for students who agree to work in the healthcare agency following graduation, direct scholarships to students, faculty support through actual dollars to the college, joint hospital and school faculty appointments, and provision of clinical staff to supervise students in clinical rotations. Careful analysis will demonstrate that these arrangements, properly structured, result in a winning situation for all parties. Our school, for example, partners with the Duke University Health System (DUHS) in a "loan repayment" program for our baccalaureate students. Using traditional methods, students can borrow total tuition costs for their education, and sign an agreement with DUHS that guarantees employment, and payment of one-third of the loan plus interest for each of three years worked. Financial modeling, which included weighted costs of recruitment and retention of nurses and salary for staff and traveling nurses, demonstrated that DUHS would fully recoup its investment.

The private colleges and universities look forward to working with the many partners involved in the NC IOM Task Force on issues that affect us all in increasing and improving the nurse workforce. We support measures to build an interest in nursing as a career, collaborations to enlarge and more efficiently use clinical training sites, improving the scope of practice of APRNs, and enhancing the work environment of all nurses. We aim to do our best in partnering to ensure a highly educated nurse workforce for today and tomorrow. Working together to secure our preferred future, we cannot fail. The best is surely yet to come. **NCMJ**

"...scholarship support often makes the difference between a student pursing or not pursuing education in nursing."

COMMENTARY

Are Hospital-Related Nursing Programs the Answer?

Anita A. Brown, RN, MEd

Hospital-related nursing education has been a part of the fabric of healthcare and healthcare education in North Carolina for well over a 100 years. During the 1950s there were as many as 44 hospital-related nursing schools preparing graduates for registered nurse licensure and employment positions in North Carolina hospitals. In the 1960s more than 80% of the Registered Nurses (RNs) in the United States were educated in hospital-related programs. With the advent of the community college as well as the ever-changing financial challenges of the hospital industry, many hospitals began closing their nursing education programs or merged them into those new community colleges. By the 1990s, 10% of the United States' nurses were educated in hospital-related programs. It is well documented that in the United States and North Carolina, 60-70% or more of working RNs are employed in hospitals.

Historically, hospital-related programs have awarded the "diploma" as the educational credential to those students who graduated. When hospital-related education began, associate and baccalaureate degree programs in nursing did not exist and the "diploma" was the accepted academic credential. Because hospital-related education began as apprentice-type programs, the perception has lingered that these are nothing more than on-the-job training or workforce development programs. As nursing education has evolved, hospital-related programs have changed from the apprentice style educational formats to curriculum plans, which mirror today's associate and baccalaureate degree programs, including college-level general education courses with nursing major courses. Throughout the United States many hospital-related nursing programs have transitioned to associate degree (ADN) or baccalaureate (BSN) programs as part of becoming colleges of health sciences offering allied health programs as well as nursing. In 1998 a report on hospital-related colleges prepared by the Lewin Group, identified 348 hospital-related colleges/programs in the United States.

There are five hospital-related colleges/programs in North Carolina: Mercy School of Nursing at Carolinas Health Care System in Charlotte, Presbyterian Hospital School of Nursing at Presbyterian Hospital/Novant in Charlotte, Watts School of Nursing at Durham Regional Hospital in Durham, Cabarrus College of Health Sciences at NorthEast Medical Center in Concord, and Carolinas College of Health Sciences at Carolinas Health Care System in Charlotte. While Mercy, Presbyterian, and Watts' programs continue to award diplomas as the academic credential, the curricula in these programs are comparable to associate degree programs currently offered in North Carolina's community and private colleges. Cabarrus College of Health Sciences and Carolinas College of Health Sciences have developed associate degree nursing programs as part of their strategic development as colleges of health sciences. It is worth noting that both of these institutions include a variety of allied health programs at the associate degree level and Cabarrus College also has baccalaureate degree programs including BSN completion.

While the number of hospital-related programs is small, the impact of each is large in their respective areas. With their inception dates varying from 1895 to 1947, collectively these five programs have graduated approximately 11,000 nurses. Of

Table 1.
North Carolina Hospital-Rated Nursing Programs

	% Graduates Staying To Practice In NC	Average Retention Rate	Average Graduation Rate
Cabarrus College of HS	98%	65-70%	60-65%
Carolinas College of HS	97%	65-70%	64%
Mercy SON	96%	60-65%	57%
Presbyterian Hospital SON	98%	60-65%	65%
Watts SON	97%	56%	69%

Program survey data - March 2004. (SON = School of Nursing HS = Health Sciences)

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the 2,467 first-time NCLEX-RN takers in North Carolina in 2002, 10.2% (252) were from the five hospital-related programs. Of the six largest registered nurse education programs in the state (in terms of students taking the NCLEX), two are hospital-related programs, Presbyterian and Carolinas. These five programs also produce graduates who, on average, pass the RN licensure exam at a rate of approximately 90% on first writing.

A hospital-related nursing student tends to be older than the average university student with age ranging from 25-29 years. Most students have prior college experience, degrees, and/or careers in other fields. According to a survey of the five hospital-related programs, (March 2004), 97% of their graduates remain in North Carolina to practice. Most graduates stay within the community where they were educated and many of these associate degree and diploma graduates pursue BSN or master's (MSN) degrees.

Advantages of Hospital-related Nursing Education Programs

Several advantages of hospital-related programs are due to the relationship with their sponsoring hospital. The students in hospital-related programs typically have the best of both the education and the healthcare provider worlds as these hospitals provide excellent, often cutting edge, clinical opportunities. While the programs tend to get first choice for clinical experiences at their sponsoring hospital, most negotiate, as do other programs, for selected and limited clinical sites. All hospital-related programs report that 100% of their full-time faculty are master's prepared and all meet or exceed the NC Board of Nursing requirements for clinical experience. Hospital-related programs provide a significant recruitment resource to their affiliate hospitals, as many of the graduates choose to work in the hospitals where they receive their clinical experiences. Frequently, students in hospital-related programs can find meaningful work experience in the hospital as nursing assistants or other related jobs while they are enrolled in the nursing program. This sets the stage for a seamless transition from the role of student to employee when the student accepts employment beyond graduation. This seamless transition is beneficial for financial, human resources, and orientation reasons. Obviously, it can therefore significantly reduce the cost to hospitals for recruiting and orienting these new graduates. Hospitals sponsoring these programs report consistently lower RN vacancy rates than other hospitals in the state.

Although hospital-related programs are somewhat insulated from state and political budget considerations, a disadvantage for these programs is there is no state or federal funding to support their operations. A prevailing myth is that hospital-related programs are adequately funded due to the Medicare pass-through funding available to hospitals that support nursing and allied health education. While hospitals that sponsor nursing programs are eligible to receive the Medicare pass through funding, it is up to the institution as to how the funding is allocated and that funding represents a modest portion of overall program costs.

Hospital-related programs in North Carolina tend to utilize approximately 80% of their approved NC Board of Nursing slots. It is important to note that on average the hospital-related programs also retain 65-75% of their students in contrast to significantly lower rates of 50% or lower reported by the community colleges. Hospital-related programs report average graduation rates of 60-70%. While some 60-70% of their graduates remain at the sponsoring institutions for employment, these graduates tend to be mobile, but do remain in North Carolina in much higher percentages.

Hospital-related programs have the same concerns as other programs regarding "aging of the professorate" and availability of academically and experientially qualified nursing faculty for replacements. Salaries at these programs generally are more competitive due to internal equity issues including clinical salaries and lower faculty turnover rates. These factors contribute to higher faculty satisfaction rates and stable work environments.

The attributes of hospital-related college programs as described in the Lewin report, which make them valuable to student and local healthcare providers are:

- Programs are closely aligned with and responsive to the healthcare marketplace.
- These programs substantially contribute to local workforce development.
- These programs provide important career mobility opportunities.
- Expertise in clinical teaching is a hallmark of hospital-related programs.

While anecdotal comments reflect that there are hospital administrators who believe that working with the community colleges and the universities is preferable to sponsoring a hospital-related nursing education program, it is worth noting that one major hospital in North Carolina reactivated its nursing education program in the 1990s after many years of working with a local community college, citing issues of insufficient quantity and quality of graduates under the existing relationship. Given the vagaries of today's healthcare economies, especially for hospitals, it may not seem prudent to recommend reactivating hospital-related nursing programs. However, for five hospitals in North Carolina, which have weathered the financial and educational trend storms, nursing shortage issues have been removed from or are very low on their list of priority concerns.

Although the NC Institute of Medicine Task Force on the NC Nursing Workforce did position itself in support of strengthening and expanding all types of nursing education programs in North Carolina in order to meet the projected needs, it became apparent that due to the small number of hospital-related programs as compared to the community college and university systems, these programs would receive limited attention in the Task Force deliberations and recommendations.

Therefore, it is imperative that as policy makers and stakeholders determine how best to respond to the recommendations of the Task Force, hospital-related programs and their students must be included as part of the answer. **NCMJ**

COMMENTARY

How LPNs Can Be Part of the Solution

Patricia A. Beverage, LPN

One of the most common questions I am asked is: What is the difference between a registered nurse (RN) and a licensed practical nurse (LPN)? My standard response has been their level of education and the dependence or independence of their practice. It is surprising how many medical professionals do not know the difference in the levels of nurses working with them. To them, a nurse, is a nurse, is a nurse.

Licensed practical nurses (LPNs) use specialized knowledge and skills to provide care for the sick, injured, convalescent, and disabled under the direction of physicians and registered nurses. LPNs are required to pass a licensing examination (NCLEX-PN) after completing a state-approved practical nursing program. Thirty-two of the 33 North Carolina PN education programs are a part of the NC Community College System. The Department of the Army runs the one other PN educational program.

LPN Origin and Practice

LPNs were created amidst another severe nursing shortage during World War II. The NC Nurse Practice Act was amended to regulate the practice of a Licensed Practical Nurse. These nurses were to be taught the basic knowledge of pathophysiology and would be educated primarily in the delivery of hands-on nursing care. This would enable RNs to care for a larger number of patients with the assistance of educated and licensed personnel.

