Report to the Board of Governors
University of North Carolina System

2006 UPDATE:
PRIMARY CARE MEDICAL EDUCATION PLANS

From

Duke University School of Medicine
East Carolina University School of Medicine
University of North Carolina School of Medicine
Wake Forest University School of Medicine
North Carolina AHEC Program

This report is submitted to the Board of Governors of the University of North Carolina in response to General Statute 143-613 as contained in House Bill 230 passed in the 1995 session of the North Carolina General Assembly.

April 2006

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2006 UPDATE:
PRIMARY CARE MEDICAL EDUCATION PLANS

EXECUTIVE SUMMARY

During its 1993 session, the North Carolina General Assembly expressed its interest in expanding the pool of generalist physicians for the state. In Senate Bill 27 as amended by House Bill 729, the General Assembly mandated that each of the state's four schools of medicine develop a plan setting goals for an expanded percentage of medical school graduates choosing residency positions in primary care. Primary care was defined as family practice, internal medicine, pediatrics, and obstetrics-gynecology. It set the goal for the ECU and UNC Schools of Medicine at 60 percent of graduates. For the Wake Forest University and Duke University Schools of Medicine, it set the goal at 50 percent. The General Assembly also mandated that the N.C. Area Health Education Centers (AHEC) Program develop a plan to expand the number of primary care residency positions. Finally, the legislature mandated that a monitoring system be developed by the Board of Governors to report on specialty selection by medical students at graduation and five years after graduation.

In 1994, the four schools of medicine and the N.C. AHEC Program submitted primary care educational plans for increasing the percent of medical school graduates choosing primary care residency programs and subsequently generalist practice. General Statute 143-613 as contained in House Bill 230 passed in the 1995 session of the North Carolina General Assembly requires an update of these plans beginning in 1996 and every two years thereafter.

The plans of the four schools built upon the unique missions and programs of the schools. Although specific activities differ between the schools, they all implemented initiatives in similar areas in order to increase the percentage of graduates choosing careers in primary care. In each case, the schools built upon their long-standing relationships with the AHEC Program in order to conduct increased medical student and primary care residency training in community settings. The following attachments highlight the specific changes which have taken place since 1994. A brief summary of the themes addressed by the updates includes the following:

- Pre-medical Students: Each school has increased contact with pre-medical students in order to make clear the opportunities for practice as a generalist physician. Several of these activities target minority and disadvantaged pre-medical students.
- Admission to Medical School: Each school has placed increased emphasis on the admission of students with an interest in generalist practice. All four admissions committees have primary care physicians as members.
- Primary Care Role Models: Each school expanded activities to give students an in-depth and continuing exposure to generalist physicians at the school and in community settings. Over the four years of medical school, students receive career advising, mentoring, and role modeling from these physicians.

- Curriculum Changes: Each school implemented curriculum changes that give students greater exposure to primary care. While the curricula and the plans of the four schools vary greatly, the following are themes that are found in each of the plans:
    - increased education in the ambulatory setting
    - increased rotation of students at all levels to community practices, with a particular focus on rural and inner city underserved areas
    - increased emphasis on topics that are critical to the practice of the generalist physician. These include: health promotion/disease prevention; nutrition; geriatrics; alcohol and substance abuse; violence; ethics; health care organization, financing, and economics; and more effective uses of information technology
    - increased emphasis on the physician as a member of a cost-effective health care team operating in a managed care environment.

- Community Practitioner Support: Each school and its affiliated AHECs, in association with the Office of Rural Health, the North Carolina Primary Care Association, and the Reynolds Community Practitioner Program, have expanded activities in support of generalist practitioners in community settings. Special emphasis has been given to practitioners in rural, inner city, and isolated settings. Some activities include:
    - expanded opportunities for physicians to serve as preceptors and to benefit from faculty development programs, telecommunications, reimbursement for teaching, etc.
    - continuing education targeted to improve practice outcomes
    - support for practices involved in quality improvement and practice redesign initiatives

- Information Services and Telecommunications: The four schools and their affiliated AHECs expanded existing library and information services to primary care physicians in underserved settings. For those physicians serving as preceptors, this includes the positioning of computer workstations in the practice so physicians and students can access the world's information databases. These developments also include developing teleclassroom and teleconsultation units at the schools, the AHECs, and at selected smaller hospitals and health centers to strengthen student education in these sites and to decrease the isolation of practitioners. The AHEC Digital Library, a comprehensive electronic set of information resources, including searching databases, full-text journals and other resources, is available to all community practitioners who take students in their practices.

- Primary Care Residency Training: Each school and the AHECs have expanded the number of primary care residency positions and developed rural and inner city training opportunities for residents.

- Table 1 (below), taken from the November, 2005 report "Monitoring the Progress of North Carolina Graduates Entering Primary Care Careers" summarizes the residency

choices for the 2004 and 2005 medical school graduates. The decline in the percentage of graduates choosing primary care careers mirrors a national trend.

The dean and the faculty at each of the four schools of medicine have taken seriously the mandate of the General Assembly and have implemented plans that will help increase the number and percentage of medical students choosing primary care residency programs and, subsequently, generalist practice. This report, with attachments from the four schools of medicine and the N. C. AHEC Program, responds to that legislative mandate by providing an update on current and planned initiatives which are directed toward ensuring that our medical care education programs meet the needs of our students and achieve the goal of increasing the primary care workforce for our citizens.

Table 1
North Carolina Medical Students-Initial Choice of Primary Care*
for 2004 and 2005 Graduates

School	Total # of Graduates		Number of Graduates not Entering Residency Training		Number of 2004 and 2005 Graduates Entering Residency Training		Number of 2004 and 2005 Graduates Entering Residency Training Who Chose a Primary Care Residency		% of 2004 and 2005 Graduates Entering Residency Training Who Chose a Primary Care Residency	
	2004	**2005**	**2004**	**2005**	**2004**	**2005**	**2004**	**2005**	**2004**	**2005**
Duke	98	81	0	1	98	80	53	34	54%	43%
ECU	79	74	0	5	79	69	44	53	56%	77%
UNC-CH	153	153	6	1	147	152	78	76	53%	50%
Wake Forest	107	107	0	1	107	106	48	45	45%	42%
Total	**437**	**415**	**6**	**8**	**431**	**407**	**223**	**208**	**52%**	**51%**

*Primary Care = Family Medicine, General Pediatric Medicine, General Internal Medicine, Internal Medicine/Pediatrics, and Obstetrics/Gynecology. Excludes one-year Internal Medicine residencies expected to lead to sub-specialty training.

Sources:

Wake Forest Office of Student Affairs
UNC-CH Office of Student Affairs
Duke Office of Medical Education
American Medical Association
ECU Office of Medical Education
Association of American Medical Colleges
NC Medical Board

Compiled by:

NC AHEC Program
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Report to the Board of Governors of the
Consolidated University of North Carolina

Update: Primary Care Education Plan
Duke University School of Medicine

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March 31, 2006

A report in response to General Statue 143-613 as amended by Chapter 507 of the 1995 Session Laws (House Bill 230) of the North Carolina Assembly

2006-Update: Primary Care Education Plan

Duke University School of Medicine

In 1994 the Duke University School of Medicine submitted an educational plan with the goal of encouraging students to enter the primary care disciplines of general internal medicine, general pediatrics, family medicine, and obstetrics/gynecology.

Support for these innovations has come from the North Carolina AHEC, a training grant from the U.S. Health and Human Services Grants for predoctoral education in family medicine, from the NC Academy of Family Practice, the Josiah Mercy, Jr. Foundation, the Fullerton Foundation, Hewlett Packard, and substantial support from the Office of Medical Education at Duke.

One measure of our programs to train individuals for a career in primary care is the distribution of graduates across residencies. A substantial proportion of Duke graduates enter primary care residencies.

Match 2004	**Graduates = 104**
Internal Medicine	**31**
Family Medicine	**4**
Pediatrics	**7**
Obstetrics/Gynecology	**3**
Medicine/Pediatrics	**6**
Total	**51**
Medicine - Preliminary	**11**
Match 2005	**Graduates = 83**
Internal Medicine	**21**
Family Medicine	**2**
Pediatrics	**7**
Medicine/Pediatrics	**2**
Obstetrics/Gynecology	**1**
Total	**33**
Medicine - Preliminary	**13**
Match 2006	**Graduates = 108**
Internal Medicine	**27**
Family Medicine	**2**
Pediatrics	**6**
Obstetrics/Gynecology	**4**
Medicine/Pediatrics	**3**
Total	**53**
Medicine - Preliminary	**15**

Note: the proportion of graduates entering primary care includes one year Internal Medicine residencies expected to lead to sub-specialty training.

The Generalist Activities include:

1. **Development of primary care faculty**

Duke faculty continues to play a leading role in faculty development of community preceptors from all North Carolina Medical Schools through the North Carolina Academy of Family Physicians and the NCAHEC Program through its Office of Regional Primary Care Education (ORPCE) teaching sites.

A large group of primary care faculty serve on the Medical School's Curriculum, Admissions, and Promotions Committees as well as representation on both Graduate Medical Education and Continuing Medical Education Committees.

The network of primary care practices added to Duke continues to be a resource for teaching medical students. NCAHEC ORPCE teaching sites also play a major role in primary care teaching.

2. **Development of Research Programs in Primary Care**

Research efforts in primary care have continued in the areas of treatment of common illness, health outcomes, general health status, and health services delivery. Such research is being carried out in the Health Services Research Program at the Veteran's Administration Medical Center, the Epidemiology Program in the Department of Psychiatry and the Aging Center, the Clinical Epidemiology and Biostatistics Program, and the Department of Community and Family Medicine. The Health Promotion and Disease Prevention Center at the Veteran's Administration Medical Center is active in the medical school curriculum. Many students participate in primary care research in their third year at Duke through the combined MD/MPH program, the Epidemiology, Health Service and Health Policy Study Program, and the Master's of Health Science in Clinical Research degree.

3. **Admissions and Premedical Preparation**

Every applicant to Duke Medical School receives information about Duke's program in Primary Care prior to their interviews. The assistant dean is available to discuss any applicant's questions about this program during the application process. As the table in this report shows, a substantial proportion of our graduates, eventually choose to enter primary care internships.

Duke is also proud to be a site of the AAMC's Robert Wood Johnson-funded Summer Medical Enrichment Program. This program sponsors college sophomores and juniors from disadvantaged backgrounds to attend a six-week program introducing them to a variety of programs associated with health professions. This introduction includes experiences related to primary care fields as well as shadowing programs.

4. Financial Aid

Duke continues to aggressively secure financial aid for student and identifies scholarships available for those interested in primary. Primary care financial aid programs are overseen by the Assistant Dean of the Primary Care Program in coordination with the Financial Aid Office to help ensure that eligible students are aware of the opportunities. Duke participates with the Department of Health and Human Services to pursue grant and loan programs to benefit students interested in Primary Care. Duke also continually researches scholarships that would provide assistance to those interested in Primary Care.

5. Medical School Curriculum

A. Practice

The Practice course exposes all students at Duke to early ambulatory medicine in year one and provides much of the ambulatory care core training at Duke preclinically and during the clinical year. Students are taught the basic skills they need to be effective in the ambulatory setting. The course is now required for first, second and third year students.

All fourth year students are required to have a longitudinal ambulatory care experience. Ambulatory experiences have been added in many core clerkships.

B. Primary Care Program

This four-year long program involves and supports students interested in primary care. Students are paired with a primary care faculty mentor, participate in extracurricular programs, select additional primary care opportunities during clinical training, and are encouraged to participate in primary care research during their third year.

6. Extracurricular Activities

National Primary Care Day

In the past several years Duke has participated with student leadership in National Primary Care Day, with support from the Duke Office of Medical Education. This event is co-sponsored by the Association of American Medical Colleges. The event continues to include resident physicians, community faculty, and students.

Student Interest Group

The Family Medicine Interest Group continues to provide opportunities for all students interested in primary care with a chance to learn primary care clinical skills and share interesting topics. Other interest groups, such as one in pediatrics, are also active.

7. **Primary Care Residency Training**

Duke continues to have five primary care residency tracks: general internal medicine, general pediatrics, a combined medicine/pediatrics residency, family medicine, and obstetrics/gynecology.

8. **Community Practitioner Support**

Duke continues to work closely with the other three medical schools in North Carolina and the North Carolina Area Health Education Centers Program (AHEC). Duke continues to coordinate placement of the majority of its community learners with practitioners throughout the state with assistance from the Office of Regional Primary Care Education (ORPCE). The ORPCE staff has continued to be very successful in recruiting, training, and supporting community preceptors in their regions. Duke supports key community practices with teaching resources whenever possible.

9. **Tracking Students and Residents**

Duke maintains information on training and practice activities of its students and house staff alumni through several sources. Local records are kept of residencies entered and current addresses of those in practice. AAMC provides information about the status of residency training. These data are summarized and forwarded annually to the statewide coordinator at the AHEC central office, who, in turn, reports to the North Carolina State Legislature.

