Report to the Board of Governors
University of North Carolina System

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PRIMARY CARE MEDICAL EDUCATION PLANS 2000 UPDATE

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, 2000

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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 are all implementing 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 is placing 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 is continuing to expand 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 continues to implement 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 *locum tenens* coverage and community physician exchange programs

  --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.

- Information Services and Telecommunications: The four schools and their affiliated AHECs are expanding 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.

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

The dean and the faculty at each of the four schools of medicine have taken seriously the mandate of the General Assembly and are implementing 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 education programs meet the needs of our students and achieve the goal of increasing the primary care workforce for our citizens.

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

Update: Primary Care Education Plan
Duke University School of Medicine

Respectfully Submitted by

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March 29, 2000

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

2000 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.

The ultimate measure of our programs to train individuals for a career in primary care is the distribution of graduates across residencies. Over 50% of Duke graduates enter primary care residencies.

Residency	1998 Grads.	1999 Grads.	2000 Grads.
Internal Medicine	34	33	35
Pediatrics	16	8	9
Med-Peds	3	4	3
Family Medicine	3	1	5
Ob/Gyn	3	2	3
Total Number	**59**	**48**	**55**
Percent of year's graduates	**59%**	**50%**	**58%**

The Generalist Activities include:

1. **Development of primary care faculty**

   Duke faculty continue 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. A certification program was developed for family physicians completing a series of five faculty development workshops. Faculty guidance continued for the family medicine residency in Cabarrus, NC.

   The head of General Internal Medicine continues to work with the curriculum of the medical school.

The network of primary care practices added to Duke continue to be a resource for teaching medical students.

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 by the different divisions of primary care, 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 and the Epidemiology, Health Service and Health Policy Study Program. Duke has facilitated students interested in completing a MPH degree at UNC-Chapel Hill during their third year of medical school. Duke now offers a Master's of Health Science in Clinical Research degree, which compliments students' interests in primary care research.

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. Primary care physicians continue to be active on the Admissions Committee. Over half of students who matriculate to Duke School of Medicine express an interest in primary care. As the table in this report shows, on average, more than 50% eventually choose to enter primary care residencies.

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 Primary Care Education Committee 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.

5. Medical School Curriculum

A. Practice

The Practice course has continued for four years to expose all students at Duke to early ambulatory medicine and provide most 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 required for both first and second year students.

Beginning in 2001, all third year students during their year of research will be required to have a longitudinal ambulatory care experience of at least 6 months. This will add an additional 100 hours of instruction in the clinical ambulatory setting. This experience previously has been in the second or clinical year, but that time will be replaced by an ambulatory experience unique to each clinical department while the student is on their required clerkship.

B. Primary Care Program

This four-year program has continued since 1994 to involve and support 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. To date, 90 students have joined the program over the past six years.

C. Clinical training

Beginning 2001, ambulatory clinical training will be required in the first three years of medical school, and continue as an elective in the fourth year. During years one and three, the Practice course will place students in ambulatory longitudinal clinical settings for several months at a time. On each clinical clerkship in year 2, students will have an ambulatory experience unique to each clerkship.

6. Extracurricular Activities

National Primary Care Day

For the past six 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. The group continues to coordinate efforts with the Primary Care Program.

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, obstetrics/gynecology. Though many specialty residencies are decreasing the number of residency slots, no decreases have occurred in primary care residencies.

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.

Residency choice by Duke School of Medicine graduates for the last three years is summarized below.

Residency	1998 Grads.	1999 Grads.	2000 Grads.
Internal Medicine	34	33	35
Pediatrics	16	8	9
Med-Peds	3	4	3
Family Medicine	3	1	5
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Total Number	**59**	**48**	**55**
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Summary

Duke continues to undergo major changes in response to health care reform and the changing economics of health care. Duke is continuing to look for innovative ways to address the problems of increased patient numbers 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 to make teaching more up-to-date and efficient. Residencies will be used to reflect 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 of
The University of North Carolina

Update: Primary Care Education Plan
Brody School of Medicine
at
East Carolina University

Respectfully Submitted by:

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March 31, 2000

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

2000 Update: Primary Care Education Plan
East Carolina University
Brody School of Medicine

In 1994, the Brody School of Medicine (BSOM) at East Carolina University submitted a Primary Care Educational Plan for increasing the number and percentage of medical students choosing primary care residency programs, and subsequently generalist practice. Updates to the plan were submitted in March 1996 and June 1998. 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.