Depending upon location, LPNs work in operating rooms, nurseries, and labor and delivery units. LPNs work on medical/surgical units, cardiac and intensive care units. LPNs work in emergency rooms, ambulatory care clinics, public health and occupational health clinics. LPNs provide care in assisted living facilities and in nursing homes. In fact, LPNs supervise care provided by nursing assistants in most nursing homes.

LPNs take vital signs, treat wounds, give medications, and perform venipuncture. LPNs insert catheters, nasogatric tubes, assist with hygiene, feed patients, record intake and outputs in addition to caring for their patient and their family's emotional needs. In some facilities, LPNs can give intravenous medications, hang blood, or other higher levels of care. LPNs can also assist in developing care plans. In doctor's offices and clinics LPNs perform tasks such as giving immunizations or clerical duties. LPNs also work in private homes, which may include providing simple meals for patients, doing light housekeeping, and teaching the family members to perform simple nursing tasks.

Practical Nurse education prepares LPNs to "assess" patients—just like RNs—and report these assessments to direct supervisors, as do the RNs. The difference is that LPNs are not permitted to perform an intervention without first reporting their findings.

LPN Employment

Over the past 20 years, NC LPNs have seen major changes in the location of their employment opportunities—from being primarily hospital-based to nursing home-based. More LPNs have found employment in community agencies, such as health departments, mental health facilities, hospice and home care.

The US Bureau of Labor Statistics (BLS) predicts a continued decline in LPN positions in hospitals.[1] The BLS also predicts an increase in the use of LPNs in medical offices and clinics, ambulatory surgical centers and emergency medical centers as the occurrence of sophisticated procedures that were only performed in hospitals move to these facilities. Advancing technology will play a major role in the growth of the use of LPNs in these healthcare arenas. LPN employment in nursing homes is also expected to grow, as the need for long-term care expands along with our growing aging population.

Table 1.
LPN Place of Employment in 1982 and 2001

Place of Employment	1982	2001
Hospital	62%	19.5%
Nursing Home	15%	39.5%
Community Agencies	1%	9.5%
Medical Offices	8.4%	18.9%

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Suggestions from LPN leaders

The elected professionals representing LPNs believe the state of North Carolina could help alleviate part of its nursing shortage by allowing LPNs to play an active role in all aspects of nursing. A noted national leader in nursing, Dr. Margaret McClure, RN, EdD, FAAN, President of the American Academy of Nursing, said it best, "Nursing needs people with different skill sets and talents—whether it's an aptitude for technology or interpersonal communications. Everyone can find a place to thrive and be happy and be useful in this broad and challenging field."[2]

The NC LPN Association Executive Board recommended the following to the NC Institute of Medicine Task Force on the NC Nursing Workforce:

1. Ask employers to help LPNs obtain continuing education. If LPNs do not meet employer needs in facilities, employers should help and/or allow LPNs to obtain those courses or certifications needed to meet these needs.
2. Provide LPNs with career ladders. Offering LPNs an opportunity to advance will inspire them to seek further education or certifications. Recognition, money and benefits are attractive incentives.
3. Involve LPNs and the rest of the staff in developing more flexible and amiable work schedules to help meet their personal needs. This could help decrease the number of "call outs" and the scramble for last minute replacements.
4. Challenge LPNs to improve. LPNs have untapped potential to succeed. Challenge them to do so.
5. Respect LPNs. LPNs would like to feel respected and recognized for the critical role they play in healthcare.

The Task Force Report aptly stated that:

> "For adults, with or without family commitments, wishing to enter the nursing workforce, the PNE program is an efficient way of doing so. It assures access into the nursing profession for nontraditional, high school and adult students who do not have more than 12 months to invest in educational pursuits because they must support a family. LPNs have limited opportunity with regard to career ladders and educational programs that allow them to advance their nursing careers. Considering the need for nurses at the bedside, program length and accessibility, the PN education may be one of the more cost-effective ways to increase direct care nursing workforce numbers."

The Task Force also made recommendations in Chapters 3 and 4 that address some of the NC LPN Association requests. The Task Force recommended that community colleges expand the production of prelicensure PNs (Rec. # 3.1d); hospitals and other nursing employers consider tuition remission programs to encourage their nursing employees to pursue LPN-RN, RN-BSN, MSN or PhD degrees (Rec. # 3.27); and healthcare employers improve the work environment (e.g., by involving nurses in policy making and governance decisions and providing opportunities for advancement) (Rec. 4.1a-j).

We feel this is a first step toward using LPNs as part of the solution to the predicted nursing workforce shortage. Again, as Dr. McClure said, there is a place for everyone in healthcare and nursing. My hope is that this Task Force report helps us to find the means to that end and to make healthcare safe and available for the citizens in North Carolina. **NCMJ**

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COMMENTARY

A Critical Need for a More Diverse Nursing Workforce

Virginia W. Adams, PhD, RN, and Patricia J. Price-Lea, PhD, RN, C

As we face a potential nursing shortage, we should consider who is missing from the current nursing workforce. Racial and ethnic minorities are underrepresented in the North Carolina nursing workforce, as are men. Only about 12% of the RN workforce were racial and ethnic minorities in 2001, compared to 28% of the state's population.[1] This percentage has increased only slightly over the last 20 years when only 8% of the RN workforce was part of a racial or ethnic minority (1982). LPNs more closely reflect the state's diverse population: 26% of the LPN workforce was from a racial or ethnic minority in 2001.

Males are even more under-represented in the nursing workforce: only 6.6% of RNs, and 5.1% of LPNs are men, compared to 49% of the state's population.[2] While it is important to address both of these issues—the recruitment of racial and ethnic minorities and men into nursing—this paper focuses on efforts to increase the supply of racial and ethnic minorities in the nursing profession.

Table 1.
Racial Composition of Licensed RNs and LPNs in the NC Nursing Workforce (2001)

	RNs	LPNs
White	87.8%	73.7%
African American	8.7%	23.2%
American Indian	0.6%	1.2%
Asian or Pacific Islander	1.6%	0.4%
Hispanic	0.5%	0.7%
Other	0.5%	0.6%
Unknown	0.3%	0.3%

Source: Lacey, Linda M. and Shaver, Katherine. North Carolina Trends in Nursing: 1982 - 2001 RN and LPN Workforce Demographics. March, 2003. www.nursenc.org/research/Trends2001/workforce_demos.pdf

Why Diversity in Nursing Is Important

Attracting a more diverse population into the profession serves many purposes. First, studies have shown that racial and ethnic minorities are more likely than their white cohorts to serve under-represented communities.[3] This helps improve access to healthcare for minority patients and reduce healthcare disparities. When given a choice, patients are more likely to select a healthcare professional of their own racial or ethnic background and are generally more satisfied with the care provided them by these providers. Minority health providers are also more likely to practice in community-based settings that serve low-income populations or in settings less coveted by non-minority nursing professionals. In North Carolina, for example, African-American RNs are more likely to practice in public health clinics, mental health facilities or long-term care settings: they comprise 9% of the total RN workforce, but 13% of the long-term care, 13% of the public health, and 20% of the mental health facility workforce.[4]

Minority providers can also help bridge cultural and language gaps in practice and in education. For example, Latino nurses can help bridge language gaps. Currently, more than 5% of the state's population is Latino, many with limited English proficiency. Increasing the numbers of Spanish-speaking Latino nurses could help ameliorate language and cultural barriers that exist for many of the recent Latino immigrants to our state. Bilingual nurses in practice and education contribute substantially in diminishing these barriers.

A diverse student body and workforce can also improve the cross-cultural training of all students. The interaction of students from diverse backgrounds provides a broader perspective of racial, ethnic, and cultural differences. Reaching out to racial and ethnic minorities could also help broaden the pool of potential nurses. In short, creating a more diverse workforce is beneficial in creating a sense of community, narrowing the health disparity gap, and promoting the health of all people.[5]

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Recruiting, Admitting, and Graduating Racially Diverse Nusing Students

To achieve a more diverse RN workforce in North Carolina, we must do more to recruit, admit and graduate racial and ethnic minorities in nursing programs.

Recruiting minorities into nursing: Ideally, recruitment should begin by reaching out to underrepresented populations while in elementary and high schools to encourage them to explore a career in nursing and to advise appropriate classes that will academically prepare them for nursing programs. The NC Institute of Medicine Task Force Report on the NC Nursing Workforce has partially addressed this problem. It recommended:

> The North Carolina General Assembly should appropriate additional funds to the NC Center for Nursing (NCCN) for the next five years to expand and enhance the outreach and recruitment efforts targeted to racial and ethnic minorities and males. The NCCN should report to the NC General Assembly on an annual basis on the progress in recruiting minorities and men into nursing. Funding should be tied to meeting certain performance thresholds. An image campaign about nursing and nursing work targeted specifically to the African American and Hispanic/Latino communities, as well as males in general, should be strengthened and promoted. Such a public information campaign should make clear the multiple pathways available to any person interested in a nursing career, as well as the opportunity for advanced educational opportunities following entry to the profession through any portal. (Rec. #3.22d).

Further, the Task Force also recommended that high school, community college and university guidance counselors receive additional training to provide better information to students who may be interested in a nursing career (Rec. #3.23).

While these recommendations are helpful, they will not fully address the problem. The NC Center for Nursing can help create an interest in nursing programs among underrepresented populations, but it is not an educational institution, so consequently has no authority to admit these students. In addition to the new appropriations to the NCCN, funds should be appropriated directly to nursing education programs for targeted outreach and recruitment efforts. Not only can educational institutions reach out directly to students, but they can also develop partnerships with community leaders to create trust and a positive image of the institution. The nursing educational programs that receive funding should be held accountable for increased admissions and subsequent graduation of nursing students from the various racial and ethnic populations.

Nursing education programs: To achieve a more diverse nursing workforce, nursing programs first must admit and graduate students from diverse backgrounds. Together, leaders in education and practice must be accountable for the preparation and graduation of a critical mass of registered nurses from racial ethnic backgrounds beginning with African Americans.