Summary

Duke continues to look for innovative ways to address the problems of increased patient volumes in the ambulatory settings and increased need to train students in these same settings. New teaching methods are being developed such as use of the computer-based informatics to make teaching more efficient. Residencies will be geared to addressing the nation's needs for physicians. Research efforts in health care delivery and primary care outcomes will continue to grow. Duke is committed to training leaders that will be part of the solution to today's need for primary care physicians.

Report to the Board of Governors
University of North Carolina System

2005 Update:
Primary Care Medical Education Plan

Brody School of Medicine
at
East Carolina University

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March 15, 2006

A report in response to General Statue 143-613 as amended by Chapter 507 of the 1995 Session Laws (House Bill 230) of the North Carolina Assembly

2005-Update: Primary Care Education Plan

East Carolina University
Brody School of Medicine

In 1994, the School of Medicine (now Brody School of Medicine) at East Carolina University submitted an Education Plan for increasing the number and percent-of medical students choosing primary care residency programs, and subsequently generalist practice. Updates to the plan were submitted in March 1996, June 1998, March 2000, and April 2002. Initiatives described in the plan included targeted efforts in four separate areas: 1) Pre-Medical Initiatives, 2) Undergraduate Medical Education, 3) Graduate Programs and, 4) Practice Support and Outreach. This year we are pleased to report recent achievements of our efforts. Our strategies remain the same; however some programs have changed in order to maintain our efforts in a changing economic and demographic environment.

As a result of these efforts, Brody School of Medicine (BSOM) has continued to excel in the numbers of graduating students selecting residency positions in the primary care disciplines. Student selection of primary care residency positions remains higher than national average.

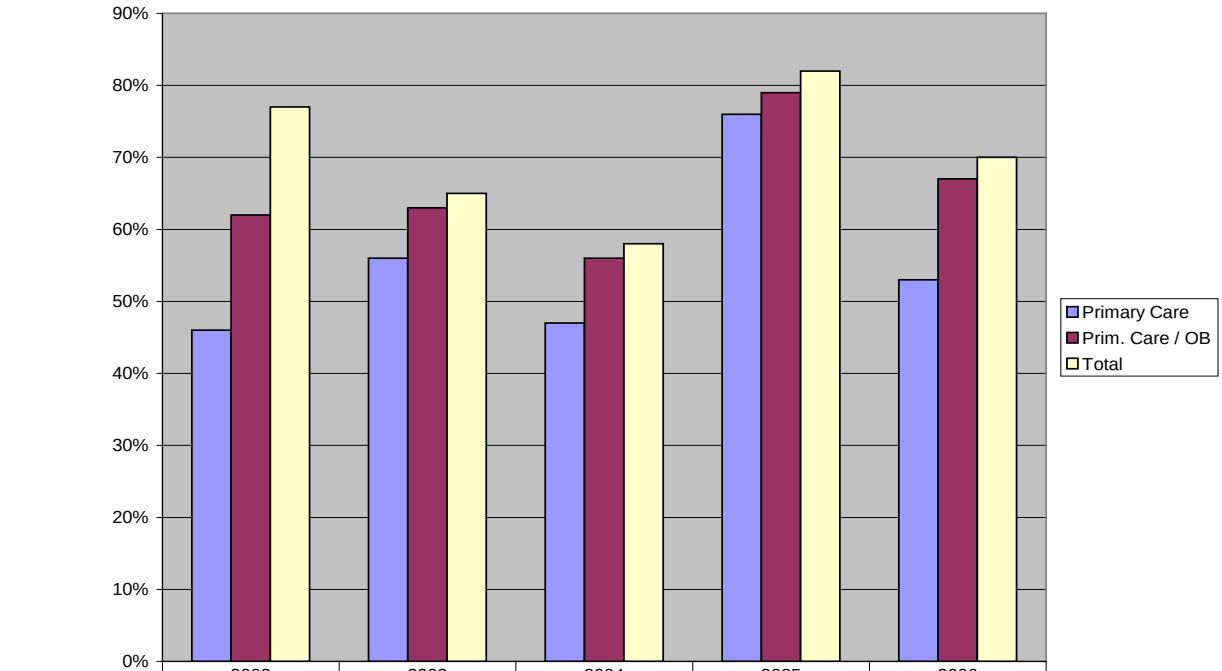
We are also interested in how many of our graduates remain in North Carolina for residency since part of our tripartite mission is (1) to increase the supply of primary care physicians to serve the state, (2) to make medical care more available to the citizens in eastern North Carolina. In keeping with prior years' outcomes it remains significant that many of our graduates stay in the state for training. For the Class of 2005, 42% (29/69) chose a residency program in North Carolina, and 14 of the 29 (48%) are staying at University Health Systems of Eastern Carolina. For the Class of 2006, 50% (33/66) chose a residency program in North Carolina, and 17 of the 33 (52%) are staying at University Health Systems of Eastern Carolina.

Primary Care - 2006

Primary Care		**Pos.**
Family Medicine	12%	8
Family/Psychiatry	2%	1
Internal Medicine-Emergency Medicine	2%	1
Internal Medicine	12%	8
Internal Medicine-Pediatrics	11%	7
Pediatrics	15%	10
Total	**53%**	**35**
Ob/gyn	14%	9
Total w/ Ob/gyn	**67%**	**44**
Medicine-Preliminary	3%	2
Total w/Medicine Preliminary	**70%**	**46**
TOTAL ALL	**70%**	**46**

Primary Care - 2005		
Primary Care		**Pos.**
Family Medicine	23%	16
Internal Medicine	23%	17
Med/Peds	10%	7
Pediatrics	16%	12
Medicine Family	1%	1
Total	**75%**	
Ob/gyn	3%	2
Total w/ Ob/gyn	**56%**	**44**
Medicine-Preliminary	3%	2
TOTAL ALL	**81%**	**46**

Primary Care - 2004		
Primary Care		**Pos.**
Family Medicine	18%	14
Internal Medicine	13%	10
Med/Peds	6%	5
Pediatrics	10%	8
Total	**47%**	**37**
Ob/gyn	8%	6
Internal Medicine/Ob-Gyn	1%	1
Total w/ Ob/gyn	**56%**	**44**
Medicine-Preliminary	3%	2
TOTAL ALL	**58%**	**46**



	2002	2003	2004	2005	2006
Primary Care	46%	56%	47%	76%	53%
Prim. Care / OB	62%	63%	56%	79%	67%
Total	77%	65%	58%	82%	70%

I. PRE-MEDICAL AND ADMISSIONS INITIATIVES

We are continuing the strategies at the premedical level through: (1) communications network with premedical advisors throughout North Carolina; (2) research of variables that predict career choice and practice in underserved areas; and (3) support of a Health Careers Development Program to disseminate information about health careers and to encourage the participation of under-represented minority students in health careers. BSOM continues to host numerous conferences for college and university premedical program advisors from 24 institutions across North Carolina. The statewide premedical advisors group that was initiated as a result of contacts initially established through these conferences continues to meet regularly. *The East Carolina Generalist* newsletter, published through our Office of Generalist Programs, continues to be distributed to premedical advisors throughout the region by that office.

Each year the East Carolina University undergraduate Office of Admissions invites outstanding high school seniors to compete for Merit Scholarships. These students have high SAT scores (1300+) and have excelled in many academic and extracurricular activities. Typically, half of these nominees indicate a desire to attend medical school after college.

In an effort to attract more superb students to ECU, the Office of Undergraduate Admissions and the Brody School of Medicine have developed an Early Assurance Program for The Brody School of Medicine. Under this program, approximately four of the 72 seats in the

BSOM entering class are reserved (four years in advance) for Merit Scholars entering ECU as freshmen. Students who are awarded a position in the Early Assurance Program must maintain certain academic standards and participate in various activities to remain eligible for their seat in the entering class. Students in the Early Assurance Program who remain eligible and interested are exempt from both the secondary application fee and the Medical College Admission Test requirement. These students have performed extremely well academically during their matriculation at the BSOM. The first Early Assurance recipient entered the ECU undergraduate in 2000 and entered the BSOM in 2004. To date we have 19 students who have participated in the Early Assurance Program or are currently in the program.

Working with the undergraduate campus of East Carolina University, the Office of Generalist Programs (OGP) also assisted in the development of the MD/7 Program, an initiative designed to allow promising matriculates to the University to choose an education path which allows them entrance to the medical school after the third undergraduate year. This is a competitive program for the best and the brightest of our undergraduate students, so the selection process is rigorous, and includes a formal interview with the Medical School Admissions Committee. Successful participation in the program will provide the selected students not only entrance to the medical school after their third year of undergraduate work, but also the awarding of a Bachelors Degree following successful completion of the first year of medical school. A medical degree will follow three years later.

To support the MD/7 Program, the (OGP) is also actively engaged in the coordination of a Health Careers Shadowing Program for undergraduate students. This allows twenty first-year students each semester to participate in an experience at the Medical Center. Students are assigned by the OGP, for 2 weeks in a row, 4-5 hours each week, for a total of 12 weeks to different mentors in different areas of the hospital or outpatient departments. With attention to HIPAA and OSHA regulations, they are afforded the opportunity to see first hand, varied slices of medical practice.

We are continuing the Community Health Access Group (CHAG) program established in 1994 to address physician maldistribution in eastern NC by focusing on people in the early stages of career planning (i.e. high school students and people considering mid-career changes). Evidence of our abilities to “grow our own” through this program, continues to be seen by the recruitment of students from the eastern region. The rationale for this approach evolved from the "growing your own" concept, which contends that physician recruitment and retention may be improved by identifying and supporting community residents interested in pursuing medical careers. CHAG, comprised of a group of key community members, serve as a mechanism for identifying and supporting prospective applicants to medical school. Members of Eastern AHEC coordinate CHAG program activities, with greatest success in Washington County. The success of the Washington county CHAG has depended greatly upon the creation of an internal support base of key community members. In addition, it was necessary to integrate community-specific health care access concerns into the CHAG plan and to provide ongoing opportunities for CHAG communication to help surmount distrust or competition between community agencies. Since 1999, activities have been expanded to address research and information dissemination. The Washington County

CHAG is still functioning, but more so as a Healthy Carolinians Coalition. Eastern AHEC still supports their efforts and was instrumental in working with the group on their recertification as a Healthy Carolinian partner this past year. Eastern AHEC has aided CHAG in identifying grants, resources, and technical assistance as requested.

The Health Careers Development Workshop is held each year to facilitate the recruitment of underrepresented minority students into health care careers through educational seminars. The Ventures into Health Careers Institute, sponsored by Eastern AHEC, and partially supported by the Office of Generalist Programs, is held each summer for 9th and 10th grade students from underrepresented minority groups. From 1998-2005, 215 students from 23 eastern counties participate in the Summer Ventures into Health Careers. Of those, 100% (215) were underrepresented minorities. The two-week experience includes educational sessions and an opportunity to shadow various health professionals. In addition to the summer program, workshop sessions for public school administrators, educators and counselors representing middle and high schools are presented to increase their awareness of health career opportunities for students.

Academic Support and Enrichment Center (ASEC) continues to host the MCAT Distance Learning Review Course. This program is available to all of North Carolina's post secondary students. We have assisted over 250 students since 1999 to maximize their test performance via organized review and test taking skill enhancement. For the past two years (2005 & 2006) ASEC has provided a structured on-line review to 65 premedical students.

The ASEC is strongly committed to encouraging all students to maximize their potential in all areas of the curriculum and personal development. The ASEC is committed to working collectively with the faculty and administration to make sure that every student is valued, every student is supported, and that every student realizes his/her full potential. The primary mission of the ASEC is to maximize the academic success, personal and professional development and graduation of medical students and residents while emphasizing service. The ASEC works to maximize the academic success of medical and other health professional students through assessment and intervention in the areas of academic development (study skills, learning and cognitive development, reading skills, etc.), personal development (stress management, interpersonal skills, lifestyle management, personal adjustments, etc.), professional development (career counseling, identity development, etc.), and outreach (recruitment). The Center provides enrichment programs aimed at increasing students' ability to be successful in the curriculum and to pass licensing examinations. Outreach to secondary school students is also provided to increase their knowledge of health sciences careers, medical education and East Carolina University.

II. UNDERGRADUATE MEDICAL EDUCATION INITIATIVES

Personal Professional Leadership Development Program (PPL)

With every new entering class, come the fears and excitement of 72 fresh faces eager to begin their medical education. The Brody School of Medicine at East Carolina University (BSOM) has helped students to meet the adjustments of medical school with the Personal Professional Leadership Development Program (PPL). PPL, which started in 1998, pairs a clinician with a basic scientist as facilitators of groups of eight or nine randomly assigned first year medical students. The goals of PPL are to help students feel supported and cared for during the transition into medical school while also providing a safe environment for them to learn about themselves. PPL also serves as a support group for students throughout their four years of medical education. Many students experience the "impostor phenomenon" and believe that they are the only ones who are afraid, unsure, or anxious. Through the activities and interactions of PPL, the facilitators and fellow students help to normalize individuals' feelings and thoughts and share guidance and advice with each other. Just as PPL is beneficial to the students, it also provides just as many benefits for the facilitators. It allows faculty to serve as role models for both the personal and professional development of students. In addition, the PPL relationships further foster collegiality between faculty facilitators.