As a result of these efforts, BSOM has maintained the numbers of graduating students who have selected residency positions in the primary care disciplines. For the Class of 1999, 68% chose primary care residencies. This percentage does not include students who matched in Transitional or Preliminary programs. The percentage for primary care residencies for the Class of 1999 is 72% (47/69 students) when students are included who obtained preliminary PGY-1 positions in primary care disciplines or in Transitional programs. For the Class of 2000, 71% chose primary care residencies. The percentage for primary care residencies for the Class of 2000 is 76% (55/72 students) when students are included who obtained preliminary PGY-1 positions in primary care disciplines or in Transitional programs. In addition, of significance is the fact that for the Class of 1999, 42% chose a residency program in North Carolina, with 25% staying at University Health Systems of Eastern Carolina for their residencies. For the Class of 2000, 42% chose a residency program in North Carolina, with 26% staying at University Health Systems of Eastern Carolina

I. PRE-MEDICAL AND ADMISSIONS INITIATIVES

Strategies at the premedical level include establishment and maintenance of a communication network with premedical advisors through North Carolina; research of variables that predict career choice and practice in underserved areas; development of a Health Careers Development and Minority Affairs Program to disseminate information about health careers and to encourage the participation of minority students in health careers. BSOM has hosted numerous conferences for college and university premedical program advisors from 24 institutions across North Carolina. This is now an annual conference held each fall. Over the past several years, 25-30 advisors, representing 20-25 third-level institutions in North Carolina, attended the conference. The purpose of the meetings is to provide the advisors with a clearer understanding of the need for generalist physicians in North Carolina and their role in identifying and encouraging promising students to pursue careers as future generalists. A statewide premedical advisors group that meets regularly was initiated as a result of contacts initially established through these conferences. The Office of Generalist Programs distributes a newsletter, *The East Carolina Generalist*, to premedical advisors.

The Community Health Access Group (CHAG) program was 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). 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. A CHAG, comprised of a group of key community members would serve as a mechanism for identifying and supporting prospective applicants to medical school. Members of EAHEC coordinate CHAG program activities and the current focus of this program is a community 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. This past year activities were expanded to address research and information dissemination. One student from Washington County is currently a student at Brody School of Medicine and several high school students from Plymouth High School have participated in the Ventures into Health Careers Institute. These young people are in the pipeline for a health career.

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 EAHEC, is held each summer for 9th and 10th grade students from underrepresented minority groups. During 1998-1999, 22 students from 12 of the eastern counties attended this summer program. 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.

The school's Academic Support and Counseling Center (ASCC) coordinates a MCAT review distance learning course that reached 99 students in 19 counties across the state during 1998-1999.

II. UNDERGRADUATE MEDICAL EDUCATION 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 evidence-based medicine; a required 8 week Family Medicine clerkship; required 4 week experience on General Medicine as part of the third year Medicine clerkship; required 2 week community-based ambulatory general pediatric experience as part of the third-year Pediatrics clerkship; and a two month Primary Care requirement in the fourth year. The Introduction to Clinical Skills I (first year) and II (second year) courses have been well received by the students and the integration of a longitudinal thread

of evidence-based medicine into these two courses has also been positively evaluated. .The purpose of incorporating the evidence-based medicine and clinical outcomes research into the first two years of the curriculum is to provide medical students with the tools they will need to evaluate their medical decision-making and to increase their ability to access and evaluate cutting-edge information on the internet and in the medical journals.

BSOM continues to participate in the Rural Health Scholars program sponsored by the North Carolina Office of Rural Health and Resource Development. Since its inception, 55 medical student scholars from BSOM have participated in this enrichment program designed to select and nurture future leaders in rural health. Twelve of the 18 scholars for the Class of 2002 are from BSOM. For the fourth year, BSOM will provide the initial Clinical Skills Building sessions for all the rural scholars in May 2000.

The Clinical Skills II course during the second year 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.

The curriculum committee with oversight over the third and fourth year curriculum has tightened the requirements for the fourth year. 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. A new selective was developed and offered this year that includes service learning opportunities in the student-run Greenville Shelter Clinics and in two rural free clinics in Fountain and Tillery.

Several efforts are underway to strengthen support for community based primary care education. A Community Based Education Advisory Group was established to facilitate 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 UNC School of Pharmacy and EAHEC have been meeting regularly since 1998. The sixth annual workshop for community preceptors was held in February 2000. 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, information technology and evidence-based medicine skills of preceptors, and to support and nurture preceptors. All community preceptors receive *The East Carolina Generalist* newsletter. 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 and the sites' educational contributions enhanced. A subgroup of the Community Based Education Advisory Group is pursuing another initiative to develop a computer based preceptor database. This database will integrate information from BSOM, the Office of Generalist Programs at ECUSOM, EAHEC Office of Regional Primary Care Education and the Schools of Nursing and Allied Health. 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 in BSOM.