Segregation and Nursing Education: Historic Barriers and Progress

Historically, the opportunity to provide a quality education for African American students was limited, as the education of African Americans was restricted to Historically Black Colleges and Universities (HBCUs), first through laws and later through practice. The legal right for African Americans to attend predominantly white institutions was not guaranteed until 1954, when the Supreme Court in *Brown v. Board of Education of Topeka Kansas*, 347 U.S. 483 (1954), nullified *Plessy v. Ferguson*, 163 U.S. 537 (1896), which had supported "separate but equal" education. One year after the *Brown* decision, North Carolina was still fighting against admission of black students to the University of North Carolina. This was resolved in 1955, when UNC was legally required to admit black students in *Frasier v UNC Board of Trustees*, 134 F.Supp. 589 (1955).[6] Despite the Brown decision, educational institutions in this state and around the country made it difficult for black students to enroll.

Historically, when black students were denied admission to all-white programs, both black and white leaders initiated nursing programs for black students. HBCUs boast of graduating most of the African American registered nurses in North Carolina.[7] From 2001-2003, 65% of the African American nursing graduates in the public baccalaureate and higher degree programs were awarded degrees from three of its HBCUs.[8] In 2001, for example, HBCUs in North Carolina educated 3.4% of the active RN workforce, but 26% (~1,750) of the practicing African American RNs.[9]

Although Historically Black Colleges and Universities have produced a disproportionate proportion of the African-American nurses currently practicing in the state, it is the responsibility of all public nursing programs in North Carolina to produce a more diverse workforce. To achieve this goal, institutions and nursing programs must be committed to a more diverse student body. In addition, they can employ other strategies which can help improve their records of training and graduating a diverse student population:

- **More inclusive admissions policies.** Rather than relying primarily on standardized tests, traditionally white educational programs need to consider additional methods for admitting students to nursing programs. Because minority students are more likely to be educated in lower-wealth schools with fewer educational opportunities, they often score lower than whites or Asian-Americans on standardized tests. Admissions committees should consider other qualities linked with professional success in their selection process, including leadership, personal life experiences, commitment to service, and multilingual abilities. In addition, minority faculty should be asked to serve on admissions committees.
- **Hire more minority educators and help prepare white faculty to be more attuned to the needs of a diverse student population.** Nationally, only 9.5 % of full-time nursing faculty represent racial/ethnic minority groups.[10] This statistic

suggests a dire need for more minority educators. However, all educators, not just those from racial and ethnic minority groups, need to be culturally sensitive to the needs of underrepresented student populations. One option to help sensitize white faculty to the needs of minority student populations is to encourage white faculty to have visiting professor immersion experiences on campuses with a more diverse student population.

- **Mentoring and social support.** A critical mass of underrepresented groups should be admitted to ensure their social support rather than admitting one or two students in the typical class. Further, while not unique to a minority student population, nursing schools should provide academic and social supports needed to ensure academic success, including faculty mentoring, academic tutoring and educational counseling services.
- **Removing financial barriers.** Minority students often come from lower-income families and may find the cost of education to be prohibitive. Scholarships, loan forgiveness and stipends are needed to help assist these low-income students (of any racial or ethnic background) to pay for their nursing education.
- **Other strategies.** Other reliable strategies include avoiding labels that create unnecessary hurdles for students or perpetuate old stereotypes of racial/ethnic groups, developing curricula and teaching standards that recognize commonalities and respect for differences, and ensuring the history of underrepresented groups as part of the curriculum.

If North Carolina and its public nursing education system intend to remain strong and be a model for the rest of the country, it has to provide quality education for all of its citizens. Moreover, it needs to acknowledge and embrace the benefits of a diverse registered nurse workforce. Proficiency in relating to cultures different from one's own becomes an essential ingredient in the skill set for the 21st century healthcare professional. Success for students from diverse populations means success for the state and improved healthcare for its citizens. Due to widening racial disparities in healthcare, this phenomenon is significant.

Students who learn together are more likely to work well together. Microbiology teaches us that organisms improve their chances of survival by interacting with one another. Therefore, if individuals tend to work only with their own ethnic group, everyone's existence is threatened. Leveraging diversity expands one's capacity to learn and survive. Patients, communities, and the healthcare system will be the beneficiaries of a more diverse registered nurse workforce. **NCMJ**

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Developing an Adequate and High Quality Nurse Aide Workforce in North Carolina

Susan Harmuth, MS, and Jesse S. Goodman, III

North Carolina is experiencing a shortage of direct care workers. Direct care workers include an array of paraprofessional caregivers such as nurse aides, home health aides, and personal care aides.[1] Nurse aides work under the supervision of a registered nurse and represent a significant portion (54%) of North Carolina's direct care workforce.[2] Nurse aides are employed in a variety of healthcare settings such as hospitals and doctors' offices and are also widely employed in an array of long-term care settings such as home care agencies, adult care homes and skilled nursing facilities.

Nurse aides (and other direct care workers) are recognized as the front-line caregivers in the long-term care arena and are the staff likely to have the most direct contact with residents. Nurse aides help residents with basic daily living tasks such as bathing, dressing and toileting and also perform various healthcare tasks such as taking vital signs, changing dressings, skin care, transferring, positioning and turning, and basic restorative services.

Direct Care Worker Turnover Rates

The North Carolina Department of Health and Human Services, in collaboration with the UNC Institute on Aging, annually compiles turnover data on direct care workers employed in licensed home care agencies, adult care homes and nursing facilities. Data collected through this process helps illustrate that the average annual turnover rate for Nurse Aides in North Carolina's nursing facilities was 95% in 2002. This compared to 115% for direct care workers in North Carolina's assisted living facilities and 37% for direct care workers employed in licensed home care agencies. Table 1 shows average annual turnover rates for 2000 through 2002 for direct care workers in three major categories of long-term care settings.

Table 1.
Average Annual Turnover Rates of Direct Care Workers in NC, 2000-2002

Setting	2000	2001	2002
Skilled Nursing Facilities	100%	103%	95%
Adult Care Homes	119%	113%	115%
Home Care Agencies	50%	50%	37%

Note: All percentages have been rounded to the nearest whole number. Turnover data for these settings is collected and analyzed annually through a collaborative effort between the NC Department of Health and Human Services and the UNC Institute on Aging.

According to the US Bureau of Labor Statistics, nurse aides are among the top 10 occupations nationally with the largest projected growth rate between 2002 and 2012. The number of nurse aides needed nationally will increase by 25% between 2002-2012. In contrast, North Carolina is projected to see a 36% increase in the number of nurse aides needed between 2000 and 2010 (most recent state-specific data available) increasing from 44,850 in 2000 to 61,050 in 2010. This equates to 2,220 new job openings per year over the ten-year period. The projections are inclusive of both new jobs created and existing jobs that are vacated.

North Carolina's Nurse Aide I Registry includes all individuals who have successfully completed a North Carolina approved Nurse Aide I Training and Competency Evaluation Program or a Competency Evaluation Program. Over the last three years North Carolina has seen an increase of over 16,500 individuals eligible to work as Nurse Aide I's. While this increase has helped to relieve the workforce shortage, much of this increase may be attributed to the reduction in employment opportunities in other competing sectors as a result of the soft economy. It is anticipated that improvements in the economy will bring added competition from other employment sectors for these

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individuals. Therefore, the challenge that faces the state is the development of incentives, both financial and career advancement, which will keep these individuals in the healthcare field.

Recruitment and Retention Efforts

The NC Department of Health and Human Services, in collaboration with many partners, has a number of initiatives underway to improve the recruitment and retention of direct care workers as well as improve the quality of direct care jobs. The Kate B. Reynolds Charitable Trust provided grant funding for the design and planning of the recruitment and retention initiative, which included the initial funding for the Win-A-Step-Up program as well as the turnover and labor market data collection efforts outlined earlier in this article.

Major activities underway include the development of two new job categories intended to provide career advancement opportunities for paraprofessionals and respond to staffing needs of long-term care related providers. The two job categories include a medication aide and a geriatric nurse aide.

The Medication Aide Project is a cooperative effort between the NC Department of Health and Human Services and the NC Board of Nursing, and is in the second year of development. The project is now in the final stages of developing standards for prerequisites and training requirements for faculty and students, statewide competency testing and the creation of a statewide registry. Pilot testing is expected to begin in the spring of 2004. Legislation that may be needed to implement this initiative will be developed for introduction in the 2005 session of the North Carolina General Assembly.

The Geriatric Aide Project is a cooperative effort of the NC Department of Health and Human Services and the NC Community College System. A curriculum is currently under development and is focused on more in-depth education for nurse aides in the areas of prevention and care of pressure ulcers, unplanned weight loss/dehydration, infection control, pain management, behavioral management, resident depression, safe mobility, care of the terminally ill and care of the caregiver. This educational program will require Nurse Aide I training as a prerequisite and will be a key component of the state's overall career ladder initiative for direct care workers.

- A program, known as Win-A-Step-Up, is a voluntary program that provides financial and other incentives to nurse aides working in nursing facilities in exchange for completion of certain training components and agreeing to stay with their employer for a specific period of time. Employers must agree to provide either a wage increase or bonus (or both) to participants who complete the training and retention commitment. This program is a collaborative effort between The NC Department of Health and Human Services and the UNC Institute on Aging.
- North Carolina is one of five state-based coalitions funded nationally to implement a *Better Jobs Better Care* demonstration grant. These 42-month demonstration grants, funded by The Robert Wood Johnson Foundation and The Atlantic Philanthropies, are intended to implement policy and practice changes that will improve the ability to attract and retain high-quality direct care workers to meet the needs of long-term care consumers in both home-and-community and facility-based settings.

Specifically, North Carolina's *Better Jobs Better Care* coalition will develop, pilot, and implement a uniform set of expectations and criteria. These will be applied on a voluntary basis in home care, adult care homes and nursing facilities across the state and will result in a special licensure designation for entities that meet the voluntary criteria. Expectations and criteria being developed will address issues such as: effective care teams; peer mentoring, coaching supervision and other supportive workplace criteria; staff development and career advancement opportunities, safe and balanced workloads, etc. This special licensure designation is intended to potentially serve as the basis for awarding a differential reimbursement increase or eligibility for labor enhancement funds.