The PPL experience begins during the M1 orientation. On each day of the week-long orientation, the students engage in a process of self-assessment, self-exploration, personal disclosure, and team building. During the 2005-2006 academic year, PPL was expanded to the entire year with the groups meeting regularly with structured activities aimed at addressing their personal, professional and leadership development e.g. exploration of issues of diversity and professionalism, etc. Included in the student activities is an electronic portfolio that is monitored by the facilitators. Facilitators may also have social events and celebrations with the group.

Past evaluations reveal that over 85% of the students enjoyed and benefited from the PPL experience. PPL encourages strong relationships, self-reflection, peer support, collaboration, faculty support and role modeling, all which aids in students' adjustments to medical education and helps transition into the profession of medicine.

Summer Program for Future Doctors

The Summer Program for Future Doctors (SPFD) is an intensive, challenging, educational summer program that allows participants to experience the pedagogical style and demands of the medical school curriculum. The program, which accepts approximately 27 participants, has two components. The Non-matriculating Program is aimed at premedical or undergraduate students. This program accepts approximately 18 students with the purpose of developing average students into more competitive applicants for medical school. The Matriculating Program is geared toward medical students who have already been accepted to the BSOM for the following fall semester. These 8-10 students in the Matriculating Program would like to get early exposure to the medical curriculum and adjustment to the environment. Participants typically have a desire to gain additional academic preparation, a

desire to address areas of concern prior to full matriculation, and they want to begin the transition process into medical school.

The goals for the SPFD are to 1) to provide educational enrichment experiences for students; 2) to promote excellence in the areas of academic performance, learning skills, personal and professional development; 3) to facilitate the medical school admissions process; 4) to provide a strong academic science program.

Basic and Clinical Science Teaching Initiatives

Undergraduate medical education strategies include early and repeated exposure to clinical medicine in ambulatory-based primary care practices; a two-year longitudinal curriculum in physical diagnosis, interviewing, counseling, and critical thinking; and evidence-based medicine.

The Doctoring course, which was implemented during the 2001-2002 academic year, was developed with input by course directors and faculty from Family Medicine, Internal Medicine, Obstetrics and Gynecology, Pediatrics, and basic science departments. The intent of Doctoring is to increase student exposure to clinical medicine and to develop skills in medical interviewing, physical examination, life-long learning, technology use, and critical thinking. The course integrates basic biomedical and psycho-social sciences with clinical medicine into a system for comprehensive, humanistic care. The knowledge, skills and attitudes necessary for developing a therapeutic physician-patient relationship as the fundamental unit of health care are taught. The principles of clinical diagnosis based on the medical history, physical examination, basic pathophysiology and clinical reasoning are also taught systematically through lectures, small group instruction and self-directed learning activities. Students practice interviewing and examination techniques with standardized and real patients, and acquire facility in medical communication and in formulating diagnostic hypotheses through oral and written patient presentations.

Longitudinally, the Doctoring course leads into The Clinical Skills II course during the second year. This course has used a standardized patient family – the Jones family-- as an innovative educational methodology to teach principles of interviewing, physical diagnosis, and patient counseling in the context of ambulatory care, and also reinforces students' understanding of the importance of continuity of care and family dynamics.

During the first two years of medical education, the students complete a primary care preceptorship. In the first year, students are paired with family medicine physicians across the state. In the second year, the students also complete a week-long preceptorship with any primary care physicians (FM, IM, Peds). When possible, students are placed in rural areas of the region and within the state. Partnering with the Area Health Centers (AHEC) and the Offices of Regional Primary Care Education (ORPCE), the BSOM identifies clinical preceptors who will provide a meaningful primary care experience for the students.

During the clinical years, students at the BSOM receive much exposure to primary care medicine. They receive eight weeks in each of the following: family medicine, internal medicine, and pediatrics. These clerkships allow students to apply basic science and clinical knowledge to patient care situations. Students work with members of the total patient care

team, including the families, by participating in morning work rounds, assuming increased responsibility for patient evaluating and care, and assisting with common procedures.

Student evaluations of the third year clerkship have indicated that our attempts to improve the experience in the Family Practice Center have begun to pay dividends. Changes in that rotation include scheduling several sessions during each rotation where an attending is assigned to work with two students. Students see patients of the attending physician, but fewer patients scheduled, giving the preceptor ample time with the students. The third-year students see the patients, generate a SOAP note, and present to the attending physician as if they were house officers and the attending were their preceptor. All patients are seen by the attending before leaving the clinic. Many students have indicated that their clerkship has resulted in an increased interest in Family Medicine as a career option.

To further expose students to primary care and reinforce strong overall clinical skills, there are additional requirements in the senior year. The fourth year is composed of 34 weeks of electives in the clinical and basic sciences. All students are required to complete a four-week selective in Primary Care and a four-week selective in Ambulatory Care. The criteria for selectives included on these lists are strictly defined to ensure that these experiences are truly primary care or ambulatory.

Brody Chapter North Carolina Student Rural Health Coalition

Until the year 2000, The Brody School of Medicine at East Carolina University was privileged to participate in the Rural Health Scholars Program sponsored by the North Carolina Office of Rural Health and Resource Development. State policy and budget constraints ended this Program with the medical school class admitted that year. Fortunately, this did not erode student interest in rural health and in participation in activities designed to promote the health of rural populations. Among the initiatives undertaken by students, with the faculty support from the Office of Generalist Programs (OGP), was the establishment of a Rural Health Interest Group (RHIG) at the Medical School. The charter student members soon petitioned for and were granted official status by the Medical Student Council. With subsequent encouragement for participation by undergraduate students at East Carolina University, RHIG became a joint Graduate/Undergraduate Chapter of the North Carolina Student Rural Health Coalition (NCSRHC).

Since its official founding in 2003, the ECU NCSRHC has organized excursions to observe primary care physicians in rural practices, bone marrow and renal transplant registration sessions, and “Noon Education Conferences” for fellow students, featuring information about rural public health, rural primary care practice, life style issues, and other topics related to rural health care.

In this current academic year, two of our second-year students, as part of their Schweitzer Fellowship (described in another section), expanded the operation of community health center in Hobgood, Halifax County, North Carolina, which one of the ECU NCSRHC officers helped found during his undergraduate years. The Schweitzer Fellows (and several ECU NCSRHC Chapter members) went several times a week during the summer between their first and second year, helping to reorganize and refurbish the facility, conduct education sessions for elderly members of the community, provide health screenings (including diabetes and hypertension) at the facility and also at home visits for those individuals who

could not travel to the health center. During the year they have "diagnosed" and referred to one of our University Health Systems Hospitals several patients with previously undiagnosed diabetes, hypertension, renal disease, and other serious acute and chronic conditions.

In anticipation of this group of students moving on to the clinical years of their education and having less time to devote to activities in Hobgood, they have worked to engage and orient younger classmates to succeed them. Recently, they also wrote, with the support and assistance of their faculty mentor, and the BSOM OGP, a grant application to the AAMC to continue and expand activities at this facility. Most of the students participating in the ECU NCSRHC have expressed the desire to serve rural communities as primary care physicians after their residency education.

Schweitzer Fellowship Program

Taking a somewhat different approach, and with financial support from Pitt County Memorial Hospital (PCMH), the OGP works primarily with first and second year students encouraging their participation in the Schweitzer Fellowship Program. This National and International initiative was developed to encourage medical students to propose a service project designed to identify health care needs in inner-city or rural communities and to spend a year working to ameliorate those needs.

In the current year of 2005-2006, nine BSOM (out of 20 state-wide) North Carolina Schweitzer Fellows have been working on a variety of health initiatives focused on populations with limited access to health care. Two are mentioned in another section with respect to their work with the Hobgood community. Others have worked with Spanish-speaking patients to improve general and heart health. One project educated a large number of elderly community residents, individually and in groups, about the Medicare Prescription Drug Plan well before its actual initiation. Another project did blood pressure screenings and provided anti-hypertensive education to a large number of indigent inner city adults. An underrepresented minority student took AIDs education to, and arranged for the first time in Pitt County rapid onsite HIV testing for, several groups of inner city minorities. Finally, a Native American student took fitness education to the youth of her tribe, working to instill pride for their heritage and an understanding that healthy eating, dance, and other physical activity would help them be both physically and emotionally healthy models of that tribal heritage. This group of Schweitzer Fellows also coalesced around one of their peers to hold a community health fair targeted to assist underrepresented minorities, especially Hispanics. On a Sunday afternoon at a local church, they along with others they enlisted to help, provided education and health screenings to over 400 individuals.

First-year students at BSOM have just completed the application and interview process for Schweitzer Fellowship Awards for the next academic year (2006-2007). Five student presented proposals and all five were selected as Fellows. Two will offer sun protection education and screening in a beach resort/fishing community, to tourists, workers, and young people gathered at the local Girls and Boys Clubs. Two others will be teaching healthful living to all of the kindergarten classes in Pitt County schools using mouth/tooth health as a marker for general health and well-being. The fifth chosen student will be working with adolescents who are pregnant or recently delivered, both in school and in their homes, to advise them on issues concerning child rearing, lifestyle, and education.

The OGP is currently beginning a study of the impact of the Schweitzer Fellowship on career choices. Over the years of the Program at BSOM, more than 75% of Schweitzer Fellow graduates have chosen residencies in primary care. Last year that number was 100% and among this year's graduates, it is 80%. Two years ago, one of our Schweitzer Fellows became only the second North Carolina student to be selected by the Boston-based Albert Schweitzer Foundation to participate in a three-month Fellowship experience at the Schweitzer Hospital in Gabon, West Africa. He recently spoke to our BSOM students at a gathering here, and also to large community audience at the Carter Center in Atlanta, relating not only his experiences in Gabon, but also how those experiences changed his life. Originally intending to be an emergency medicine physician, he returned from the Schweitzer Hospital with a clear sense that to help people, such as those he had seen there, required an education in family medicine. Consequently, he applied for and was accepted into a family medicine residency to begin in July of 2006.

Encouraged by his experiences, three students in the current second-year class are beginning the application process for the Schweitzer Hospital Fellowship and one of the new Fellows in the first-year class has already noted her interest in making application one year hence.

Extracurricular Activities

Family Medicine Interest Group
The Family Medicine Interest Group is an affiliate organization of the American Academy of Family Physicians and the North Carolina Academy of Family Physicians, which aids its members in the understanding of the multidimensional health care system, especially at the primary care level. The ECU group emphasizes community service and participation in projects such as community health fairs. Students are active at the state and national level in family medicine.

Generalist Physicians In Training (GPIT) Interest Group
The GPIT Interest Group is committed to fostering student interest in medical generalism; developing a community-responsive physician workforce; and increasing the number of medical students entering primary care fields through information dissemination, advocacy, student outreach, innovative programming, research and peer support.

Internal Medicine Interest Group
The Internal Medicine Interest Group (IMIG) is organized by students and faculty to provide information about the field of internal medicine, both the primary care aspects and the various subspecialties. All students regardless of their chosen specialty may join IMIG. Monthly lunch meetings feature guest speaker clinicians. Students who want to learn more about all branches of internal medicine are invited.

Pediatric Interest Group
The Pediatrics Interest Group allows students interested in the field to meet with pediatricians from the BSOM and the community. The group meets every month, either at lunch or in the evening at a physician's house in order to hear a speaker affiliated with Pediatric Medicine. Topics discussed in the past include the future of pediatrics, ADHD, child abuse detection and child advocacy, anticipatory guidance, and child development. The

organization also works on a variety of community projects that include hands-on interactions at the Pediatric Clinic of the community shelter as well as volunteer work on the hospital pediatric units.

Greenville Community Shelter Clinic

In January 1989, ECU medical students became involved with the Greenville Community Shelter, a non-profit organization, by offering free medical care to the homeless and indigent. All students are encouraged to volunteer their services each week for primary care clinic and on alternating evenings for special clinics. First- and second- year students help by obtaining an extended history, taking vital signs, and obtaining the chief medical complaint. They may also observe and assist with the physical diagnosis and participate in constructing a medical plan for the final approval of the attending physician. The special clinics include a Women's Clinic to address the specific needs of female medical care and a Pediatric Clinic. The Operations Committee of the clinic is run exclusively by students.

S.T.E.P. Program

S.T.E.P. stands for Students Teaching Early Prevention. The program consists of medical students who volunteer their time and creativity to teaching various health related issues to the children of Pitt County. Currently, S.T.E.P. functions primarily as a smoking cessation program, but also includes AIDS awareness. The S.T.E.P. program began as the M2 class project for the Class of 1996. The program is currently under the auspices of the Medical Student Council and students from all four classes participate in it. S.T.E.P. provides a 45 minute anti-smoking presentation for Pitt County elementary schools. The presentation includes a slide-show, pathology specimens, demonstrations, and a question/answer session with the children. The goal is to reach children at a young age to promote healthy life choices.