The 3+3 Residency in Family Medicine is another initiative that has assisted in maintaining the number of students who choose primary care residencies. Medical students, who meet certain academic criteria and are interested in Family Medicine, apply in February of their third year to the 3+3 Residency Program in Family Medicine. If selected, the student receives simultaneous credit for completing the fourth year selectives and the first year of the Family Medicine residency. The student will complete all Acting Internships during the fourth year, essentially functioning in a first year resident capacity. This enables a student to complete his or her medical education and residency in Family Medicine in six years.

The Interdisciplinary Rural Health Training Program, is an innovative interdisciplinary educational program for students from several health professions, including medicine, nursing, physicians' assistant, social work and pharmacy. Programs in Duplin and Beaufort counties have been underway for the past two years. An additional educational site for a similar program is being 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.

III. GRADUATE MEDICAL EDUCATION INITIATIVES:

Activities to support residents in primary care residencies include joint sessions on practice management, a longitudinal home care curriculum, leadership and management training for the primary care chief residents, and research of factors that influence resident career plans. An innovative new 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, the Family Medicine Rural Residency track, and dissemination of information about financial incentive programs for practicing in primary care in underserved areas in North Carolina. For the past two years a lunchtime Medical Spanish class has been provided for primary care residents and many medical students have participated as well.

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 Family Medicine Noon Conferences and Grand Rounds, 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.

IV. PRACTICE ENTRY AND SUPPORT INITIATIVES:

The BSOM Office of Generalist Programs and HealthEast, 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 locum tenens coverage, practice management services, and education. Support of community teaching sites link physicians to the medical center and provide 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. During 1998-1999, practice management support services were provided to at least 10 practices. One of the educational programs is the Generalist Fellowship in Procedural Skills. This fellowship program, a result of collaboration between the Office of Generalist Programs, the Department of Medicine, the North Carolina Office of Rural Health and Resource Development, and Pitt County Memorial Hospital, was initiated in July 1997. This year long program includes nine months of procedural training for primary care physicians, as well as a three-month experience providing practice support to one of the rural practices in eastern North Carolina.

V. ADDITIONAL PROGRAMS:

BSOM continues to be a co-supporter with Pitt County Memorial Hospital and EAHEC of the Annual Recruiting Fair held every fall. The fair was not held this past year because of the flood. This event provides an opportunity for community hospitals in eastern North Carolina to meet students and residents in the educational programs at University Health Systems of Eastern Carolina. The students and residents learn about the health care workforce needs of the communities, and the communities have an opportunity to develop relationships with students and residents. It continues to be well received on the part of 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 was formed in the past 2 years and is now meeting regularly. 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.

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. Due to 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 2000 National Residency Match Program (NRMP), both the total number of residency positions filled by U.S. seniors and the fill rate by U.S. seniors were down for all primary care categories. We are proud of the number of our graduates who are pursuing primary care against what is a national downward trend in primary care. We believe that BSOM provides a supportive and nurturing environment for primary care and that our numbers in primary care remain high in spite of the current environment in which some residents and faculty openly attempt to discourage students who are considering primary care. 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 region. As the challenges of the health care environment put increasing pressures on revenues and as the pressure to provide increasing levels of clinical service competes with time for education and research, BSOM is searching for ways to increase efficiency and quality and not compromise any component of the school's mission.

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

Update: Primary Care Education Plan
The University of North Carolina at Chapel Hill
School of Medicine

Respectfully Submitted by:

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April 5, 2000

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

2000 Update: Primary Care Medical Education Plan

The University of North Carolina at Chapel Hill School of Medicine

The University of North Carolina at Chapel Hill (UNC-CH) is committed to providing physicians to serve the health care needs of the citizens of North Carolina. Of the 15,135 physicians currently practicing in North Carolina, 12.4% or 4,232 of them were educated in North Carolina. Of the physicians receiving their medical education in North Carolina, 44.3% of these were educated at UNC and 47.6% of these UNC graduates are practicing primary care. UNC is a national leader in primary care education and was the only medical school in North Carolina rank among the top 10 in primary care by *US News and World Report* (1). The *US News and World Report* "Best Graduate School guide," published in April of this year, ranked UNC number 4 in rural medicine and number 8 in primary care (1). The Family Medicine program was number 2 in the country according to medical school deans and senior faculty (1).