"North Carolina's population and nursing care workforce, like the nation's, is aging and there will not be enough people in the workforce to fill healthcare positions when they are needed the most."

Nurse Aide Training

Because nurse aides represent such a large component of the direct care workforce, statewide availability of nurse aide training programs is a key factor in the success of any direct care recruitment efforts being implemented. The NC Community College System has taken on the responsibility of serving as the primary resource for nurse aide training across the state. In some parts of the state, access to a community college-sponsored nurse aide training program by persons interested in working as a nurse aide is limited. This is due to a variety of reasons, including insufficient clinical lab space and demand for nurse aide training programs by students interested in enrolling in registered nurse training programs. The Community College System's ability to respond to training needs of both persons seeking further professional nursing education and nurse aide training will be an important building block to developing an adequate and stable

supply of nurse aides available to provide care in long-term care related settings, hospitals and other healthcare-related settings.

Conclusion

The nursing workforce challenges that North Carolina faces are complex, with even more complex solutions. The current workforce shortage is seen as short-term, but the labor shortage that is predicted for the next 30 years is not. North Carolina's population and nursing care workforce, like the nation's, is aging and there will not be enough people in the workforce to fill healthcare positions when they are needed the most. According to the US Bureau of the Census *1999 Statistical Abstract of the United States*, between 2010 and 2030, there will be a 7% increase in the number of people 65 and over as a proportion of the total population and a 6% decrease in the proportion of people ages 18 to 64, relative to the total population. Competition for qualified individuals to enter the healthcare workforce of the future will be keen and the North Carolina Institute of Medicine and the Duke Endowment should be applauded for their foresight in recognizing the need for North Carolina to act now to develop a comprehensive approach to address this complex issue. We believe that the initiatives that are currently underway and supported by the Task force on the NC Nursing Workforce to address the direct care workforce shortage are a good start. **NCMJ**

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COMMENTARY

The North Carolina Area Health Education Centers' Role in Addressing Nursing Workforce Issues

Thomas J. Bacon, DrPH, Gail O. Mazzocco, RN, EdD, and Karen D. Stallings, RN, MEd

Introduction

The need for nurses at all levels of the healthcare system continues to grow at a pace that outstrips the current supply, both nationally and in North Carolina. The report of the North Carolina Institute of Medicine Task Force clearly documents the multiple strategies that will be required to address this highly complex problem. We must increase the output of nurses from our educational institutions, although that alone will not solve the problem. We must improve the retention of nurses in the profession by strengthening the work environment, empowering nurses as decision makers, recognizing outstanding performance, and fostering career growth opportunities. We must also attract young people and second career professionals into nursing that represent the rich diversity of the North Carolina population.

For over 30 years the North Carolina AHEC Program has worked in close collaboration with academic nursing programs, employers, and practicing nurses to prepare and retain a nursing workforce that can meet the healthcare needs of our state and our communities. We remain committed to developing innovative approaches to improving the recruitment, retention, and quality of the nursing workforce. AHEC nursing faculty work with the NC Center for Nursing, the NC Board of Nursing, the NC Nurses Association, and a wide variety of nursing groups to maximize efforts.

"North Carolina continues to require more nurses prepared at the baccalaureate level and above."

Core AHEC Nursing Initiatives

Promoting Careers in Nursing

To prepare a more diverse healthcare workforce, the AHEC Program conducts programs to recruit underrepresented and disadvantaged middle and high school students into health careers. AHECs work annually with over 25,000 young people in order to inform them of opportunities in the health field, including nursing. These programs offer mentoring, hands-on experiences in clinical settings, and also include academic work to strengthen students' skills in math, science, and communication, so that they can succeed in entering and completing nursing programs.

Nursing Student Training in AHECs

Education of nursing students takes place in a variety of healthcare institutions, agencies, and educational settings throughout AHEC regions, and, whenever possible, in underserved rural and urban areas with vulnerable populations. Essential clinical training for primary care nurse practitioners (NPs) and nurse midwives is provided under the auspices of the Area Health Education Center (AHEC) Offices of Regional Primary Care Education. Last year 2,551 student weeks of community-based experiences for NP students were supported through AHEC.

Continuing Education

Continuing Education (CE) plays a major role in professional career development. The state's nine AHECs offer a variety of nursing CE programs and technical assistance services to address changing technology, clinical guidelines, patient safety, new medications, specialized nursing care, physical assessment, transition from acute care to home, and long-term care.

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Spanish language and cultural competency training programs help nurses work more effectively with our growing Latino population. Last year, AHEC offered 650 nursing continuing education programs, attended by more than 16,750 nurses. The NC Institute of Medicine (NC IOM) Task Force Report on the NC Nursing Workforce points to the fact that nurse retention in workplace settings is increased with progressive management practices, when nurses feel empowered in the decisions that are made, and when education is valued. AHEC continuing education programs teach nurses to become effective managers, a fundamental element in workforce retention.

Special Legislative Initiatives

In 1989, the NC General Assembly allocated funding to the NC AHEC Program for three initiatives: nurse refresher programs, educational mobility programs, and clinical site development.

Nurse Refresher Program

The AHEC Program collaborates with UNC-Chapel Hill to offer a refresher program for registered nurses. The course, which includes self-study modules and preceptored clinical experiences, helps registered nurses who have not been employed return to the workplace. Additionally, nurses who are currently employed but would like to move into new clinical areas may also use the program to update their knowledge and skills. Over the last 13 years, approximately 1,300 nurses have enrolled in this recruitment and retention program and almost two-thirds of them have returned to clinical practice.

Educational Mobility through Off-Campus Degree Programs

North Carolina continues to require more nurses prepared at the baccalaureate level and above. AHEC nurse faculty collaborate with schools of nursing to develop and operate off-campus RN-to-BSN and MSN programs in underserved areas of the state. These programs meet the need for flexible distance education formats, allowing nurses to advance their educations while continuing to work in their home communities and care for their families. AHECs provide on-site assistance such as classrooms, library resources, information services, logistical help, and student support. Given current faculty shortages in schools of nursing, master's degree programs that prepare faculty with both clinical and didactic educational preparation are especially needed. The 120 students who are currently enrolled will soon join the more than 1,000 graduates of AHEC sponsored off-campus programs.

Clinical Site Development

New clinical training sites in rural, long-term care, and critical care settings assist schools of nursing to maximize enrollment and provide significant periods of training in workforce shortage areas. As directed by legislation, the NC AHEC Program provides clinical site development grants to the schools of nursing within the community colleges and the constituent institutions of the University of North Carolina. AHEC nurses work with schools of nursing to identify new clinical sites for development, assist with funding, provide preceptor training, and consult on areas related to student use of clinical sites. More than 250 clinical sites have been developed as part of the grants program and 52 new sites are currently being developed.

New Initiatives

While existing endeavors have been both effective and supportive, AHEC is also working on new strategies that address current employment challenges. Several of these approaches enhance nurses' continuing education opportunities, even while assisting with the development of supportive work environments.

The Nursing Management Institute (NMI), funded through The Duke Endowment, offers training for nurses to develop the administrative skills that are required in today's healthcare environment. This on-line certification program, which includes essential management content, is convenient, inexpensive, and may be completed either as a series or as individual modules. Moreover, an organization may enroll a group of staff members in the program and benefit from the shared knowledge and understanding of an entire employee cohort.

Magnetizing Your Organization is an initiative that has a similar purpose. This statewide program assists healthcare institutions that may not be able to achieve magnet status learn about and institute enhancements that are typical of Magnet organizations. Day-long programs have already been presented in three regions of the state, where over 300 participants have benefited by the program.

Finally, the **Clinical Teaching Associate (CTA) project**, designed by Northwest AHEC has been piloted this year by North Carolina Baptist and Forsyth Hospitals, Winston Salem State University and Forsyth Technical Community College. According to the NC IOM Task Force *Report on the NC Nursing Workforce*, many able students are turned away from nursing programs, in part because of the lack of clinical faculty. The CTA project, funded by an AHEC grant, allows appropriately prepared staff nurses to work at their employing institution as clinical faculty members for part of their regular work time. Clinical teaching associates have the opportunity to explore a new role, introduce current clinical skills to students and increase student enrollment.

Current Challenges and Opportunities for the Future

The three initiatives described above are examples of ways that AHEC has expanded its historical role to create additional training capacity and sharpen its focus through its traditional continuing education efforts. Unfortunately, all three of these initiatives have been funded with grant support, either from foundations or through special AHEC grants. Due to state revenue shortfalls, the AHEC budget has been reduced by approximately 15% over the last four years. As a result, all new initiatives in nursing and other fields have been funded by either reallocating existing funds or utilizing grant dollars.

There are a number of additional training needs that exist across the state that AHEC is prepared to address, assuming funding is forthcoming in future years. As the state grows out of the recession, it is hoped that additional state resources will be appropriated to address these critical nursing issues, as well as those affecting other health professions. Some of the areas where AHEC is prepared to take the lead, either building on existing programs or developing new initiatives, are as follows:

a. **Expanded training capacity.** Building on its current efforts, AHEC is prepared to fund additional clinical site development grants, and fund companion efforts in preceptor and faculty development. These will be essential if the baccalaureate and community college programs are to add the kind of clinical training capacity they need in order to expand enrollments. As it has in the past, AHEC will focus these grants in underserved areas, and in specialty areas where clinical sites have historically been in short supply.

b. **Expansion of educational mobility grants.** A clear recommendation of the IOM Task Force is to expand greatly the career mobility opportunities for nurses at all levels. With additional resources, AHEC is prepared to both expand existing educational mobility grants and to develop new areas of focus. Areas where there continues to be unmet need include:

- LPN-to-RN Programs
- Educational Masters Degree Programs in remote site locations, in order to prepare additional faculty to fill vacancies in community colleges and universities
- PhD Outreach Programs, in order to prepare additional faculty for baccalaureate and masters programs
- Grants to Private Schools of Nursing, most of whom were excluded in the Legislation of 1989 creating the current grants program

c. **Retention Strategies.** Programs such as the Nurse Management Institute as well as the Magnetizing Hospital Series are designed to strengthen the working environment for nurses and improve retention. With additional resources, AHEC can provide permanent funding for these programs and similar efforts to strengthen the work environment. Programs are also needed to create skills labs for smoothing the transition from education to work, and AHEC is prepared to support the development of these programs as well.

d. **Diversity Initiatives.** Building on its prior work in health careers with young people, the AHEC Program is prepared to expand its work to the undergraduate level as well. AHEC proposes to develop a new grants program, patterned after the clinical site development grants, which would support innovative programs by community colleges and universities to recruit a more diverse student body. AHEC would offer grants to the schools to develop programs that recruit and retain more underrepresented groups, including minorities and men, into the field.