New Initiatives

To strengthen and continue support for community-based primary care education, the Community Based Education Advisory Group within the Division of Health Sciences facilitates communication and planning among the primary care disciplines and health professions that utilize ambulatory teaching sites in eastern North Carolina. Representatives from ECU's Schools of Medicine, Nursing, Allied Health Sciences, the Health Sciences Library and EAHEC have been meeting regularly since 1998. The eleventh annual workshop for community preceptors was held in Greenville on March 5, 2005 with a focus on rural community preceptors. The twelfth annual workshop was held at Wrightsville Beach on March 24-25, 2006. The workshop was interdisciplinary, including preceptors who are physicians, nurse practitioners, physician assistants, and nurse midwives. The objectives of these workshops are to enhance the teaching, clinical, information technology, and evidence-based medicine skills of preceptors, and to support and nurture community based primary care preceptors.

A subgroup of the Community Based Education Advisory Group, through a Generalist Physician Initiative grant from the Robert Wood Johnson Foundation, has developed a computerized, ambulatory education preceptor to collect and archive practice, preceptor and student information from BSOM, the Office of Generalist Programs, EAHEC Office of Regional Primary Care Education and the Schools of Nursing and Allied Health. This database will enable programs within the Division of Health Sciences to comprehensively monitor and evaluate educational and clinical parameters within their primary care teaching sites. An information technology position has been recently established to integrate the database into Division of Health Sciences operations.

The Office of Generalist Programs was established in 1996 to ensure integration of curricular innovations, student and faculty programs, and premedical initiatives, into Academic Affairs at BSOM. All community preceptors receive *The East Carolina Generalist* newsletter, published by the office. It is critical to the education of competent generalists, in all health professions, that the ambulatory education base in community sites be maintained, at minimum, and expanded at best. The Office of Generalist Programs is now directed by the endowed Jefferson-Pilot Professor in Primary Care, Assistant Dean for Generalist Programs.

In 2003, a practice-based Master of Public Health Program was developed at the BSOM. The program emphasizes the development of competencies important to the challenges of contemporary public health practice with special attention to the reducing health disparities in rural and underserved areas. Initiated to meet the growing needs for an expanded public health workforce in eastern North Carolina, graduates gain skills to enable them to practice in a variety of settings and to be prepared for a range of career opportunities.

Outstanding advantages of the program include both a core faculty in the BSOM and the benefits of an inter-disciplinary faculty from other schools and colleges throughout East Carolina University. This rapidly growing program has more than 60 students. Classes are scheduled in the late afternoon or evening to accommodate working students.

Core knowledge areas include epidemiology, public health services administration, environmental and occupational health sciences and health education and promotion.

Excellent field placement opportunities exist for the required field experience or internship. Close linkages exist with local health agencies, health centers and hospitals. The accreditation process is underway for the 45-semester-hour curriculum by the Council on Education for Public Health and is expected to be completed by spring 2007

A joint MD/MPH degree is also offered for medical students at the BSOM. The MD/MPH Program is a five-year program with medical students taking an additional year for public health courses between their second and third years.

Interdisciplinary Programs

The Interdisciplinary Rural Health Training Program continues as an innovative interdisciplinary educational program for students from several health professions, including medicine, nutrition, health education, occupational therapy, physical therapy, nursing, physicians' assistant, social work and pharmacy. Programs in Duplin and Beaufort counties have been underway for the past three years. An additional educational site for a similar program has now been developed in Bertie and Hertford counties. This interdisciplinary approach to educating health professional team members together in community-based ambulatory settings has the potential to positively impact specialty and practice decisions by students from the disciplines involved. These two programs are being evaluated and may serve as models for replication of this educational approach in other areas of eastern North Carolina.

A formal program of systematically measuring educational outcomes has been implemented with the 2005-2006 academic year. Examples include surveys of past students; surveys of residency program directors for recent graduates; consistent review of licensing exam scores and graduating student surveys by curriculum committees; formal curriculum audits; percentage of students choosing academic careers; and other outcome indicators. Related to this effort, we have also begun a more formal partnership with the Office of GME at PCMH in order to explore several methods of recruiting our graduates into PC residency training programs and working on medical education issues across the training continuum.

Several external curriculum development grants have been submitted and/or funded, with emphasis on our primary care mission and how we may better prepare our students to serve in eastern NC. Examples include grant submissions for training enhancements in geriatrics, chronic illness, spirituality and medicine, and educational research.

III. GRADUATE MEDICAL EDUCATION INITIATIVES

Initiatives in Graduate Medical Education begin well prior to the matriculation of new residents at the institution. Through the OGP, a Primary Care Residency Program Directors Group was established in the last Academic year to develop tools and programs for improved recruitment. Participation in residency fairs has been expanded and a CD is currently being distributed to prospective residents during interviews as well as to residency program directors nationally in the primary care specialties. The CD is also mailed to prospective residents inquiring about the programs at this institution. It provides not only information about the specific primary care residency, but also information about the BSOM, Pitt County Memorial Hospital, University Health Systems of Eastern North Carolina, and the Greenville metropolitan area including demographics, opportunities for spouses/significant others, community and close-by recreational activities, etc. We have been diligent in aggressively communicating with North Carolina students who attend medical school outside the state and also to establish special interview days in the primary care residencies for students from North Carolina medical schools, to increase their interest in matriculating at Brody/Pitt County Memorial Hospital.

Activities to support residents in primary care include joint sessions on practice management, a longitudinal home care curriculum, leadership and management training for the primary care chief residents, and research on factors that influence resident career plans. An innovative collaborative program, initiated in 1998 with the ECU School of Business, enables a resident to enroll in a 42 credit hour MBA program, which can be completed part-time or after completion of residency. Tracking of graduates from the predoctoral and residency programs reveals that from 1981-1997 graduates from BSOM or its affiliated residency programs were more likely to practice in medically underserved and non-metropolitan areas in North Carolina and eastern North Carolina. Initiatives to facilitate the retention of graduates include the provision of community ambulatory experiences and dissemination of information about financial incentive programs for practicing in primary care in underserved areas in North Carolina.

We are also in the final development phase of a program to support residents to obtain an MPH during their residency training. The program is being designed to promote community health activities, and to prepare residents to fulfill a dual physician-public health role in underserved communities. We anticipate matriculating our first residents in this program this summer.

The telemedicine program, which links distant sites with BSOM for consultation and for continuing education, is another critical initiative that reduces the isolation of physicians and other health professionals practicing in rural areas. The residents experience distance learning during Departmental Primary Care Conferences and Grand Rounds, at least three times a week. Those residents in the rural sites have available to them consultation with BSOM sub-specialists in many areas including Maternal-Fetal medicine, Dermatology, Cardiology (both adult and pediatric) and Allergy &, Immunology.

Our primary care departments continue to produce practitioners for North Carolina, with well over 50% of the graduating primary care residents entering practice in our state. Many of these choose to live and practice in communities with populations less than 100,000. Family Medicine has been successful in its recruitment of strong residents. Since 1999, there have been 81 graduates from the program. Of those 81, 41 (50.6%) have stayed in the state. Twenty percent (20%) are practicing in rural North Carolina. Since 1999 we have also had

24 residents in obstetrics/gynecology; 54% of them are practicing in North Carolina. Pediatrics graduates since 2000 total 53, 17 are in fellowship programs; 36 are in primary care practice and 17 (50%) are in practice in North Carolina and almost 90 % are in communities of less than 100, 000. Internal Medicine has also produced a large proportion of primary care practitioners in North Carolina with 79% (69/87) serving our state since graduating since 1996. As the data show, the BSOM primary care specialties are meeting the mission of the institution.

IV. PRACTICE ENTRY AND SUPPORT INITIATIVES

The BSOM Office of Generalist Programs and Health East, a subsidiary of University Health Systems of Eastern Carolina, are collaborating to support practicing primary care physicians and to facilitate physician retention in eastern North Carolina. Support for regional physicians is provided through practice management services, and education, as well as assistance in primary care physician recruitment. Support of community teaching sites link physicians to the medical center and provides peer interaction, continuing education, an opportunity to teach and to participate in research, and the respect and prestige conferred by association with an academic health center, including, for those engaged in teaching, an affiliate faculty appointment.

V. ADDITIONAL PROGRAMS

BSOM continues to be a co-supporter with Pitt County Memorial Hospital Eastern AHEC of the Annual Recruiting Fair held every fall. This event provides an opportunity for community hospitals in eastern North Carolina to meet students and residents enrolled in programs at Brody/PCMH. The students and residents learn about the health care workforce needs of the communities, and the communities have an opportunity to begin to develop relationships with students and residents. It continues to be well received by the hospitals and the students and residents, and several hospitals have recruited physicians for their communities as a result of the Recruiting Fair.

Primary care-based student organizations, including Interest Groups in Family Medicine, Pediatrics, and Medicine continue to be active at BSOM. An OB/GYN Interest Group has been active in the past few years with growing interest. A Rural Health Interest Group, established by the students, has continued to grow and sponsor activities and exposure to life as rural doctor. The school supports student travel to regional, state and national meetings as a component of students' professional development. The Office of Generalist Programs supports many of the functions of these interest groups with the director serving as mentor or co-mentor to many of them.

SUMMARY

The Brody School of Medicine at East Carolina University continues to be committed to its legislatively mandated mission to educate primary care physicians to meet the health care needs of Eastern North Carolina. Through many sound initiatives and strategies that we have continued over several years, and the addition of new innovative strategies, BSOM has been able to maintain, or even slightly increase, the percentage of medical students who choose to enter primary care residencies, and who ultimately practice primary care. In the 2005 National Residency Match Program (NRMP) the percent of students selecting primary care was 75% and 81% with OB/GYN. We continue to be proud of the percent of our graduates who are pursuing primary care against what continues to be national downward trend in primary care training. BSOM continues to strive to develop and implement strategies that will increase the number of medical students and graduates who return to eastern North Carolina, and more specifically to underserved areas in the state. Each year we add to the available pool of primary care providers in our state directly and indirectly through the graduate and undergraduate medical education programs. Although it is difficult to determine quantitatively, we also add to the pool of primary care providers who enter our state from other areas because of the medical school attraction to private physicians from other states who did not train in North Carolina. The challenges of the health care environment put increasing pressures on revenues and the pressure to provide increasing levels of clinical service competes with time for education and research, however BSOM continues to be mission-focused, working to increase the quantity and quality of primary care providers in North Carolina.

Report to the Board of Governors
of The University of North Carolina

Primary Care Medical Education Plan
2006 Update

The University of North Carolina at Chapel Hill

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April 2006

A report in response to General Statue 143-613 as amended by Chapter 507 of the 1995 Session Laws (House Bill 230) of the North Carolina Assembly

2006 Update: Primary Care Education Plan

The University of North Carolina at Chapel Hill School of Medicine

INTRODUCTION

The University of North Carolina (UNC) is committed to providing physicians to serve the health care needs of the citizens of North Carolina. Of the 16,989 physicians practicing in North Carolina in 2003, 26.9 percent or 4,565 of them were educated in North Carolina. Of the physicians receiving their medical education in North Carolina, 43.6 percent of these were educated at UNC. UNC is a national leader in primary care education and was ranked second in the nation in primary care by U.S. News and World Report (1).

In 1994, the UNC School of Medicine (SOM or the school) submitted a detailed plan to the Board of Governors for increasing to 60 percent the proportion of its graduates entering primary care practice. The range of initiatives designed to achieve the 60 percent goal detailed in the 1994 and 1996 reports to the Board of Governors were derived from an institutional planning process spanning 10 years. Development of these initiatives is an ongoing process at the UNC SOM. Our initiatives for increasing the number of primary care physicians practicing in North Carolina include pre-medical programs and programs aimed at promoting primary care as a career choice for medical students, and extend to programs aimed at retaining primary care physicians practicing in North Carolina. For the past two years, at a time during which the numbers of U.S. seniors going into primary care specialties have remained at 47 to 48 percent, the number of our graduating seniors going into primary care has hovered around 50 percent. Specifically, in 2005, 52 percent of our graduates entered primary care and in 2006, 54 percent entered a primary care specialty. Our goal and mandate is for 60 percent of our seniors to select primary care specialties. This document will review the programs we have in place to encourage primary care as a career choice, some of the factors affecting us and contributing to the declining numbers of U.S. seniors matching in primary care specialties, and our new initiatives developed to foster interest in primary care and generalist careers.

Nationally, the numbers of students going into primary care specialties peaked in 1997 (2). Primary care specialties, as defined by the North Carolina State Legislature, include Family Medicine, Internal Medicine, Obstetrics/Gynecology, Pediatrics, and Medicine/Pediatrics. In 2005, primary care residency matches were down nationally for the eighth straight year (2). Nationwide, the numbers of medical students choosing Family Medicine peaked in 1997 when a record 2,340 U.S. seniors filled Family Practice positions (2). The numbers of students going into Obstetrics and Gynecology also peaked in 1997, while those going in to Internal Medicine peaked in 1998 and Pediatrics peaked in 1999 (2). At UNC, the numbers of seniors going into Family Medicine peaked in 1998 when 20 percent of the class went into Family Medicine. The number of U.S. seniors matching in primary care Internal Medicine programs has also declined since 1998 (2). Figures 1 through 4 (Attachments) illustrate the comparison between the percent of students in the U.S. and at UNC entering Internal Medicine, Pediatrics, Family Medicine, and Obstetrics/Gynecology from 1989 through 2006.