In 1994, the UNC-CH School of Medicine (SOM or the school) submitted a detailed plan to the Board of Governors for increasing to 60% the proportion of its graduates entering primary care practice. The range of initiatives designed to achieve the 60% goal detailed in the 1994 and 1996 reports to the Board of Governors was derived from an institutional planning process spanning 10 years. Our initiatives for increasing the number of primary care physicians practicing in North Carolina include pre-medical programs, programs aimed at promoting primary care as a career choice for medical students, and extension programs aimed at retaining primary care physicians practicing in North Carolina. For the past two years, at a time during which the numbers of US seniors going into primary care specialties has declined, over 50% of our graduating seniors have gone into a primary care specialty. Our goal and mandate is for 60% 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 contributing to the declining numbers of US seniors matching in primary care specialties, and our new initiatives developed to foster interest in primary care and generalist careers.

PROGRAMS THAT FOSTER PRIMARY CARE AS A CAREER CHOICE AT UNC SCHOOL OF MEDICINE

Premedical Preparation and Admissions

Studies have shown that primary care role models are important in encouraging primary care as a career choice and that dedication to community service predicts primary care practice choice. These studies have lead us to make the following adjustments to our admissions process:

- Appoint a general internist as Associate Dean for Admissions and co-chair of the Admission Committee,
- Consider dedication to and experience in community service in the SOM application process.

The University of North Carolina School of Medicine actively recruits under-represented minority 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 patients have better access to health care when same-race physicians are available (2,3). Our commitment to increasing the number of under-represented minorities in primary care is reflected in the following:

- Establishing programs that improve the preparation of minority applicants for careers in the biomedical sciences and that actively recruit under-represented minorities to the health care professions.
- Becoming a national leader in research on under-represented minorities in medical education.

One example of a program to prepare talented minority students for the rigorous demands of medical education is our **Medical Education Development (MED) Program.** MED simulates a medical school setting, providing rigorous coursework, training in test-taking skills and counseling. The program welcomes students from disadvantaged backgrounds and under-represented minority groups as well as non-traditional students who are returning to their educational careers later in life. **Research at UNC on under-represented minorities** has focused on analyzing both national and local efforts to promote enrollment and retention of under-represented minority students. Questions that were investigated included the following: What is the association between changes in minority enrollment and the presence of pre-admission programs during challenges to affirmative action? Does performance of under-represented minority students in a structured summer pre-admission program predict later performance in medical school? Is the presence of pre-admission programs associated with differences in minority enrollment? Is there a relationship between the amount of federal funding received by medical schools and the number of under-represented minority physicians that they graduate? These investigations, conducted by Gregory Strayhorn, MD, PhD; Karen Demby, PhD; and Simone Cummings, PhD, MHA, have led to ongoing research and have provided new researchers with the groundwork for further inquiry, including doctoral dissertation research regarding the use of preferences in the admission of under-represented minorities to medical school. Further, the investigations have provided the impetus for continued analysis of the outcomes of our Medical Education Development Program, such as its effect on the incidence of academic difficulty among enrolled medical students; and a rationale for continued support and development of the program; and for the establishment of additional programs to help recruit, prepare, and retain under-represented minorities.

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. UNC-CH's **Introduction to Clinical Medicine (ICM)** course, implemented in 1995, represents about 16% of the instructional hours in years one and two of the medical school curriculum. 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. Two hundred and twenty primary care practitioners participate as preceptors, each hosting a single student for five separate weeks during the student's first and second years. The Area Health Education (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 preceptors in their regions and by providing coordination and logistical support for the students all over the state of North Carolina. In addition, 31 primary care faculty tutors in Chapel Hill teach small group seminars in the ICM course each week during the year.

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 (4,5). Our Department of Family Medicine was established in the early 1970s and is currently ranked number 2 by *US News and World Report* (1). The six-week **Family Medicine Clerkship** is a requirement for all 160 medical students during their third year. The clerkship takes place at 56 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 Fourth Year

In the fourth year, a time when students are refining their skills and are ready to function most independently, our students are required to take an **Ambulatory Care Selective.** Beyond student's experiences in Family Medicine, their exposure to ambulatory care at this stage can also have a significant impact on their choice of a generalist career (5). 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. Seventy to eighty sites with over 160 community-based primary care practitioners participate as preceptors, 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. Five 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 20 electives in rural and other primary care settings in North Carolina. Examples of these fourth-year elective courses include: Clinical Experience in Community

Medical Practice, Rural Health: an Interdisciplinary Approach, Community Outreach Programs in Obstetrics & Gynecology, Curriculum Development & Evaluation in Community-based Medical Education, Principles & Practice of Alternative & Complementary Medicine, and Basic Care of the Elderly Patient.