Conclusion

The AHEC Program has a long history of offering programs to improve the recruitment and retention of nurses for all types of healthcare settings in the state. As a partner organization of the NC IOM Task Force, and as part of its strategic vision for the future, the AHEC Program is prepared to build on successes of the past and develop new programs to assure that North Carolina has an abundant supply of high quality nurses to meet its needs well into the next decade. **NCMJ**

COMMENTARY

Transitioning from School-to-Work:
One Successful Model

Cindy Craven, RN, BSN, CCRN, Tammi Mengel, RN, MSN, CNAA, and Martha Barham, RN, MSN, CNAA

In the mid-1990s, the environment at High Point Regional Health System (HPRHS), like that of other healthcare organizations, was becoming increasingly complex. The healthcare team was challenged to meet the needs of a "sicker" patient, hospitalized for a shorter period of time, without compromising the quality of care delivered. Despite this increasing complexity, the orientation process for new graduate nurses remained unchanged. Orientation for a new graduate at HPRHS consisted of two weeks of general nursing orientation followed by department-specific orientation. The duration of department specific orientation varied from eight to 26 weeks, depending on the clinical specialty. Although each new graduate was assigned to a preceptor, learning opportunities and skill development were limited, as was constructive feedback. Inadequacies of the current program to successfully transition the individual from school environment to practice environment were demonstrated by the frequent need to extend the customary orientation period. This method of orientation did little to foster growth and development, especially critical thinking skills, and frustrated both the preceptor and the graduate nurse.

At the same time, another nursing shortage was looming. Enrollment in area schools was declining and fewer student nurses were graduating. This new reality forced organizations to closely examine their recruitment and retention strategies as they positioned themselves to compete for the limited nurse resources. In examining retention effectiveness, HPRHS discovered an alarming trend related to retention of new graduates. In-depth analysis revealed the turnover rate of new graduates at 24 months was 48%. This unacceptable turnover rate was attributed directly to the stress of the transition from recent graduate to competent practitioner. As a result, in the spring of 1997, following painful open and honest dialogue between staff educators and department directors, it became clear that the current orientation process was in need of a major overhaul. The consensus was that new graduates were minimally prepared to care for patients, yet organizationally we expected an almost overnight transformation from student to expert clinician. This indeed was a very unrealistic expectation. A new program was desperately needed to support the recent graduate's transition from student to professional nurse, while reducing the level of stress experienced by the new graduate and preceptor.

"Producing a competent, successful and happy nurse requires a partnership between nursing schools and healthcare organizations."

Adopting a New Orientation Model

In the spring of 1997, a committee was formed, including staff educators, department directors and the Chief Nursing Officer, to create a new orientation model. To gain further understanding of opportunities for improvement, graduate nurses employed within the previous year were included in the process to provide feedback on the strengths and weaknesses of the current orientation process. Patricia Benner's "Novice-to-Expert" model provided the theoretical framework for development of the Graduate Nurse Orientation-Success in Specialty Program or GNOSIS (a Greek word meaning specialized knowledge).[1] The goals of the program were to implement an orientation process that would assist the new graduate in

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his/her transition from student to novice practioner and to improve the retention of new graduates. Additionally, it was believed that improvements in the orientation process would also positively impact the work environment by reducing the stress levels of precepting nurses and nursing colleagues.

Given the critical role preceptors play in the success or failure of an individual's orientation, adequate preparation of the preceptors was deemed essential to ensure a successful transition to the GNOSIS program. To facilitate the shift in thinking, each preceptor was educated on Benner's model. Emphasis was placed on preparing the preceptors to provide new graduates with experiences designed to develop organizational skills, set priorities, and develop critical thinking and technical skills.

"GNOSIS has given the new graduate the basic skill set necessary to begin this transition and the confidence needed to function in the clinical setting."

GNOSIS

The ten-week GNOSIS program includes both didactic and clinical experiences. Greater emphasis is placed on clinical "hands on" learning opportunities, as this is the area in which the new graduate has the least experience. Identification of personality type and learning style was felt to be an important factor in promoting optimal learning and growth experiences and, therefore, was a new addition to the orientation process. The structure of each week consists of one classroom day focused on a specific body system or care process with the remainder of the week spent in clinical areas that will enhance the knowledge gained in the classroom. Classroom activities draw from the expertise of a variety of disciplines including staff educators, case managers, respiratory therapists, chaplains and other healthcare providers. The classes cover topics related to all clinical areas including:

- Basic patient care skills (nurse aide skills/tasks)
- Basic nursing care skills (physical assessment techniques, admission and discharge process, equipment, skills such as insertion/removal of feeding tubes, catheters)
- Basic cardiac, neurological, respiratory, renal and gastrointestinal (anatomy and physiology, assessment, commonly seen diseases, medical care, nursing care, routine orders and common medications)
- Drug administration (review of drug classes, medication administration documentation, administration techniques, use of intravenous pump)
- Wound care (wound care protocols)
- Spiritual and ethical issues
- Pain management

Clinical experiences are designed to develop and enhance skills and increase the new graduate's comfort level and confidence in the clinical setting. To ensure that new graduates have the opportunity to maximize their learning experience, they are not counted in the staffing mix. As a result, this allows new graduates an opportunity to observe and participate in experiences frequently not available to them as students such as, cardiac catheterizations, invasive diagnostic procedures and surgical cases. These opportunities assist the new graduate in understanding the dynamics of the total patient care experience and increase their exposure to the organization.

To process the events of the week, new graduates meet with the GNOSIS Program Coordinator at the end of each week and share experiences. This provides an opportunity for the entire group to learn from each other and gives them the opportunity to build relationships. New graduates value time spent in this activity as it facilitates closure to the experiences of the week, enabling them to move forward to the experiences of the coming week.

Department-Specific Orientation Follows GNOSIS

Once GNOSIS is completed, new graduates begin department-specific orientation. This orientation time varies based on the clinical specialty. GNOSIS has given the new graduate the basic

skill set necessary to begin this transition and the confidence needed to function in the clinical setting. He or she is now able to focus on further development of organizational skills and critical thinking as applied to their clinical specialty. Preceptors acknowledge that the new graduates are better prepared to embrace departmental orientation as a result of the time spent in the GNOSIS program. Graduates of the GNOSIS program have said, "The GNOSIS program not only helped me to develop my skills, it allowed me to see what happens in other areas of the hospital that I won't be working in," and "GNOSIS gave me the time to develop my skills and put what I learned in school together with what I was learning here."

Return on Investment

In terms of financial support, the program is included in the annual operational budget and funded to cover the orientation of 36 new graduates annually. Recognizing the organization's financial commitment for operating this program, new graduates sign a three-year work agreement. Failure to complete the work agreement results in a monetary "fine" to the nurse. The requirement of a work agreement has not proven to be a deterrent to participation in the program as new graduates have recognized the value and uniqueness of this program.

Implementation of the GNOSIS program has resulted in immediate and sustained success. To-date, 22 GNOSIS sessions have been completed. Currently the turnover rate at 24 months is 22% with the majority of turnover being unavoidable, such as relocation or return to school. When asked to evaluate the program, both new graduates and preceptors continue to validate the program's success in preparing the new graduate to practice effectively in the clinical setting.

The program requires an additional human and financial commitment from HPRHS; however, this expense is easily offset by the reduction in turnover, improvements in the work environment, and satisfaction of new graduates and preceptors. One might argue that it is the responsibility of the nursing schools to produce a more qualified, capable clinician. Unfortunately, given the constraints placed on today's educational programs and the complexity of the healthcare environment, it is impossible for one entity to accomplish this lofty goal alone. Producing a competent, successful and happy nurse requires a partnership between nursing schools and healthcare organizations. In this time of nursing shortage, visionary thinking and risk taking will be necessary as strategies are developed to prepare, grow and develop the future nursing workforce. As Florence Nightingale said, "For us who nurse, our nursing is a thing, which, unless in it we are making progress every year, every month, every week, take my word for it, we are going back." Our future nursing colleagues and the public we serve are depending on us to make progress every year, every month, every week. **NCMJ**

REFERENCES

1 Benner, P. 1984. From Novice to Expert Excellence and Power in Clinical Nursing Practice. Addison-Welsey, California.

COMMENTARY

Advanced Practice Registered Nurses:
Current Problems and New Solutions

E. Harvey Estes, Jr., MD

The central focus of the Task Force on the NC Nursing Workforce was the chronic shortage of nursing personnel in hospitals, nursing homes and other healthcare facilities, and the steps that can be taken to alleviate and permanently correct this problem within our state. There is not a shortage of advanced practice registered nurses (APRNs), so the problems of this segment of the nursing profession might be considered tangential to or even irrelevant to the work of the Task Force. Nevertheless, practitioners of this segment of the nursing profession presented eloquent testimony to several problems which were perceived as imposing limitations on the full function and effectiveness of their practice. These are addressed in Chapter 5 of the report and in the recommendations within the chapter.

"The concept of collaborative practice, in which all practitioners understand and respect the abilities and knowledge of each other has merit and deserves attention..."

Three major issues were identified: joint regulation by the NC Board of Nursing (NC BON) and the NC Medical Board (NCMB), requirement for physician supervision of practice, and unequal reimbursement for services.