A complex set of factors influence a student's career choice including personal social values, institutional culture, curriculum design, role models, and market forces (5). The SOM can do little about market forces and has been focusing on admissions criteria and curricular programs that will promote interest in primary care specialties. We suggest that the explanation for the recent decline in interest among U.S. seniors in primary care residency training programs is multifactorial and may include:

- a backlash from patients and physicians against gatekeepers and restricted access
- income disparities between primary care physician and specialists
- the perception that choosing a specialty career may permit greater control over one's professional life thus allowing more time for family and personal endeavors
- the recent tightening of the job market for primary care physicians
- the threat of competition from physicians extenders (nurse practitioners and physician's assistants)
- the growth in job opportunities for specialists (3,4,6,7,8,9)

Another factor that may be negatively influencing primary care as a career choice is Medicare funding for graduate medical education (GME). Currently, Medicare reimburses teaching hospitals for the cost of GME through two payment streams: direct medical education (DME) and the indirect medical education (IME) adjustment. Medicare determines a resident's training program's eligibility for graduate medicine subsidy GME funding based on the resident's internship year and the time it will take for the trainee to become board eligible. The trainee's eligibility is determined once and does not change if he/she switches specialties. For example, an intern who begins a general surgery residency will be board eligible for five years of funding because it takes five years of training to become board eligible in general surgery. The trainee will remain eligible for five years of DME funding even if he/she switches to internal medicine which takes only three years of training for board eligibility. In contradistinction, a resident who begins an internal medicine training program may face difficulty switching into general surgery because he/she will only be eligible for three years of DME funding. Some residency program directors are encouraging students to accept preliminary years in general surgery, instead of internal medicine, so that their institutions will not face a reduction in Medicare DME funding.

PREMEDICAL PREPARATION AND ADMISSIONS

Studies have shown that primary care role models are an important influence in encouraging primary care as a career choice and that dedication to community service predicts primary care practice choice (6, 7, and 10). These studies have led us to make the following adjustments to our admissions process:

- Appointment of a general internist as Associate Dean for Admissions and chair of the Admissions Committee
- Consideration of applicants' demonstrated dedication and experience in community service in the SOM selection process for admission.

The SOM actively recruits qualified underrepresented minority (URM) students in the state, region, and nation to better enable us to serve the health care needs of North Carolina's increasingly diverse population. Studies have shown that members of minority groups are more

likely to treat minorities and that patients have better access to health care when same-race physicians are available (11,12). Minority patients are more likely to disclose information to minority physicians and are more compliant with physician instructions (12, 13, 14). All of these factors lead to an improved quality of care for minority patients. Our commitment to increasing the number of underrepresented minorities in primary care is reflected in our establishment of programs that improve the preparation of minority applicants for careers in the biomedical sciences and actively recruit URMs to the health care professions. The diversity among UNC medical students enhances the quality of our learning environment because students are exposed to cross-cultural experiences among their peers. The resulting increase in cultural competency among our students leads to improved quality of care for minority patients.

The SOM's Office of Educational Development developed and conducts programs designed to enhance the competitiveness of disadvantaged and URM applicants to medical school. The centerpiece of these efforts is the **Medical Education Development (MED) Program**, established in 1974 to prepare rising college seniors and college graduates who aspire to attend medical or dental school. This nine-week summer program simulates the medical school environment with rigorous coursework in the basic sciences, training in test-taking skills, and academic counseling. The program, funded by a federal Health Careers Opportunities Program grant, serves students from disadvantaged backgrounds and underrepresented minority groups. In operation since 1971, the program has served close to 2,000 participants as of 2005. Approximately 82 percent of the program graduates applied to health professions schools and 88 percent of former participants who applied to health professional schools were accepted. Among those who were North Carolina residents, former participants have represented 72 percent of minority matriculates to the UNC Schools of Medicine and Dentistry. Priority for admission into the MED Program is given to North Carolina residents. MED participants have chosen primary care careers in underserved areas in greater numbers than have non-MED participants.

The Office of Educational Development also offers the **Research Apprenticeship Program** for rising high school juniors and seniors to increase the number of disadvantaged students who pursue careers in the science fields. The seven-week program exposes students to basic and/or clinical research through an apprenticeship experience. Other UNC-CH programs include the **Summer Enrichment in Mathematics and Science Program** for high school students and the eight-week **Science Enrichment Program** for rising college juniors and seniors.

THE MEDICAL SCHOOL CURRICULUM

The First Two Years

Studies have shown that longitudinal experiences in primary care promote interest in primary care as a career choice (10). **The Introduction to Clinical Medicine (ICM)** course, implemented in 1995, represents about 20 percent of the total instructional hours in years one and two of the medical school curriculum and includes interviewing, physical diagnosis, the doctor/patient relationship, and clinical reasoning. This course incorporates longitudinal experiences in primary care in the form of its five community weeks. Students work directly with a generalist role model and experience primary care practice in a community setting. Each year, between 215 to 225 primary care practitioners participate as preceptors, each hosting a single student for five separate weeks during the first and second years. The Area Health Education Centers (AHEC) Program was launched in the early 1970s and all nine of the AHEC-

based Offices of Regional Primary Care Education (ORPCEs) support this effort by helping to identify potential physician preceptors in their regions, and by providing coordination and logistical support for the students all over the state of North Carolina. In addition, 32 primary care faculty tutors in Chapel Hill teach small group seminars in the ICM course each week during the year. Our annual analyses of the influence of the SOM curriculum on our students' career choices indicate that, for students with an initial interest in primary care, the community-based clinical experiences provided by the ICM course are strong positive influences toward primary care careers.

The SOM has recently added the **Clinical Applications Course** to the first-year curriculum. The CAC provides students with the opportunity to apply basic science knowledge to real world medical problems and begin to reframe their thinking about medical science in the context of the doctor-patient relationship. Students are presented with patients, rather than facts or concepts, and explore the patients' medical issues as they relate to the person as a whole. This process imparts an appreciation for the idea that medicine is not practiced in a vacuum but rather in a context of emotion, society, and culture which define a "whole" patient. The patients encountered in this course form a basis for active learning to teach not only the integration and application of scientific topics as they relate to clinical medicine, but also to introduce the thought process which a physician uses to interact with and ultimately help the patient. The course seeks to teach how the basic sciences contribute to the understanding of the human condition and thus our care of patients and the dynamic interaction between basic science and clinical care of patients, recognizing the inherent uncertainties in such care.

During the summer following the first year, students are encouraged to pursue opportunities that cultivate their career interests. The Department of Family Medicine offers the elective **Working with the Underserved Preceptorship Summer Program**, a six-week summer program that combines a week-long intensive training in medical Spanish with a five-week attachment with a practicing community physician who cares for an underserved population. Students can earn fourth-year elective credit for this program.

The SOM has recently initiated the **Career Opportunity Series (COS)**. The COS consists of lunchtime lectures and panel discussions about pursuing careers in different medical specialties. This program is coordinated by the Whitehead Medical Society, student specialty interest groups, and the Program on Prevention. On March 31, 2004, Dr. Fitzhugh Mullan, Professor of Pediatrics at George Washington University, former head of the National Health Service Corps, and author of a recent book on primary care, lead a COS session on pursuing a career in primary care. His presentation was extremely well received and approximately 190 students attended his lecture.

The Third Year

Studies have shown that a student's experience in family medicine has a significant impact on generalist career intentions and that schools with family medicine departments and required clerkships tend to have more of their students enter primary care specialties than schools without this clerkship (17,18). UNC's six-week **Family Medicine Clerkship** is a requirement for all medical students during their third year. The clerkship takes place at 95 community practice sites throughout the state, coordinated through six of the North Carolina AHEC Programs and their Offices of Regional Primary Care Education (ORPCE).

To expose students to primary care pediatrics and internal medicine practices, all students are required to complete two weeks of the **Pediatrics Clerkship** and four weeks of the **Medicine Clerkship** in an outpatient, ambulatory setting, usually at a community-based site coordinated through the AHEC and ORPCE programs. The Obstetrics/Gynecology clerkship also has an outpatient, ambulatory care component. Again, our analyses of curricular influences on career choice confirm that the Family Medicine, Medicine, Pediatrics, and Obstetrics/Gynecology clerkships are strong positive influences toward primary care careers, especially for students who entered medical school with an interest in primary care.

The Fourth Year

In the fourth year, students are required to take an **Ambulatory Care Selective**. This rotation comes at a time when students are refining their skills and are ready to function independently. Rotations in ambulatory care at this stage have a significant impact of the choice of a generalist career (16). During the selective, students make an independent learning plan to improve their clinical skills, explore community resources, and increase their understanding of the role of the practitioner and the practice in caring for the illnesses of patients, while promoting the health of patients, their families and communities. Over 150 community-based primary care practitioners participate as preceptors at over 40 sites, each hosting one or more students for four weeks during the fourth year. All nine of the AHEC-based Offices of Regional Primary Care Education (ORPCEs) support this effort by helping to identify potential preceptors in their regions, and by providing coordination and logistical support for the students. Six primary care faculty in Chapel Hill act as departmental coordinators for the Ambulatory Care selectives.

A number of **elective courses in primary care disciplines** are available to fourth-year students. As a reflection of our excellence in rural health and family medicine, the Department of Family Medicine offers over 10 electives in rural and other primary care settings in North Carolina. These include courses such as Family Medicine and Community Fieldwork, Western North Carolina Adventure in Family Medicine, and Principles & Practice of Alternative & Complementary Medicine. Other electives relevant to training in primary care are offered through our Department of Medicine, including Clinical Experience in Community Medical Practice, Rural and Underserved: An Interdisciplinary Approach to Health Care, and Interdisciplinary Teamwork in Geriatrics. Similarly, our Department of Obstetrics and Gynecology offers the elective, Community Obstetrics and Gynecology.

Ethnicity, Culture and Health Outcomes Certificate Program

In 2005, the UNC Department of Family Medicine received a grant from the Bureau of Health Professions, Department of Health and Human Services, for a three-year program aimed at targeting medical students with specific interests to address the disparities in health care experienced by the underserved. One is to create a four-year program in Health Disparities. This program is modeled on the Ethnicity, Culture and Health Outcomes (ECHO) Certificate Program offered through the UNC School of Public Health. Students, who are recruited into the program in the fall semester of their first year, take a series of electives throughout their medical school training. The electives prepare students to address different aspects of health disparities. Students can understand research projects in different health disparities, and are required to complete a scholarly paper in their fourth year. During the first year of the project, eight first year.

Medical Spanish

North Carolina's Latino population increased by 94.7 percent in the 1990s. The Latino community here faces both language and cultural barriers to the state's health care system. With the great influx of Latino patients seen in primary care settings, it is important to train physicians to communicate with these patients. To address this need, UNC SOM students and faculty have created a series of beginning, intermediate, and advanced elective, non-credit medical Spanish and culture courses taught by a faculty member from the Department of Romance Languages. The intermediate and advanced classes have been offered since January 2000 and the beginning class since August 2002. Students learn basic medial terminology in Spanish, gain confidence in working with Spanish-speaking patients, and learn how the culture of Spanish-speaking patients may affect their interactions in the clinical setting. In addition, health affairs students and social work students are eligible to take online courses in intermediate and advanced Spanish for health care designed to improve Spanish language skills and awareness of Latino culture.

The SOM recently instituted a longitudinal Spanish language and cultural track, the Comprehensive Advanced Medical Program of Spanish (CAMPOS), encompassing the four years of study. This program is funded through a grant to our Department of Family Medicine. Course directors identify incoming first-year students' proficiency in Spanish and their desire to be placed in a predominately Spanish-speaking community and clinical practice for their five weeks of ICM community practice and in some community-based portions of the clinical clerkships. The goal is to create bilingual and bicultural physicians.

Fourth-year students have an opportunity to practice and improve their knowledge of conversational and medical Spanish through an international elective in Peru. This international exchange program with the *Universidad Nacional de Trujillo* in Trujillo, Peru allows students to join the medical team at a university hospital for one or two months. Students select an area of study such as Internal Medicine, Dermatology, Obstetrics/Gynecology, or Ophthalmology. An additional Spanish language and culture course currently is being developed through the UNC Office of the Provost. *Au Su Salud* is a four-unit online program focusing on Spanish language as used in health care settings. Its development is supported by a grant from the U.S. Department of Education's Fund for the Improvement of Post-secondary Education.