Community Health Project Elective

The **Community Health Project (CHP)** encourages and rewards community service by providing a structured opportunity for students to collaborate with members of a specific community on health-related issues and receive academic credit for their efforts. Under the supervision of both a community preceptor in the field and a faculty member at UNC, students plan and execute a project that meets the service needs of the community as well as the learning needs of the students. Since 1992, 229 projects have been completed and there are 56 students involved in ongoing projects.

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. Eleven students are currently enrolled in the MD/MPH program. A new interdisciplinary "**Health Care and Prevention**" MPH degree program was designed specifically for medical students and clinicians who wish to broaden their perspective and increase their career options. This program reflects 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.

Service Learning Opportunities For Students

Studies have shown that dedication to service predicts primary care choice. One of the primary goals of the School of Medicine is to instill in students the ethic of service. To recognize and honor students who have made outstanding contributions in community service, The **Eugene S. Mayer Community Service Honor Society** was created in 1994 to honor students' outstanding community service work. Since its founding, the Mayer Society has inducted 185 students and has showcased their contributions at an annual **Community Service Day.** It also participates with students from other health affairs schools to produce a journal, *Insight Out,* that is dedicated to exploring the value of community service.

One example of a successful CHP, which has been incorporated into an ongoing service project, is The **Health Professions Recruitment and Exposure Program (HPREP)** which was developed from a Community Health Project. HPREP, sponsored by the Student National Medical Association, seeks to increase minority presence in the health professions. The program 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.

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**, which celebrated its 30th anniversary in 1998. It is the oldest continuously operating, student-run free clinic in the country. The SHAC is multidisciplinary and includes students from the Schools of Public Health, Pharmacy, Dentistry and Nursing. This multidisciplinary environment replicates the team approach taken by many contemporary primary care practices.

Through the UNC-CH **Community Health Initiative**, a branch of the North Carolina Student Rural Health Coalition, students provide primary care, lab services and health education at free clinics for low-income, rural patients in the Bloomer Hill and Garysburg communities.

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

Students planned and implemented four programs in the public schools designed to teach young children and teens about a variety of prevention and health education issues: **STEP** (Students Teaching Early Prevention of AIDS and Heart Disease), **STTAR** (Student Teaching Teens at Risk) and **Empowerment Project** (alternatives to violence).

Mentoring by medical students has been combined with health education in the **Pediaction** program, which works with local middle school students who have been identified as at-risk for school failure or family problems. As part of the **Community Outreach Training Program**, future pediatricians spend at least three weeks during their first year of medical school becoming familiar with community agencies and resources for children.

Student Research Day, sponsored by our Whitehead Society (student government) and John B. Graham Student Research Society, had its 32nd annual meeting this year. Recently, this event has expanded beyond basic science research to include epidemiological and clinical research as well. Topics such as a 'Needs Assessment Survey of HIV-Positive People Living in Pitt County', 'Influence of Socioeconomics upon Rates of Pediatric Cancers in North Carolina', and 'Giving Bad News: a Pilot Study to Evaluate the Basics of Patient Care Curriculum', demonstrate our students' interest in to integrating basic science concepts, population science, and clinical practice.

The **Zollicoffer Lecture** was established in 1981 by the Student National Medical Society in honor of Dr. Lawrence Zollicoffer, a graduate of the UNC School of Medicine. This year's 20th annual Zollicoffer Lecture, entitled "Acting Outside the Box: the Challenge of Health Disparities," was presented by Dr. A. Dennis McBride. Dr. McBride is a primary care physician and is the North Carolina State Health Director and Assistant Director in the Department of Health & Human Services. The purpose of this event is to increase awareness of minority health and community issues, and 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.

The **Program on Aging,** working in conjunction with the **Rural Health Link** program, offers several opportunities for students interested in primary care. The goal of these programs is to provide and improve access to health care for geriatric populations in rural areas through the education and training of health care professionals. Students work as members of an interdisciplinary team with practitioners and other health professionals in the care of patients in underserved and rural areas of North Carolina. The **Quentin N. Burdick Rural Interdisciplinary Training Program** is a Bureau of Health Professions project that has the objective of preparing students for rural practice. Students may elect to participate in a 3 credit-hour course, **Rural Health: An Interdisciplinary Approach**, which includes a community service learning or research component. For example, students in the current class are researching the impact of Hurricane Floyd on medical practices in Eastern North Carolina

Another opportunity sponsored by the Program on Aging and the Rural Health Link is the **Summer Team Experience**, a six- to twelve-week, service learning project in which students live in a rural community and work in a rural health center, while researching and designing interventions to address a community health problem. The UNC-CH Office of the Provost also supports this project. Student teams have worked on projects such as developing a caregiver support program in rural Northampton County, developing interventions to prevent complications of diabetes, determining access to care in rural Halifax County, developing strategies to provide medicine to indigent patients, and improving the nutritional status of elderly residents in rural areas.