Regulation

Understanding the impact of these issues requires some background review. One might presume that the scope of practice of various professional groups is precisely defined in the licensure laws of these professions. Instead, the scope of practice of the health professions, including medicine and nursing, is defined in very broad and vague terms. While this has been useful in accommodating new functions, as medical and nursing knowledge and experience has grown, it generates conflicts as these professions compete for the same functions. Licensure statutes generally prohibit the practice of that profession by those who are not duly licensed or approved as a practitioner, based on education and examination. The practice of medicine is restricted to those who are licensed as physicians by the NCMB, but there are a number of exceptions, under which physician assistants (PAs), nurse practitioners (NPs), etc., meeting specified education and examination requirements, are permitted to perform medical services under supervision of a licensed physician.

The exceptions, permitting licensed registered nurses (RNs) to perform medical acts, recognize that these practitioners are also licensed and regulated by another professional board, the NC BON. North Carolina statutes provide for a subcommittee of NCMB and NC BON, to establish rules and regulations for the function of these dual-licensed practitioners. The authority of the two subcommittees, relating to NPs and certified nurse midwives (CNMs), differ in composition and authority, in that the latter has members who are not members of either Board, and has the authority to promulgate rules and regulations which do not require approval by either of the parent boards.

This legal and regulatory framework, for all its complexity, has served the professions involved well over the past quarter century. APRNs have rapidly increased in numbers and in public respect, while permitted functions have expanded, and required documentation of physician oversight has been relaxed. Nevertheless, conflicts and friction have been encountered, as evidenced by the concerns expressed by APRNs in testimony before the Task Force. One component group of APRNs, Clinical Nurse Specialist (CNS), is not defined in the statutes, and lacks the protection of its title against use by untrained individuals who do not meet the standards of the group.

As pointed out in Chapter 5 of the Task Force report, some

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states license and regulate the practice of APRNs in a very different manner than in North Carolina. About half do not require physician supervision, and regulate practice through the nursing board alone. Some APRNs would prefer that North Carolina join this group. This action would be opposed by the NCMB, by most physicians, and their professional society, the NC Medical Society. These groups strongly favor some form of oversight by physicians.

A time honored method of resolving such differences between professions is to promote the introduction of a legislative act, changing current statutes to accomplish the new intent. This approach has inherent limitations, the most important one being that the NC General Assembly has only secondhand information about the working environment in which these conflicts arise, and the practicality of the proposed remedies. In their desire to please as many of the interested parties as possible, while still protecting the public interest, they may pass legislation which does not meet the needs of either the proposing or the opposing parties.

Instead, the Task Force recommends that the NC Institute of Medicine form another task force, with appropriate membership representing the major concerned groups, to consider these issues, and recommend action. Hopefully, if new legislation is required, it will be supported by all sides on the issue as it is discussed in the NC General Assembly.

Payment Inequities

The issue of payment inequities is not one which can be solved by this approach, as reimbursement policies are set by many parties. Medicare policies are established at a federal level, and insurance company policies are set by the individual companies. Nevertheless, the new task force may want to include this issue with the others as it discusses actions for the future.

Physician Supervision

Potential legislation to resolve the issues cited in Chapter 5 may not be the most important function of the new task force. The second issue, required physician supervision, brings with it an implied hierarchy of expertise, physician over APRN, which may or may not be accurate. One can easily envision a practice setting in which a NP may have the highest level of expertise in diabetes management, in which case it might be more appropriate that the NP "supervise" the physician. The concept of collaborative practice, in which all practitioners understand and respect the abilities and knowledge of each other has merit and deserves attention by the task force. A joint statement by the American College of Obstetricians and Gynecologists and the American College of Nurse-Midwives[1] embraces this approach, and has been helpful in resolving similar problems between these two groups. The process of discussion, seeking mutual understanding and thinking together about new directions may be the single most useful function of the new task force.

Both physicians and nurses choose to enter their respective professions in order to serve their patients. Traditionally, they have worked together to accomplish this joint purpose. I hope that the suggested new NC Institute of Medicine Task Force, if it comes about, will promote and enhance this tradition, and lead to an outcome as useful and productive as that of the most recent Task Force on the NC Nursing Workforce, whose work and recommendations are summarized in this issue of the *Journal*. **NCMJ**

REFERENCES

1 Joint Statement of Practice Relations between Obstetrician-Gynecologists and Certified Nurse Midwives/Certified Midwives. Approved by the American College of Nurse-Midwives, American College of Obstetricians and Gynecologists, October 1, 2002.

The American College of Obstetricians and Gynecologists (ACOG) and the American College of Nurse-Midwives (ACNM) recognize that in those circumstances in which obstetrician-gynecologists and certified nurse-midwives/certified midwives collaborate in the care of women, the quality of those practices is enhanced by a working relationship characterized by mutual respect and trust as well as professional responsibility and accountability. When obstetrician-gynecologists and certified nurse-midwives/certified midwives collaborate, they should concur on a clear mechanism for consultation, collaboration and referral based on the individual needs of each patient.

Recognizing the high level of responsibility that obstetrician-gynecologists and certified nurse-midwives/certified midwives assume when providing care to women, ACOG and ACNM affirm their commitment to promote appropriate standards for education and certification of their respective members, to support appropriate practice guidelines, and to facilitate communication and collegial relationships between obstetrician-gynecologists and certified nurse-midwives/certified midwives.

** Certified nurse-midwives are registered nurses who have graduated from a midwifery education program accredited by the ACNM Division of Accreditation and have passed a national certification examination administered by the ACNM Certification Council, Inc.*

Certified midwives are graduates of an ACNM Division of Accreditation accredited, university affiliated midwifery education program, have successfully completed the same science requirements and ACNM Certification Council, Inc. national certification examination as certified nurse-midwives and adhere to the same professional standards as certified nurse-midwives.

Approved October 1, 2002
American College of Nurse-Midwives
American College of Obstetricians and Gynecologists

COMMENTARY

North Carolina Center for Nursing and the Nursing Workforce

Brenda L. Cleary, RN, PhD, FAAN

The NC General Assembly created the NC Center for Nursing in 1991 "...to address issues of supply and demand for nursing, including issues of recruitment, retention, and utilization of nurse resources. The mission of the Center for Nursing is to assure that the State of North Carolina has the nursing resources necessary to meet the healthcare needs of its citizens." Legislatively mandated goals include:

1. To develop a strategic statewide nursing workforce plan for North Carolina, addressing issues of supply and demand.
2. To convene various groups that include representatives from nursing, other healthcare professions, the business community, consumers, legislators, and educators to review the policy implications of the Center's work.
3. To enhance and promote recognition, reward and renewal activities for nurses in North Carolina, through a comprehensive statewide recruitment and retention program.

Since its inception, the NC Center for Nursing (NCCN) has become a model for the nation, as more states take a long-range strategic view of nursing workforce issues. We have amassed a comprehensive database on state-level nursing supply and demand. We developed winning recruitment and retention materials and initiatives that are being adapted throughout the country. In addition to a primarily politically appointed Board of Directors, we have an Advisory Council of over 50 stakeholders in nursing and healthcare who inform the work of the Center. In recent years, we received a grant from The Robert Wood Johnson Foundation to partner with the NC Area Health Education Center Program on workforce planning activities and a related grant from the Helene Fuld Trust to support articulation among North Carolina's nursing education programs and enhance educational mobility for North Carolina nurses.

While the NC Center for Nursing has the most comprehensive state-level database on nursing supply and demand, this information becomes more powerful when it is used not only to guide workforce planning efforts, but also to directly influence policy. Having served as a member of the NC Institute of Medicine (NC IOM) since 1996, I have come to admire and appreciate the effective process of the Institute in studying relevant issues and making thoughtful health policy recommendations. I was very enthused when early planning efforts developed to pursue a partnership with the NC IOM and other key stakeholders to address nursing workforce issues. Other NCCN staff and members of our Board of Directors quickly became engaged in this important evolution of our work.

Immediately preceding the early discussions of convening a statewide Task Force on the nursing workforce, NCCN convened forums in conjunction with the NC Nurses Association (NCNA) and the NC Board of Nursing (NC BON) in every Area Health Education Center (AHEC) region of the state. The purpose of these nine forums was to allow local stakeholders to weigh in on strategies to strengthen the state's future nursing workforce.

I will use the major themes emanating from the regional forums as a framework to tie in emerging priorities with the recommendations of the Task Force on the NC Nursing Workforce in order to note the progress we are making, as well as to identify some challenges that lie ahead.

"The Task Force on the NC Nursing Workforce took painstaking efforts to examine nursing education issues in terms of both quality and quantity, as reflected in several Task Force recommendations."

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Greater Collaboration between Nursing Education and Practice

Nursing is an applied science and discipline. However, at times it seems that there are separate "silos" of nursing education systems and nursing care delivery systems. Through a collaborative effort of NCCN and AHEC funded by the Robert Wood Johnson Foundation, regional and state planning alliances of leaders in all types of nursing education programs and major nursing practice settings were formed. In discussions of how to disseminate and implement Task Force recommendations, Task Force members recognized the need for these relationships to be sustained. Leaders in nursing service should be more integrally involved in curriculum development and nursing educators should be grounded in the practice arena through joint appointments and other arrangements. Clinical preceptor models will become increasingly important, owing to faculty shortages.

Better Preparation of New Nursing Graduates in Critical Thinking, Time Management, Accountability, Interpersonal Skills, and Leadership Abilities as well as Hands-on Clinical Skills

Strengthening meaningful collaboration between nursing education and service also relates to this priority. The Task Force on the NC Nursing Workforce took painstaking efforts to examine nursing education issues in terms of both quality and quantity, as reflected in several Task Force recommendations. The NC BON is facilitating significant work in this area with their recent focus on the congruence between education and practice.

The Need for a Formal Transition from School to Work

The Task Force addressed this looming issue in a free-standing recommendation, acknowledging that it was a challenge that belonged to both nursing education and the nursing service sector. In my Robert Wood Johnson Executive Nurse Fellowship project, I am focusing on ways to increase the number of master's prepared nurses in direct patient care who can provide clinical leadership to nurses with varying levels of preparation in order to improve patient outcomes and cost-effectiveness; who can help patients and families navigate the complexities of today's healthcare system; and who can mentor new graduates, thereby reducing healthcare errors and decreasing nurse turnover. Key staff from NCCN are collaborating with key staff at the NC BON and the NC BON Foundation to develop a proposal for a more standardized internship/residency for every North Carolina nursing graduate. We will seek external funding to pilot proposed models.