MD/MPH Combined Degree Program

The **MD/MPH program** seeks to train leaders for the evolving health care environment of the 21st century. The goal is to provide students with the opportunity to integrate the individual patient perspective with that of the population sciences, thus strengthening each. In 2004, eight students received an MPH (or MSPH) degree along with their MD degree and in 2005, thirteen students completed both degrees. It is anticipated that sixteen members of the Class of 2006 will has also earned an MPH or MSPH. The interdisciplinary **Health Care and Prevention MPH Program** (under the School of Public Health Public Health Leadership Program) was designed specifically for medical students and clinicians who wish to broaden their perspective and increase their career options. The Health Care and Prevention MPH Program is a joint effort between UNC's School of Medicine and School of Public Health. The goal of the program is to prepare students for leadership roles in a variety of clinical settings, whether as practitioners in their own practices, or as leaders of primary care group practices or health care plans.

Faculty Development

In addition to fostering programs in our curriculum to promote interest in primary care specialties, we have also focused on programs aimed at retaining primary care physicians in generalist practices and in helping primary care physicians become effective teachers. To effectively prepare students for contemporary practice has required a shift from hospital-based to community-based education. In these "schools without walls," it is important to ensure the quality and consistency of educational experiences across sites and support the clinicians who volunteer to teach our students. To address this need, we have instituted faculty development programs for community practitioners who serve as part-time faculty. Programs for these faculty, who are busy caring for a large number of patients, must use non-traditional formats that are efficient, flexible, and easily distributed. The **Expert Preceptor Program**, developed by the Office of Educational Development in collaboration with the AHEC Program, uses several different formats to meet the needs of widely dispersed community faculty. Preceptors may complete the program via paper-and-pencil independent study modules, by enrolling in seminars offered by the regional AHECs, or on the World Wide Web using a program called the **Expert Preceptor Interactive Curriculum** (**EPIC)**, available at http://www.med.unc.edu/epic. EPIC was developed by the Office of Educational Development and Office of Information Systems, with funding from the U.S. Department of Education's Fund for the Improvement of Post-Secondary Education (FIPSE).

The EPIC program consists of eleven modules aimed at helping preceptors develop their skills in clinical teaching and in teaching students about issues in community practice. Each of the first three modules focuses on one critical skill related to clinical teaching in the community practice setting. Topics include (1) setting the stage, (2) effective teaching, and (3) evaluating performance and giving feedback. The remaining eight modules focus on methods for teaching contemporary health care issues. These modules address (1) interdisciplinary teamwork in health care, (2) information technology, (3) evidence-based care, (4) clinician-patient relationships, (5) managing care in the changing practice environment, (6) health promotion/disease prevention, (7) working with the community, and (8) culturally appropriate care. Participants earn continuing medical education (CME) credits for the completion of each module. "Expert Preceptor" designation is available to preceptors who complete eight of the eleven modules.

In addition to EPIC, another resource for community-based primary care faculty preceptors is ***The Front Line***, a quarterly newsletter published by the Office of Educational Development. This publication, also available online at http://www.med.unc.edu/oed/frontline/, provides information to help these faculty improve their teaching of UNC medical students on community rotations.

SERVICE LEARNING OPPORTUNITIES FOR STUDENTS

Student-run Organizations

There are several student-run organizations that give students learning opportunities in primary care. These include organizations focused on providing primary care to underserved patients, teaching youth about health issues and health careers, and providing medical students with learning opportunities in primary care.

Medical students themselves have conceived, planned and implemented many of the community service efforts emanating from the School of Medicine. In some of these programs, students provide health care services under the supervision of UNC faculty and community preceptors who volunteer their time. A leading example of this type of program is the **Student Health Action Coalition (SHAC) Clinic**. In operation for 38 years, it is the oldest continuously operating, student-run free clinic in the country. SHAC serves community members free of charge and requires an annual operating budget of $30,000.In 2002, SHAC leaders established the SHAC Endowment Fund with the goal of ensuring financial stability for SHAC.

The SHAC Clinic is multidisciplinary and includes students from the Schools of Medicine, Public Health, Pharmacy, Dentistry, Nursing, and Social Work, and the Division of Physical Therapy. This multidisciplinary environment replicates the team approach taken by many contemporary primary care practices. Many students volunteer throughout medical school at the weekly SHAC clinic.

In 1999, students added **mobile SHAC** to provide well-person checkups and social support to underserved senior citizens in their homes. Students are assigned to visit a patient each month for a one-year period. At these visits, students interview patients to keep abreast of health problems, check vital signs and medications, and assess the safety level in the home. In 2003, SHAC leaders developed **SHAC Outreach** to build healthier communities through education and community-based health promotion. SHAC Outreach recruits students from the UNC Schools of Dentistry, Medicine, Nursing, Pharmacy, Public Health, and Social Work, as well as the Division of Physical Therapy, to partner with members of underserved communities. Through these partnerships, students and community members develop and implement a community health promotion program to address a specific concern of that community.

Two other elements of the SHAC program are **Health for Habitat** and a variety of special programs offered by SHAC including the annual **Kindergarten Clinic**. Health for Habitat is a partnership of the University of North Carolina Schools of Pharmacy, Public Health, Dentistry and Medicine, joined with Habitat for Humanity of Orange County and a Habitat Family to finance and construct homes in Orange County. Health for Habitat received a Community Grant from the American Association of Medical Colleges. The Kindergarten Clinic offers physical exams and vaccinations for children entering public school.

Through the UNC SOM chapter of the **North Carolina Student Rural Health Coalition** (NCRHC), students provide primary care, lab services, and health education at a free clinic for low-income, rural patients in the Bloomer Hill (Edgecombe County) community. The NCRHC is committed to teaching its members about conditions that contribute to poor health, developing skills and sensitivity needed to address these conditions, and introducing members to related career options. Students working with the clinic can also take the **Rural Health Elective** which is based on the rural health clinics held at Bloomer Hill. The purpose of this elective is to discuss topics and diseases that are frequently seen in the rural health clinics. The class meets once a month, usually the first week after the Bloomer Hill Clinic.

Because of the growing Latino population in the surrounding area, students formed the **Spanish-speakers Assisting Latinos Student Association (SALSA**) to address the health departments' need for Spanish-speaking health care providers and interpreters. SALSA also serves the SHAC Clinic.

The **Health Professions Recruitment and Exposure Program (HPREP)** and the **Youth Science Enrichment Program (YSEP)**, sponsored by our chapter of the **Student National Medical Association (SNMA)**, seek to increase minority presence in the health professions. HPREP introduces high school students to career options in the health professions by teaching them about various medical conditions that exist in their families and communities. This project was recognized in a national competition when it won an award from the Student National Medical Association at its 1998 annual meeting. YSEP targets minority elementary students to stimulate their interest in the sciences and health professions. The UNC chapter of the **SNMA** also holds blood pressure screenings and a health fair to increase the awareness of preventable minority health problems such as diabetes, hypertension, and HIV.

Through **Students Teaching Early Prevention (STEP on STDs and STEP on Heart Disease)**, medical students teach middle school adolescents about the prevention of STDs and heart disease.

A variety of student-run interest groups help our students to explore careers in primary care. These groups typically meet monthly to hear a guest speaker and include the **Family Medicine Interest Group, the Internal Medicine Interest Group, the Pediatric Interest Group, and the UNC Chapter of the American Geriatrics Society**.

The **Honduran Health Alliance** is a collaborative of organizations and individuals who work together to promote sustainable development in public health. Program partners currently focus their efforts on the Women's Health Education and Screening Project. This project is geared towards promoting basic education about women's reproductive health. Though planning and collaboration occurs throughout the year, the outreach project takes place annually each July in the southern department of Choluteca, Honduras with member communities of *Las Communidades Unidas*, a community cooperative. There, in an elective sponsored by our Department of Family Medicine, students from the University of North Carolina's Schools of Medicine and Public Health work with local lay health promoters to teach men and women about basic reproductive health issues, nutrition and sanitation. Under the supervision of preceptors, students also organize and run a screening clinic for community women. Follow-up care is provided by Alliance partners at all levels of the health care system, from community clinics to tertiary care centers.

School-Sponsored Service Learning Opportunities

The **Program on Aging** (POA) (http://www.med.unc.edu/wrkunits/3ctrpgm/aging/) is an interdisciplinary group of professionals who promote the health and well being of North Carolina's older citizens. Its mission is to promote collaborative research in aging and in basic and clinical sciences; develop innovative geriatrics and gerontological education programs for physicians and multidisciplinary health professionals in training and practice; provide leadership for the development of interdisciplinary clinical services for older patients; and provide consultation to public and private agencies that serve older citizens. The program holds an annual continuing education conference and provides information via its web site (www.med.unc.edu/wrkunits/3ctrpgm/aging/) on topics relevant to geriatrics such as urinary incontinence, dementia, pain and symptom management, chronic disease, wellness, falls prevention, program planning and physical activity. Through the Program on Aging, medical students are able to take a variety of fourth-year electives and to participate in the Hubbard

Program for Collaborative Clinical Practice in Geriatrics, an interdisciplinary team training program focused on geriatric assessment. Students gain knowledge and skills in collaborative interdisciplinary practice applied to the care of geriatric patients in the context of family, home, and community. In addition, the team's work contributes to patient care by providing comprehensive assessments of patients referred to the team and recommendations to referring caregivers. The Program on Aging research staff also works individually with interested students and fellows to mentor **independent study and research** in geriatrics.

School of Medicine Recognition Activities Honoring Community Service

Studies have shown that dedication to service predicts primary care choice. One of the main goals of the School of Medicine is to instill in students the ethic of service. The **Eugene S. Mayer Community Service Honor Society** was created in 1994 to honor students' outstanding contributions in community service work. Since its founding, the Mayer Society has inducted nearly 400 students and has showcased their contributions at an annual **Community Service Day.** The Mayer Society has recently begun to induct community preceptors and to honor them at Community Service Day. The Society also collaborates with students from other health affairs schools to produce a journal, ***Insight Out***, which is dedicated to exploring the value of community service.

The **Zollicoffer Lecture** was established in 1981 by the Student National Medical Association in honor of Dr. Lawrence Zollicoffer, a graduate of the UNC School of Medicine. The purposes of this event are to increase awareness of minority health and community issues and to introduce students to dynamic minority role models in the field of medicine. The lecture recognizes Dr. Zollicoffer's commitment to civil and human rights, and commemorates over 40 years of minority presence in the school. In addition, each year a student is awarded the **Lawrence Zollicoffer Community Health Fellowship** funded by faculty donations. The purpose of this fellowship is to encourage medical students to learn about health issues related to minority and underserved communities through a community service project of the student's own design. Each year the Zollicoffer Lecture and banquet are held on a Friday and our Community Service Day is held the following day. Our annual applicant appreciation day for underrepresented minority students also coincides with these two events, enabling our applicants to become familiar with some of the community programs in which students are involved.

Our annual **Student Research Day,** sponsored by the Whitehead Medical Society (student government) and John B. Graham Student Research Society, includes epidemiological and clinical research as well as basic science research. Topics such as "States Attempts to Combat Childhood Obesity Epidemic via School-based BMI Screening and Reporting," "Identification of Patients at High Risk for Diabetes in Primary Care," "Poor Nutritional Habits: A Modifiable Predecessor of Chronic Disease" demonstrate our students' interest in integrating basic science concepts, population science, and clinical practice.

Each year, just prior to commencement, the SOM holds the **Senior Awards** ceremony Recipients are selected from nominations by members of the graduating class, nominations by faculty, or selection by academic departments. Several of these awards recognize community service or dedication to primary care, including the Family Medicine Student Award, the Cecil G. Sheps Award, the Leonard Tow Humanism in Medicine Award, and the Cuthbertson and Danton Award.

The June C. Allcott Fellowship is awarded to two students each year who have demonstrated excellence in community service and financial need.

UNC RESEARCH RELEVANT TO PRIMARY CARE

UNC's **Cecil G. Sheps Center for Health Services Research** (http://www.shepscenter.unc.edu/) seeks to improve the health of individuals, families, and populations by understanding the problems, issues and alternatives in the design and delivery of health care services. This is accomplished through an interdisciplinary program of research, consultation, technical assistance and training that focuses on timely and policy-relevant questions concerning the accessibility, adequacy, organization, cost and effectiveness of health care services and the dissemination of this information to policy makers and the general public. One of the center's main research programs is in health professions and primary care. Current research efforts in this program include addressing issues of recruitment and retention of health care practitioners in rural practice, as well as the projection of need and demand for health professional personnel. Recently published work is listed in references 17, 18, and 19.

SUMMARY

We have responded to research findings that suggest that a strong background in community service, upbringing in a small town or rural area, and disadvantaged background all predict the choice of primary care practice careers. Our Associate Dean for Admissions is a primary care physician. Observation of physician role models who practice in small communities accompanies the study of basic science through Introduction to Clinical Medicine. Course offerings and extracurricular activities encourage and reward study of and contribution to the health of communities. Successful projects can lead to presentations at our school's Student Research Day and Community Service Day. Service is recognized by election to our Eugene S. Mayer Community Service Honor Society and through Senior Awards and the Allcott Fellowship. Combined degree programs of MD-MPH invite students to gain formal academic training and credentials that will enable them to be leaders of generalist physicians and participate in the creation of new knowledge in this field. Clinical training emphasizes the practice of evidence-based medicine, integration of psychosocial factors in diagnosis and management of patients, and consideration of health promotion and disease prevention in the population. We are improving our efforts in faculty development for community preceptors that will assist both their teaching capabilities and standardize our education process across preceptor sites. Our educational programs supporting primary care training have received funding from extramural agencies such as the Bureau of Health Professions, Department of Health and Human Services, and the Donald W. Reynolds Foundation.