The Program on Aging and the Rural Health Link also sponsor the **Interdisciplinary Geriatric Education Consultation.** Through this program, students on campus and in clinical rotations work with a master geriatrics interdisciplinary team and rural practitioners to address the complex needs of elderly residents in rural areas. Students participate in case-based assessment and problem-solving, studying presenting problems, interviewing patients, and tracking outcomes of consultation recommendations.

Independent study and research. The Program on Aging research staff also works individually with interested students and fellows to mentor independent study and research in geriatrics. In recent years, students have investigated topics such as polypharmacy in nursing homes and changes in rural physician practice.

Support for Community Practitioners as Medical Student Educators and Role Models

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. How, in these "schools without walls," can we ensure the quality and consistency of educational experiences across sites and support the clinicians who volunteer to teach our students? One solution is to institute 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 our 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 our 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 program consists of ten 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 seven 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, and (7) working with the community. Participants earn continuing education (CME) credits for the completion of each module. "Expert Preceptor" designation is available to preceptors who complete eight of the ten modules.

The **Visiting Clinician Program** (VCP) brings practicing primary care physicians from across North Carolina to the UNC campus to work one-on-one with clinical faculty and learn about topics that the participants themselves have identified as their desired learning focus. Clinicians who serve as preceptors for students' community-based clinical rotations are especially recruited for the program. Participants typically choose to study topics that represent dominant or emerging clinical problems within their practice populations. Upon enrollment, each participant chooses from a list of approximately 200 learning opportunities. Program staff then arrange one-day visits with faculty in the chosen areas to create an individualized program of continuing education.

Sixteen primary care physicians participated in 1996-97, the program's inaugural year. The program has grown, and the 1999-01 cohort now includes 21 participants (including four nurse practitioners) who make seven visits over a two-year period. To date, a total of 79 clinicians have participated, and almost 2,000 hours of Continuing Medical Education credit have been awarded to participants. Topics that have been chosen for study range from diabetes to sports medicine to high risk obstetrics to computing in medical care. Participants report that the VCP helps them develop and confirm their knowledge and skills in a focused and relevant way. Faculty hosts report their appreciation for the opportunity to develop relationships with community clinicians and learn their perspectives.

At its inception in 1996, the VCP was a program of the Institute for the Generalist Physician; in July 1997, with the closing of the Institute, the VCP moved to the Office of Educational Development in the School of Medicine. The program has been funded primarily by the UNC Health Care System, with additional support provided by the UNC School of Medicine, School of Nursing and several external grants.

UNC-CH Research Contributions to the National Literature Regarding Preparation and Retention of Primary Care Physicians

The University of North Carolina at Chapel Hill is a national leader in primary care education research and has a major interest in not only developing primary care physicians through undergraduate and graduate medical education, but also in programs developed to promote retention of primary care physicians in generalist practices. From 1994-1998, our Office of Educational Development administered one of three federally funded Centers for Medical Education Research (CMER), which conducted intensive scholarly research on federal workforce goals such as primary care and performed extensive collaborative studies on ambulatory care education (quality, cost, value and innovative teaching strategies). Each center developed a research agenda through a cooperative agreement with the federal Bureau of Health Professions (BHPr) and much interdisciplinary and inter-institutional collaboration occurred, even beyond the Centers. The past three decades have also seen our attention to community-based education burgeon, thanks in large part to our state's strong AHEC Program and our commitment to primary care.

UNC researchers have made several important contributions to our knowledge of community-based primary care practice and the educational factors associated with retention in and satisfaction with rural and/or community primary care practice. A study led by Donald Pathman, MD, involved a survey of 500 primary care physicians and served to delineate four community dimensions of primary care practice. Dr. Pathman also studied the effect of various educational approaches on physicians' retention in rural areas, finding that residency rotations in rural areas are the best educational experiences to prepare physicians for rural practice and lengthen their tenure there. Beat Steiner, MD, further examined the effect of community-related training experiences, finding that such training affects the extent to which practicing physicians interact with their communities. The University of Southern Illinois was recently given an award from the Society of Teachers of Family Medicine for their innovative curriculum in rural medicine, based on the Pathman-Steiner Model. The Montefiore Hospital in New York City is among the

nation's leaders in training programs focused on health care delivery to the urban underserved and they also adopted the Pathman-Steiner model for their residency training program. Thomas R. Konrad, PhD, investigated the association of factors such as student precepting with the work satisfaction of community-based primary care physicians. The findings from these studies have informed our efforts to support and develop community faculty preceptors and to define learning objectives for students, as well as contribute to the national literature.