Support for Better Articulation and Access in Nursing Education

There are four Task Force recommendations related to enhancing educational mobility options that are so important in a profession that offers multiple pathways to initial licensure as a Registered Nurse (RN). Associate degree curricula that include transferable courses, articulation agreements, a common core of course requirements at the baccalaureate level, as well as a statewide RN-to-BSN Consortium are all recommendations that are derived from the work of the Statewide Steering Committee on Articulation in Nursing Education, convened by the Center for Nursing. These actions will not only reduce barriers and duplication for nurses pursuing additional education, but also offer promise in terms of sharing faculty and other resources across nursing education programs. Resource sharing will become more critical than ever in ensuing years, with tight budgets and faculty shortages. We will also need to continue to look at better career pathways for qualified Licensed Practical Nurses (LPNs) and Nurse Aides (NAs) as the demand for RNs skyrockets. Finally, as reflected in the Task Force report, we need to reach more men as well as racial and ethnic minorities, with the aim of doubling their numbers entering the RN workforce by 2010.

Address Capacity of Nursing Education, with Emphasis on Faculty Resources

The Task Force recommendations regarding nursing education address funding of nursing programs, financial aid for nursing students, and other means of strengthening the quantitative and qualitative dimensions of the capacity of our nursing education programs. Pass rates on licensure exams among NC nursing graduates are higher than national averages. However, of special concern to NCCN, in light of our mission, is the number of students we lose prior to graduation through attrition, a factor limiting our educational capacity that was illuminated in the NC Center for Nursing's survey of nursing education programs in North Carolina. The California Community College System has developed a research-based model for predicting success of applicants to nursing education programs. This work may be relevant for our own community colleges as they study the relationship between admission policies and graduation/attrition rates as recommended by the Task Force. The recommendation on enhancing support services is also very important as success in nursing school nearly always involves an interaction of multiple variables and not simply academic attributes. Funding for the Faculty Fellows Program will be a significant step in addressing an evolving faculty shortage. But we must also look further at non-traditional methodologies for delivering nursing education, as represented in the recommendation for expansion of distance learning and on-line formats, as well as in prior discussion in this commentary regarding sharing resources.

Healthier Workplaces: Magnet Principles and Other Healthy Workplace Models

The Task Force on the NC Nursing Workforce built on the previous work of the Professional Practice Coalition convened by the NC Nurses Association as well as joint efforts of NCNA and the NC Hospital Association in empowering nurses and creating healthier workplaces. As an appraiser for the American Nurses Credentialing Center Magnet Recognition Program, I have witnessed the synergy that occurs with strong nursing leadership and governance, nurse satisfaction and retention, and the ability to enhance patient outcomes and satisfaction.

Innovative, Cost-effective Strategies to Reduce Nurse Workload and Paperwork

A survey of staff nurses conducted by NCCN in 2001 revealed an increasing paperwork burden. This paper work burden was perceived by nurses to be up an average of six percent from the previous year. Just as we need to enhance the use of technology in education, we need to streamline patient care with point of care data entry systems and other innovations that improve safety and accuracy while saving time and energy. The NCNA House of Delegates has resolved to look at these issues further.

Better Understanding and Management of the Effects of Staffing, both in Terms of Numbers and Credentials, on Patient Outcomes

Dr. Sean Clarke of the University of Pennsylvania described the work of a team of researchers led by Dr. Linda Aiken to the Task Force. The research he described, which needs further replication, used large sets of patient data to look at the impact of staff mix (RNs, LPNs, NAs) as well as the educational preparation of the RNs in the staff mix on surgical mortality and failure to rescue. Findings reveal that having a higher ratio of the RNs in the staff mix and more RNs with baccalaureate and higher degrees lowers mortality and failure to rescue rates. These kinds of findings and the increasing complexities of healthcare support movement toward a more educated workforce.

Nursing workforce issues are complicated issues and many challenges lie ahead. Fortunately, this great state brings multiple strengths to the table. Our more than 100-year professional nursing history, since the very first nursing license in the country was issued here in 1903, is a story of courage, fortitude, and innovation. We have not suffered from the recent much more dramatic shortages that have plagued other states. This reflects a track record of the willingness of multiple stakeholders to work strategically together and to take the long view toward a healthier future for all North Carolinians. **NCMJ**

The North Carolina Center for Nursing provides seed grants to assist hospitals, health departments, schools of nursing and other healthcare related agencies in creating innovative programs to recruit and/or retain people in the nursing profession. To learn more about the Center's Recruitment and Retention Grant Program, visit www.nursenc.org.

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Letters to the Editor

Mental Health Reform

To The Editor:

Thank you for dedicating a recent issue to a discussion of mental health reform in North Carolina. While waving the flags of lower costs and better services, politicians and administrators in state government are radically changing the mental health delivery system. The Department of Health and Human Services is reducing the number of hospital beds for severely mentally ill; thereby, forcing these patients to seek treatment, if they so choose, from private or community resources. At the same time, the administration is pushing local communities to reduce direct service and hire private providers to meet the needs of the mentally ill, developmentally disabled, and substance abuse patients. Doctors Marvin Swartz, Joseph Morrissey, and Nicholas Stratas have written extensively of the numerous problems with proposed reforms. It strikes me that these problems encompass three primary areas with financial concerns at the heart of each.

First, there are limited numbers of well-trained private clinicians who can offer wide-ranging multidisciplinary services to the targeted population. I suspect only a small fraction of this population of clinicians will be willing to provide services for reimbursement typically offered by the government. And which of these clinicians will cooperate with quality assurance requirements (assuming the state will demand and measure quality service)?

Second, community resources either don't exist, are grossly inadequate, or severely under-funded. Alternative treatment services are simply unavailable in many areas. And don't underestimate the confusion and diffusion of responsibility that will occur when two areas or counties argue over which is responsible for treating a particular patient. In addition some patient care providers working in community as well as state facilities have sought employment elsewhere because they are fearful of losing their jobs as a result of the state's plans to "reform" the mental health system.

Third, under the state's plans, patients and family members will face one more hurdle in seeking treatment since the facilities where they have been treated will not provide direct services. They will be directed elsewhere. One can only guess how much support and guidance these persons will receive as they navigate the "reformed" system. And one can only guess about the financial concerns and questions these persons will have when they are sent to private providers. Indeed, this assumes that the patient makes a rational decision to continue to pursue treatment at another time, in another place, from another provider, and while facing uncertain financial responsibilities.

Many letters and articles highly critical of the state's mental health "reform" have been printed. It is unfortunate how timely and prescient those admonitions have been. A few weeks ago a store in Raleigh was robbed and police were called. A man scuffled with them and bystanders and reached for a policeman's pistol. The man was subdued but then dropped dead. Police officers and rescue personnel made heroic efforts, but the lives of all involved were forever altered. We later learned the man was mentally ill, not taking medications or receiving treatment, abusing cocaine, and a danger to himself and others. To complicate matters even further, there had been some sort of dispute between two counties centering on whether and how to have this individual committed.

In the past this man may well have been readily committed to a state psychiatric hospital; his illness stabilized, and he and the public protected from harm. Today there are fewer hospital beds and limited community resources available to treat the mentally ill, and patient care providers are leaving the system. Those that remain in the system face the impossible task of providing quality care with fewer resources. Sick, vulnerable people are being denied appropriate care. If the state has its way, the future may hold for us more senseless crime, violence, homelessness and death. And we'll be reading and hearing more tragic stories involving the mentally ill and developmentally disabled.

Charles L. Johnson Jr., PhD
Clinical and Clinical Neuropsychology
Cary, NC

"Today there are fewer hospital beds and limited community resources available to treat the mentally ill, and patient care providers are leaving the system."

Running the Numbers

A Periodic Feature to Inform North Carolina Healthcare Professionals About Current Topics in Health Statistics

From the State Center for Health Statistics, North Carolina Department of Health and Human Services
www.schs.state.nc.us/SCHS

2002 North Carolina Live Births Attended by Certified Nurse Midwives

Deliveries attended by a Certified Nurse Midwife (CNM) are increasing rapidly in the United States and in North Carolina. In 2002, there were 307,527 CNM-attended live births in the United States, accounting for 7.6% of all live births.[1] Since 1983 when the North Carolina legislature passed the "Midwifery Practice Act" making CNMs legal birth attendants, the percentage of resident live births attended by CNMs has risen dramatically. In 1983, CNMs attended less than 2% of all live births; by 2002 CNM-attended births had risen to 9.2%, or more than 10,800 births in the year (Figure 1).

Table 1 shows demographic characteristics, risk factors, and birth characteristics for CNM-attended deliveries compared to all North Carolina resident live births.

Demographic Characteristics

Mothers with CNM attendants were more likely to be unmarried, have less than a high school education, and to have received WIC (a program which provides nutritional assistance to low-income mothers) while pregnant. Under Title XIX of the Social Security Act, state Medicaid programs are required to cover CNM services. In 2002, 43% of CNM-attended births in the state were covered by Medicaid, compared to 42% of all live births. Women whose delivery was attended by a CNM were slightly less likely to be of a racial minority and a little more likely to be a resident of a rural region. This may be related to the fact that CNM-attended deliveries were more prevalent in the Western portion of the state where the minority population is smaller and the rural population is larger.