During the past decade, the selection of primary career specialties has trended downward among U.S. seniors. Although we have many programs and initiatives assembled to support students in choosing primary care as a specialty and the UNC SOM faculty continues to be national leaders in primary care education, the number of students entering primary care has fluctuated over the past 10 years from a high of 59.8 percent in 1998 to a low of 45 percent in 2003. We are studying the factors that have contributed to the career choices of our students with the hope that this information can be used to improve our programs to promote interest in generalist careers among students. The SOM remains as committed as ever to fostering programs

that will sustain students' interest in applying for primary care residencies and show them the rewards of a generalist practice career in the underserved communities of our state.

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ATTACHMENTS

Figure 1. Internal Medicine 1989 to 2006 US and UNC Student Placements

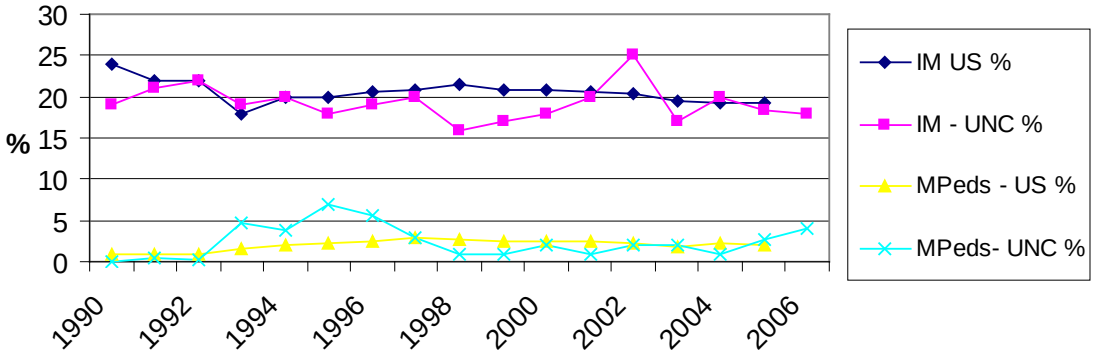


Figure 2. Pediatrics 1989 to 2006 US and UNC Student Placements

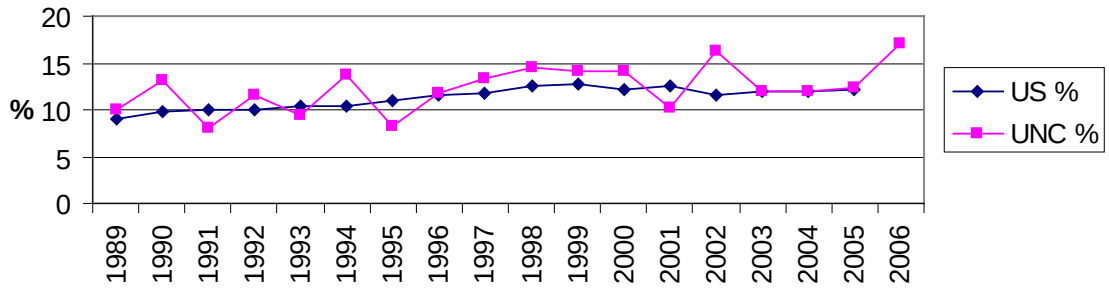
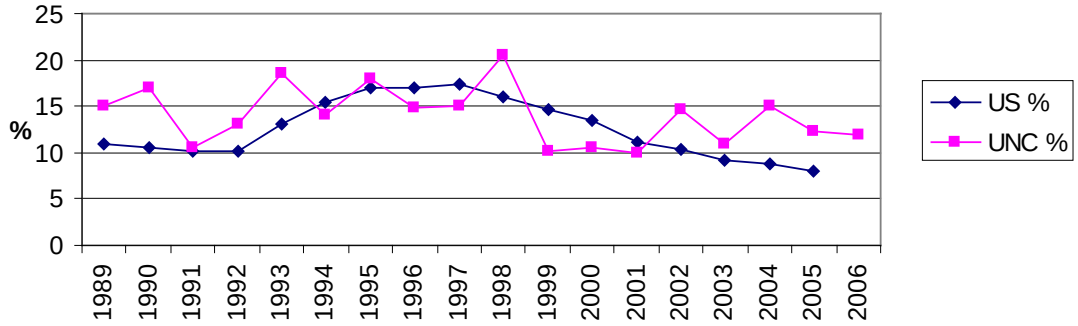


Figure 3. Family Medicine 1989 to 2006 US and UNC Student Placements



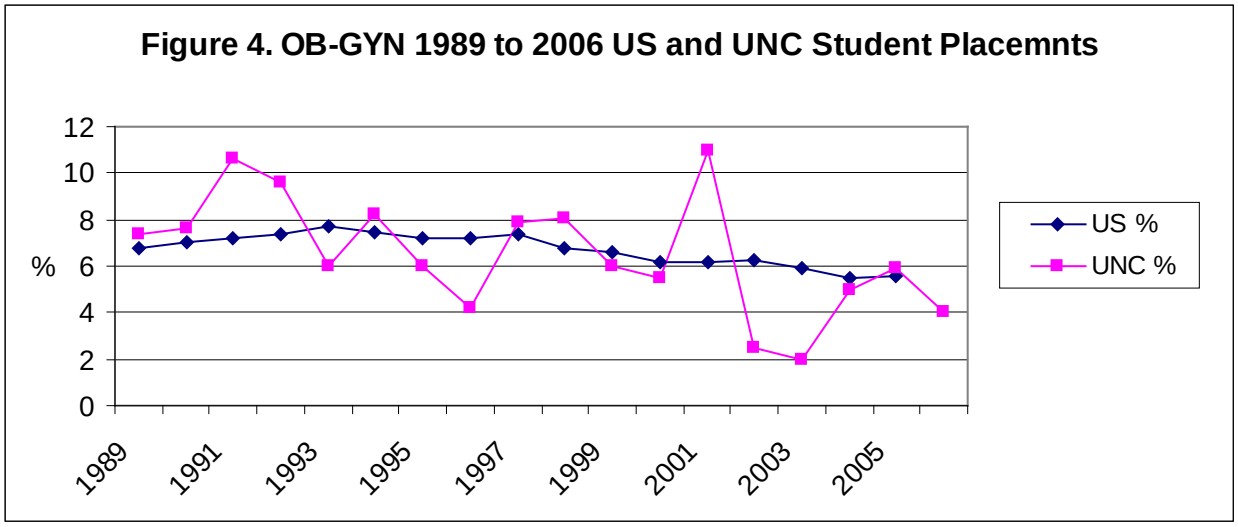


Figure 4. OB-GYN 1989 to 2006 US and UNC Student Placemnts
12
10
8
6
4
2
0
%
1989
1991
1993
1995
1997
1999
2001
2003
2005
US %
UNC %

Report to the Board of Governors of The University of North Carolina

Primary Care Medical Education Plan
2006 Update

from
Wake Forest University School of Medicine

March 2006

Respectfully submitted by

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and

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Associate Dean for Education

A report in response to General Statute 143-613 as amended by Chapter 507 of the 1995 Session Laws (House Bill 230) of the North Carolina General Assembly

In 1994, the Wake Forest University School of Medicine submitted an Institutional Plan for Increasing the Number of Generalist Graduates. Initiatives described in the plan included the Primary Care Development Program, the Department of Family Medicine, the partnership with Forsyth County in providing care for the indigent, the administration of the Northwest Area Health Education Center, and the Interdisciplinary Generalist Curriculum. This update will focus on current and planned initiatives, which are directed toward ensuring that our educational programs meet the needs of our students and society.

Programmatic efforts since the last report have been focused in the following areas:

1. **Enrollment**

Our 1994 report noted that since 1976, when the General Assembly appropriated funds to give North Carolina students an enhanced opportunity to attend medical school, WFUSM had consistently allocated a disproportionately high percentage of the positions in each class to North Carolina Students. However, because of static funding by the legislature and loss of the Board of Governor scholarships, we anticipate a decrease in training primary care physicians for North Carolina. We had 5,983 applications for the 2005 entering class, 627 from North Carolina residents. Forty-one North Carolina residents were selected for the 108-member Class of 2009. Over the past three years, 2003-2005, WFUSM has enrolled 159 North Carolina residents. See appendix for a fourteen-year trend of applications to WFUSM.

2. **Curriculum**

A. Community Practice Experience

The *Prescription for Excellence Curriculum* was introduced in 1998. Students complete a four-week experience with a primary care practitioner as part of their Community Practice Experience course. During this academic year, over 200 students from the classes of 2008 and 2009 were spread throughout North Carolina for their CPE experience. As part of this experience, students complete a community profile and learn about the community resources available to the physicians in the practice to which they are assigned.

B. Ambulatory Clerkships

During their third year (Phase III), students complete four-week rotations in Ambulatory Internal Medicine and Family Medicine. The Pediatric rotation includes a four-week ambulatory component, and the Women's Health/Obstetrics/Gynecology rotation includes two weeks of ambulatory experience. Additional primary care experience is available via electives in Phase IV of the curriculum. Multiple community-based practice sites are utilized for student education in these clerkships.

3. **Office of Regional Primary Care Education**

Our 1994 report noted the School's responsibility for administration of the Northwest Area Health Education Center (AHEC). The Northwest AHEC provides financial support for faculty and residents in the Departments of Family and Community Medicine, Internal Medicine, Pediatrics, Obstetrics and Gynecology, and Psychiatry, and for medical students during their community-based primary care rotations. In 1994 AHEC established the Office of Regional Primary Care Education (ORPCE) Program to support medical school initiatives in this area. ORPCE staff have been extremely helpful in facilitating achievement of the school's primary care education goals.

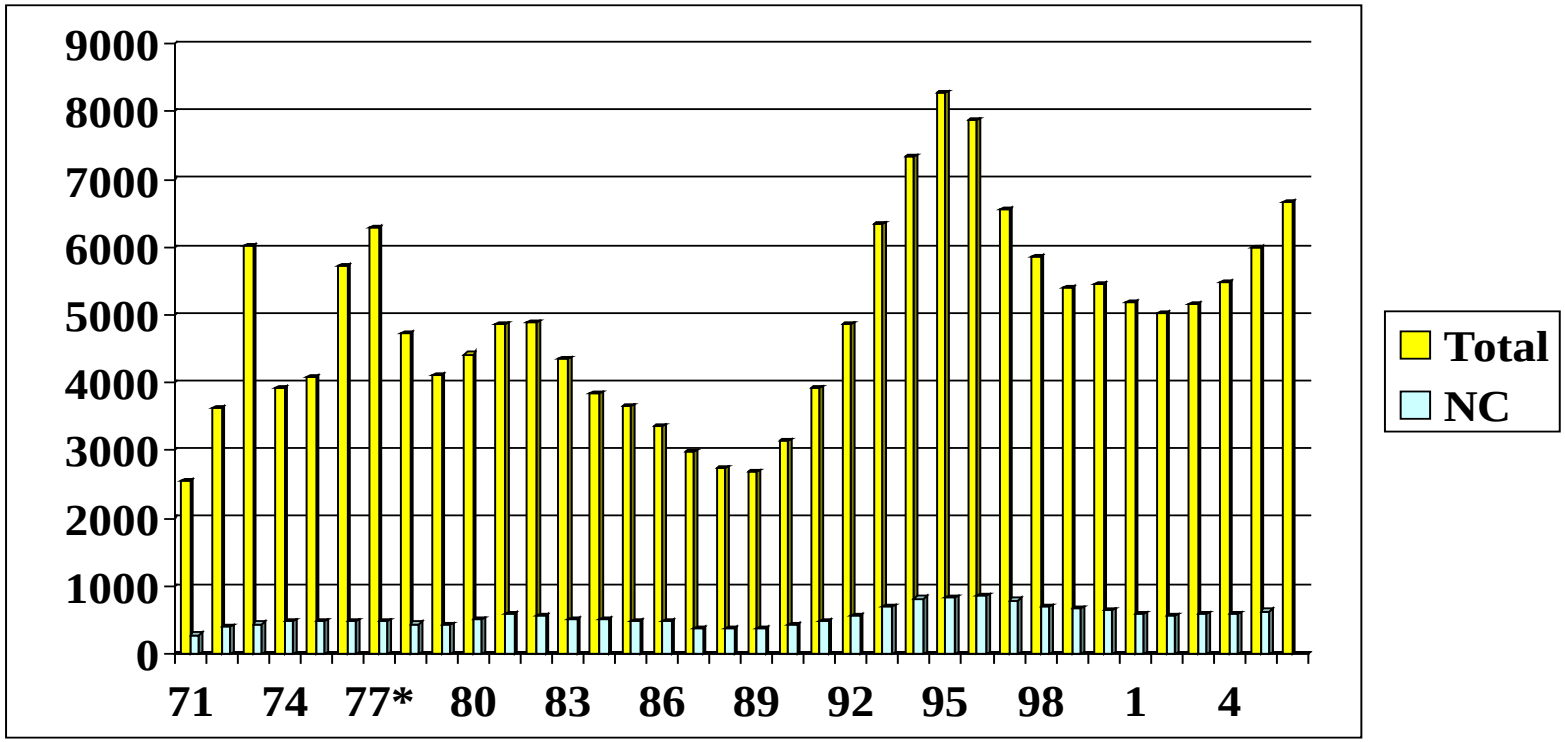
4. **Program Evaluation**

The School regularly tracks the residency selection of its graduating classes. During the past three years an average of 57.9% of the class have selected a first-year residency position in family practice, obstetrics and gynecology, internal medicine and pediatrics (see appendix for 18-year trend).