DISCUSSION AND PLAN

Seeing the UNC-CH SOM in a National Context

Nationally, the numbers of students going into primary care specialties peaked in 1997 (6). Primary care specialties, as defined by the North Carolina State Legislature, include Family Medicine, Internal Medicine, Obstetrics/Gynecology, Pediatrics, and Medical pediatrics. This year, 3.9% fewer US seniors choose Internal Medicine, 3.7% fewer choose Family Practice, 1.7% fewer chose Obstetrics and Gynecology and 1.7% fewer choose Pediatrics (7). From 1992 to 1997, the national percentage of United States (US) senior medical students choosing primary care careers increased from 60.5% to 66.4% (6). Nationwide, the numbers of medical students choosing Family Medicine peaked in 1997 when a record 2,340 US seniors filled Family Practice positions (7). The numbers of students going into Internal Medicine and Obstetrics and Gynecology also peaked in 1997 (8). At UNC, the numbers of seniors going into Family Medicine peaked in 1998 when 20% of the class went into Family Medicine. The numbers of US seniors matching in primary care Internal Medicine programs has also declined since 1998(8).

A complex set of factors influence a student's career choice including personal social values, institutional culture, curriculum design, role models and market forces (9). 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. The reasons for the recent decline in interest among US 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, and
- the threat of competition from physicians extenders (nurse practitioners and physician's assistants) (8,10,11,12).

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.

Institutional Outcome Evaluation of Our Programs

The attached residency placement statistics (see Attachments) indicate that after a number of years of increased interest in primary care, we are now seeing a decrease in students' initial choice of primary care residency training programs, which mimics the national trend. In 1991, 55% of students were placed in primary care and in 1998, 60% chose primary care. The recent 2000 statistics show that 52% chose primary care. The career choices of UNC students reflect the national trend of decreased interest in primary care. Although we believe that our recent innovations in programming have created an atmosphere which encourages students to pursue generalist careers, we realize that we will need to work harder to counteract the current national trend away from primary care specialties. In May 1999, concerned about the drop in the number of UNC graduates choosing primary care careers, we administered a survey to graduating students to determine (1) how their career choices changed over the course of medical school, (2) the importance of various factors as influences on career choice, and (3) how various medical school characteristics and experiences may have influenced their decision to choose or not choose primary care careers.

Of the 130 students graduating, 120 completed the survey (92% of graduates). Ninety-six students reported the specialty areas they were considering at various times during medical school. Sixty-one students (51%) both began and ended medical school with a primary care career choice, 22% began with primary care in mind but switched to a subspecialty, 5% began with a subspecialty choice but ended with primary care, and 22% both began and ended with a subspecialty choice. Role models, practice environment, curricular experiences, and personal factors were reported as being the most important influences on career choice.

With regard to the influence of medical school characteristics and experiences on career choice, clerkships in family medicine, pediatrics, and internal medicine, and community-based clinical rotations during the first two years were viewed as most influential in encouraging a primary care career choice. For students choosing a non-primary care career, however, many of these same experiences were viewed as influences against primary care. Because we are excellent in both primary care education and scientific research, we are a "bimodal" medical school and our students are exposed to excellent role models in many different specialties. We acknowledge that some students are not going to choose a primary care specialty regardless of our efforts. Nevertheless, our plan is to repeat this survey annually so that we can continue to identify ways

to support primary care career choice and counterbalance negative national influences.

Primary Care Task Force

To investigate ways that the institution can redouble our efforts towards encouraging our students to go into primary care specialties and ways that we can counteract the current negative national environment, our Dean established a Primary Care Task Force. The group will be composed of Dr. Thomas Bacon, Executive Associate Dean & Director of North Carolina AHEC Program; Dr. Georgette A. Dent, Associate Dean for Student Affairs; Dr. Cheryl F. McCartney, Executive Associate Dean for Medical Education; Dr. Warren Newton, the William B. Aycock Distinguished Chairman of the Department of Family Medicine; and Dr. Carol Tresolini, Director of the Office of Educational Development.

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 now a primary care physician. Observation of physician role models who practice in small communities now 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 new Eugene S. Mayer Community Service Honor Society. 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.