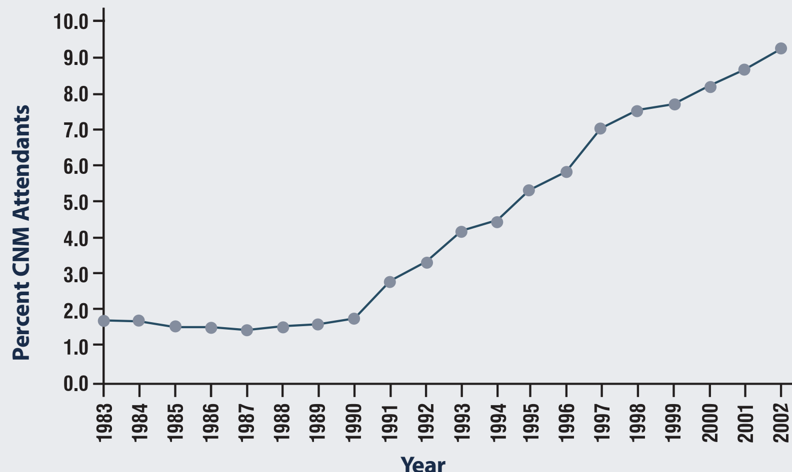
Risk Factors

Mothers with CNM birth attendants were more likely to report smoking during pregnancy and receiving late (after first trimester) or no prenatal care, compared to all live births. In addition, women attended by CNMs were more likely to give birth outside a hospital setting (2.5% vs. 0.5% for all live births). CNM-attended deliveries were less likely to have medical risk factors recorded on the birth certificate (27%) compared with all live births (30%). In addition, CNM-attended deliveries were much less likely to involve twins, triplets, or other multiple births.

Birth Characteristics

Nearly all CNM-attended births (99%) were vaginal deliveries compared to 73% of all North Carolina live births. CNMs used obstetrical procedures such as ultrasound, electronic fetal monitoring, or stimulation of labor to aid delivery at about the same rate as other attendants (97-98%). Approximately 28% of CNM-attended deliveries had one or more labor or delivery complications reported on the birth certificate compared to 36% of all live births. Infants delivered by CNMs were less likely to be of low birth weight (less than 2500 grams). In 2002, 4.3% of

Figure 1.
1983-2002 North Carolina Resident Births: Percent with Certified Nurse Midwife Attendants



CNM-delivered babies were low birth weight, compared to 9.0% of all live births. This is likely to be related to their lower medical-risk clientele.

It should be noted that the quality of the attendant data on the North Carolina birth certificate has not been assessed. CNMs have expressed uncertainty regarding the validity of the coding of the delivery attendant on the birth certificate. A survey conducted in 1993 by the American College of Nurse Midwives found that 6% of the deliveries CNMs attended were not attributed to them.[2] Also, continuity of care cannot be assessed from the birth certificate attendant data. For example, a woman may have received all of her prenatal care with a CNM, but if a labor complication led to a cesarean section, the delivery would be attributed to a physician. Thus, some poor birth outcomes associated with delivery complications may be recorded as physician-attended deliveries, even though a CNM provided the prenatal care.

Table 1.
2002 North Carolina CNM-Attended and Total Resident Live Births by Demographic Characteristics, Risk Factors, and Birth Characteristics.

	CNM Attendant		Total Live Births	
	Number	Percent	Number	Percent
Total Births	**10,840**	**9.2%**	**117,307**	**100.0%**
Demographic Characteristics:				
Minority race	2,775	25.6%	32,190	27.4%
Hispanic	1,410	13.0%	15,063	12.8%
Maternal age less than 18	527	4.9%	4,890	4.2%
Less than a high school education	2,728	25.2%	26,652	22.7%
Medicaid	4,704	43.4%	48,833	41.6%
Received WIC during pregnancy	4,899	45.2%	45,820	39.1%
Resident of rural region	6,141	56.7%	64,235	54.8%
Unmarried	4,035	37.2%	40,646	34.6%
Risk Factors:				
Maternal medical risk factors[a]	2,954	27.3%	35,179	30.0%
Mother smoked	1,603	14.8%	15,440	13.2%
Late/no prenatal care	1,915	17.7%	18,236	15.5%
Delivered outside a hospital	267	2.5%	540	0.5%
Multiple birth	55	0.5%	3,880	3.3%
Birth characteristics:				
Vaginal delivery	10,749	99.2%	85,811	73.2%
Obstetrical procedures[b]	10,623	98.0%	113,632	96.9%
Delivery complications[c]	3,080	28.4%	42,446	36.2%
Low birth weight (< 2500 grams)	464	4.3%	10,550	9.0%

[a] Includes pre-existing maternal medical problems such as anemia, diabetes, & hypertension as reported on the birth certificate.
[b] Includes procedures such as ultrasound, electronic fetal monitoring, & stimulation of labor as reported on the birth certificate.
[c] Includes delivery problems such as breech , fetal distress, and long labor as reported on the birth certificate.

1. Martin JA, Hamilton BE, Sutton PD, Ventura SJ, Menacker F, Muson ML. Births: Final Data for 2002. *National Vital Statistics Reports*, 2003; 52(10):1-114.
2. Walsh, LV, Boggess JH. Findings of the American College of Nurse-Midwives Annual Membership Surveys, 1993 and 1994. *J Nurse Midwifery* 1996: 41: 230-5.

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State Center for Health Statistics, North Carolina Division of Public Health

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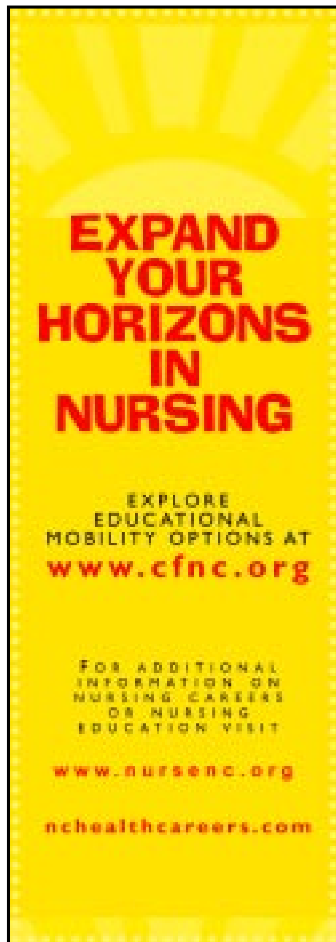

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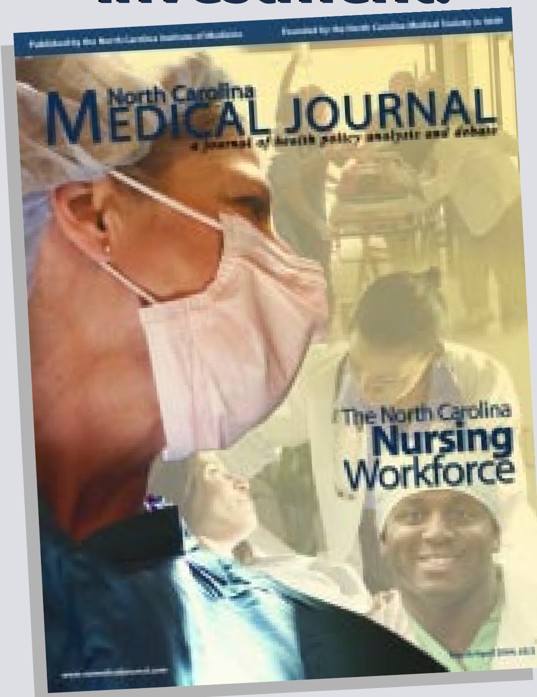

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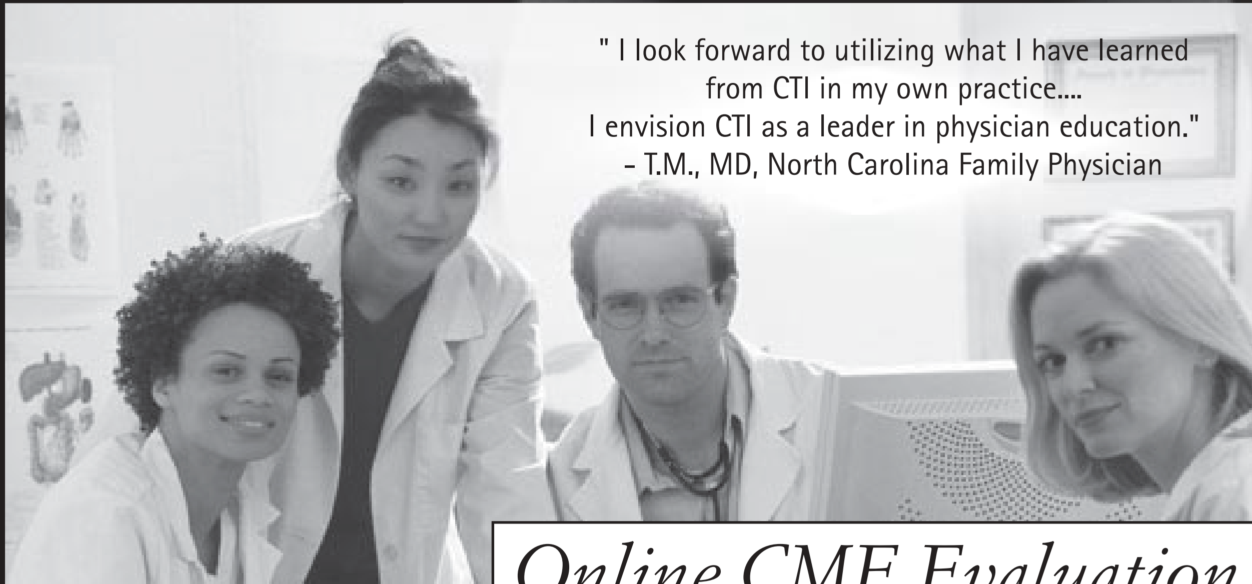

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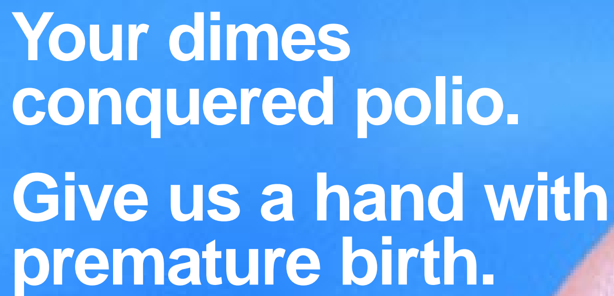

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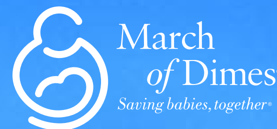

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