5. **Summary**

The programs described in this document have been designed to address societal needs with respect to generalist physician education. As noted previously, we have implemented *The Prescription for Excellence Curriculum* which contains a significant emphasis on population and community health. This curriculum was designed to provide graduates with the requisite knowledge, skills and personal characteristics needed by physicians in the first stage of the 21st century. We look forward to continued evolution of our educational program to ensure that we are preparing students to serve the health care needs of our citizens.

Applications to BGSM and WFUSM



Percent of Wake Forest University
School of Medicine Students

Entering Primary Care Specialties *

1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
44%	46%	56%	49%	41%	50%	51%	65%	58%	52%	64%	58%	64%	60%	45%	58%	59%	56%

* Family Practice, Internal Medicine, Obstetrics - Gynecology, Pediatrics, Medicine-Pediatric

AN UPDATE ON PRIMARY CARE MEDICAL EDUCATION PROGRAMS

THE N.C. AREA HEALTH EDUCATION CENTERS (AHEC) PROGRAM

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Program Director, N.C. AHEC Program
UNC School of Medicine

This report is submitted to the Board Governors of the University of North Carolina in response to General Statute 143-613 as contained in House Bill 230 passed in the 1995 legislative session.

April 11, 2006

2006 Update: Primary Care Education Plan
The N.C. Area Health Education Centers (AHEC) Program

Introduction

In 1994, the four schools of medicine and the N.C. AHEC Program submitted primary care educational plans designed with the goal of encouraging North Carolina residents to enter primary care disciplines. The plans of the four schools build upon the unique missions and programs of the schools. Although specific activities differ among the schools, they are all implementing initiatives in similar areas in order to increase the percentage of graduates choosing careers in primary care. The biennial updates to the original plans make it clear that the schools build upon their long standing relationships with the N.C. AHEC Program in order to conduct increased medical student and primary care residency training in community settings, with a particular emphasis on rural and underserved areas. The following sections provide an update on the AHEC plan for primary care residency expansion and support of medical schools training.

AHEC Plan for Primary Care Residency Expansion

Background. The General Assembly has given strong support to the training of primary care residents dating back to its appropriation to the AHEC Program in 1974. In 1974, the General Assembly provided funding to the AHEC Program for the expansion of primary care residency programs at the four schools of medicine and at those AHECs having the capacity to develop new primary care residency programs and/or to expand existing programs. Primary care was defined by the General Assembly as family practice, internal medicine, obstetrics-gynecology, and pediatrics. The 1974 legislation provided $15,000 grants to support 300 new primary care residency positions established after 1974. This number was reduced to 281 positions in response to reductions in the state budget sustained by the AHEC Program due to the fiscal crisis that faced the state in 1990-91 and 1991-92. The 1995-96 Expansion Budget grant supported five new residency positions in family practice. The 1997 AHEC Expansion Budget provided support for additional new family medicine positions as called for in the 1994 plan. Budget reductions of the past three years have resulted in the total number of stipends being reduced to 324.

The following chart shows the allocation of the $15,000 residency training grants as of April 2004. It should be noted that the financial amount of these residency grants has not changed since 1974, and now, supports only a small portion of the full cost of the training provided. For those positions funded at the four schools of medicine, there is an obligation to rotate residents to community practice sites, thus broadening the community impact of the funding.

Distribution of AHEC Funding for Primary Care Residents 2004-05

AHEC	Family Med.	Int. Med.	Med./Peds.	Ob/Gyn	Peds.	Total
CHARLOTTE AHEC	47.03	4.97		2.00	6.00	60.00
COASTAL AHEC	10.75	12.00		6.00		28.75
DUKE UNIVERSITY	10.75	10.75		5.75	8.75	36.00
EASTERN AHEC	32.55	17.25	1.00	1.00	1.00	52.80
GREENSBORO AHEC	14.00	7.00			4.00	25.00
MOUNTAIN AHEC	30.00			3.00		33.00
S. REGIONAL AHEC	16.00					16.00
WAKE FOREST UNIV.	30.00	6.00		1.00	3.50	40.50
WAKE AHEC	2.15	5.00		2.86	4.34	14.35
UNC HOSPITALS	11.00	2.00	3.35		1.50	17.85
TOTAL	**204.23**	**64.97**	**4.35**	**21.61**	**29.09**	**324.25**
Total Positions	**324.25**					
Total Funding	**$4,863,750**	**(324.25 x 15,000)**				

Current Status: Primary Care Residency Training in North Carolina, 2006. **Two types of expansion of primary care residencies have occurred in North Carolina. The first was the development of new family practice residency programs. The second was the expansion of existing primary care residency programs. The expansion of these residency programs is coupled with an expanded commitment for the training of primary care residents in rural and inner-city areas. In many cases, this included developing rural tracks for second- and third-year family practice residents.**

According to the National Resident Matching Program there are 574 first-year residency positions available in North Carolina, with 323, or 57 percent in the primary care specialties of family practice, internal medicine, pediatrics, and obstetrics/gynecology. These 323 first-year positions in primary care represent an increase of 21 positions since 2000. The following presents the status of primary care residency training in the state as of April 2006.

AHEC Family Practice Residency Programs

Coastal AHEC: New Hanover Regional Medical Center Family Practice Residency Program, developed in conjunction with UNC-Chapel Hill and Coastal AHEC in Wilmington, has a total of twelve residents, four in each of three years. Primary goals are increasing the supply of family practitioners in southeastern North Carolina, as well as improving the retention of primary care physicians. With additional foundation and federal funding, Coastal AHEC has developed special rural experiences for their family practice residents in selected regional communities.

Cabarrus Family Medicine Residency: The Cabarrus Family Medicine Residency Program in Concord has a total of 24 residents, eight in each of three years. The program graduated its first class of eight residents, in June 1999. Of the first seven classes to complete this training at Cabarrus, over 80 percent have remained in North Carolina, and 53 percent have gone to small towns or rural areas.

Mountain AHEC: The Mountain AHEC expanded its 24-person family practice residency program by adding a rural track in Hendersonville with two residents in each its three years for a total of six new residency positions. The program graduated its first residents in June 1999. In addition, the OB/GYN program has expanded from three residents per year to four residents per year, for a total of 16 residents.

Charlotte AHEC: The Charlotte AHEC and the Carolinas Medical Center have added a rural track family practice residency in Monroe, which, like the Hendersonville program, has two residents in each of the three years. They have also added an urban track family practice program in Charlotte in collaboration with the Biddle Point Clinic. This program also has two residents in each of the three years.

Greensboro AHEC: The Greensboro AHEC and the Moses H. Cone Memorial Hospital expanded the family practice residency program in the mid-1990's to eight residents in each of the three years for a total of 24 residents. There are now two rural teaching practice sites to which residents may rotate and one inner-city practice where residents may also gain experience.

Southern Regional AHEC: The Southern Regional AHEC in Fayetteville remains at 18 family practice residents. At the current time residents rotate to four rural sites during their residency training. There is currently a new emphasis on practice management and computer skills acquisition.

Wake AHEC: The Wake AHEC, in association with the Department of Family Medicine at the UNC School of Medicine, has developed training opportunities for family practice residents from UNC at Wake Medical Center. These rotations give residents exposure to caring for the underserved urban population served by the medical center.

Primary Care Residency Training at the University Medical Centers

Wake Forest University School of Medicine: The Wake Forest University School of Medicine and the Baptist Hospital have maintained primary care residency training capacity at the same level as in 2002. The family practice residency program has a total of 30 residency positions. In pediatrics (36 residents) and internal medicine (60 residents), a strong emphasis is placed on preparing generalists for community practice.

Duke University Medical Center: The Duke University School of Medicine continues to have five primary care residency tracks: general internal medicine, general pediatrics, a combined medicine/pediatrics residency, family medicine, and obstetrics/gynecology. No changes have occurred in primary care residencies.

ECU School of Medicine: The ECU School of Medicine, in conjunction with three area hospitals, expanded the family practice residency program in the mid-1990s from 36 positions to 54 through new rural track residency programs in Ahoskie, Williamston, and Clinton. In 1999 ECU decided to close the three rural programs due to changes in federal funding and difficulty in recruiting residents to these remote sites. It has now returned to a 36 resident program, but with a special rural track within the program for four to six residents in each of the three years of the curriculum. General internal medicine has increased from 10 to 12 positions in each year. As a result, residency-training positions in primary care fields now total 146.

UNC School of Medicine: The UNC School of Medicine and the UNC Hospitals has expanded their family practice residency program in the mid-1990's from 18 to 24 residents. No further expansion is planned at this time, but the department continues to develop community-based experiences for residents to enhance their preparation for community practice.

The Department of Obstetrics/Gynecology has increased its residency program to six residents for each of the four years for a total of 24. The Department of Pediatrics has completed a phased expansion of its residency program to a total of 48 residents. Similarly, the medicine/pediatrics residency has completed a modest expansion, which has resulted in a four-year program with a total of 24 residents.

AHEC Support of Community-Based Primary Care Student Training

In 1993, 1995, and 1997, the N. C. AHEC Rural Primary Care Initiative received funding from the N. C. General Assembly to support rural primary care, community-based education. As a result, an Office of Regional Primary Care Education (ORPCE) was created at each of the nine AHECs to facilitate the teaching of primary care students in community settings.

Since 1993, the state's nine AHEC ORPCE offices have supported a dramatic growth in primary care, community-based education. Currently, the AHEC ORPCEs facilitate the community-based teaching of all medical, nurse practitioner, physician assistant, and certified nurse midwifery students in North Carolina, as well as the PharmD students from UNC-Chapel Hill. While the ORPCEs supported 693 student months of training in 1993-94, the total number of student months supported in 2002-2003 was over 3,900. These primary care experiences occur in approximately 1,300 community sites and with more than 2,000 individual preceptors across the state. These community-based student rotations provide an enriched experience in primary care with an early and continuing exposure to community practitioner role models, opportunities for practice in rural and underserved areas, and real world health care.

Facilitating quality primary care, community-based education for all health science students is the responsibility of each AHEC and it depends upon effective partnerships between the health science schools, AHECs (through their Offices of Regional Primary Care Education), and practicing clinicians throughout the state. The statewide AHEC system continues to provide the following elements of support:

For Preceptors

- Preceptor development activities
- Coordinated protocols for reimbursing eligible preceptor sites.
- Advocacy of preceptor concerns to schools
- Strengthened library and information services (including the AHEC Digital Library)

For Students

- Coordinated student housing
- Assistance with student logistics
- Facilitation of quality educational experiences consistent with curricular goals
- Internet connections and access to library and information services

For Health Science Schools

- Identification and recruitment of preceptor sites
- Coordination of placement and teaching of students in community-based sites
- Assistance with the evaluation of community-based education.

Summary

This 2006 update on primary care programs indicates that the residency programs at the four schools of medicine and the AHEC system have significantly increased the number of primary care residents. This growth will significantly increase the number of primary care physicians trained in North Carolina, and increase the number of positions available to graduates of North Carolina's medical schools who show an interest in entering primary care specialties.

The foregoing program-by-program review of the primary care residency programs in North Carolina demonstrates that family medicine has experienced a substantial expansion of the numbers of residents through the development of rural and urban residencies. Each of the five AHEC-based family practice residencies and each of the four university-based family practice residency programs expanded their number of residents. In addition, two new residency programs have been developed at the Coastal AHEC in Wilmington and in Concord. There has also been a modest expansion of residency training in internal medicine, pediatrics, and obstetrics/gynecology. This expansion includes primary care tracks and/or community-based training for the residents.

Of great importance to the state's efforts to retain residency graduates for practice in underserved communities is encouraging the expansion of residency training at each site and in each primary care field through the development of rural and inner-city training sites for residents from each of the programs. It can be assumed that the aforementioned efforts to expand primary care residency positions and to increase the rotations of residents to rural and inner-city areas will substantially enhance the retention of generalist physicians in the state while also increasing the likelihood that they will settle in underserved areas. In addition, since the rural and inner-city rotation of residents will strengthen the physician practices and health centers acting as teaching sites, it can be expected that the physician preceptors working in these practices will suffer less professional isolation and be more likely to remain in their communities.