For the past three years, the selection of primary career specialties has trended downward among US seniors. Although we have many programs and initiatives assembled to support students in choosing primary care as a specialty and the UNC-CH SOM faculty continue to be national leaders in primary care education, we, too, have also experienced a drop in the number of seniors going into generalist specialities. A task force has been assembled to study ways that existing programs can be strengthened and to determine if additional initiatives are needed. We are also 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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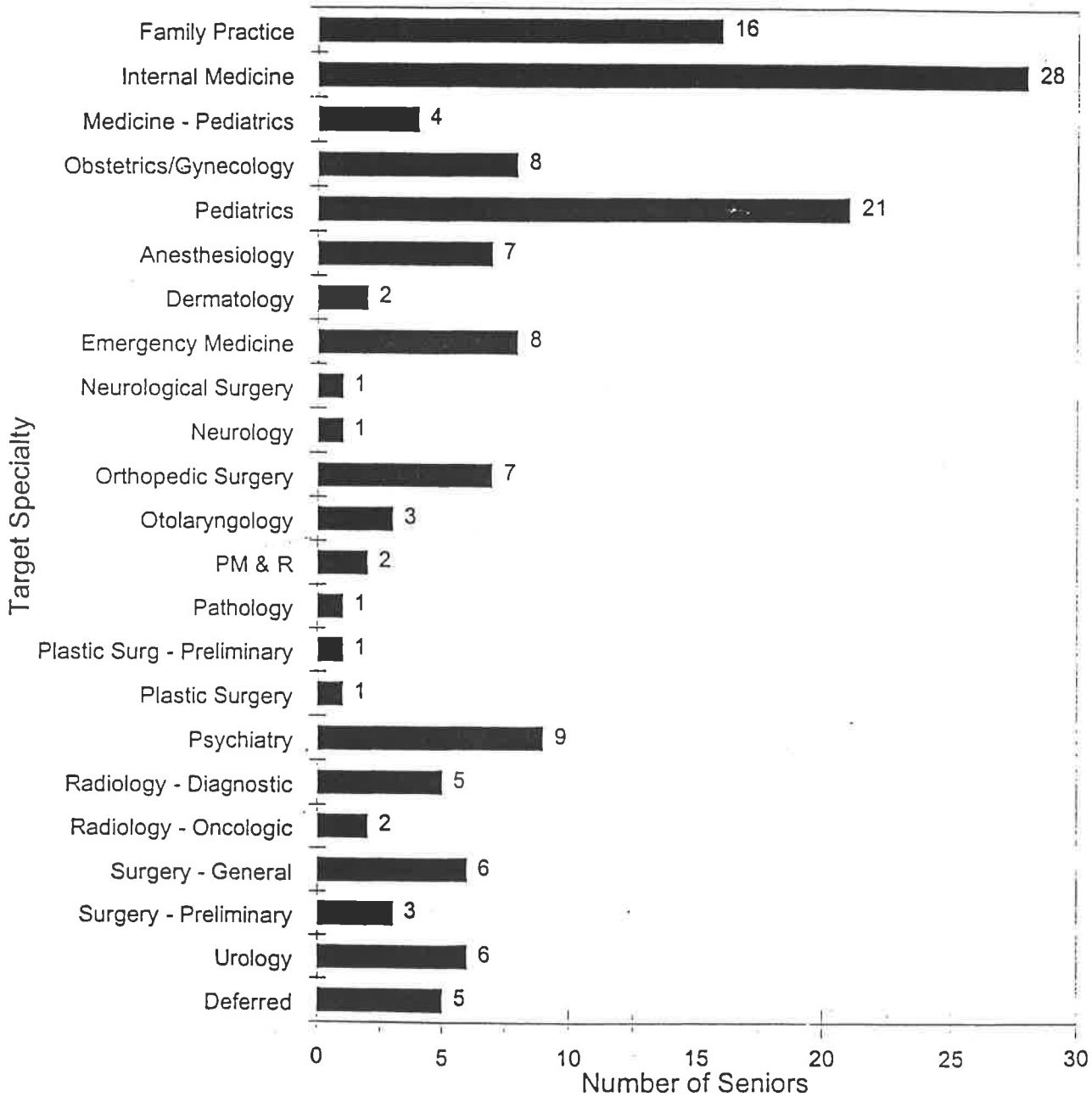
2000 Residency Target Placements
UNC School of Medicine

Specialty Placements: Seniors
N = 147



Georgette A. Dent, M.D.
Associate Dean for Student Affairs
UNC School of Medicine

28 Mar 2000, 11:14

Katherine P.S. Walker
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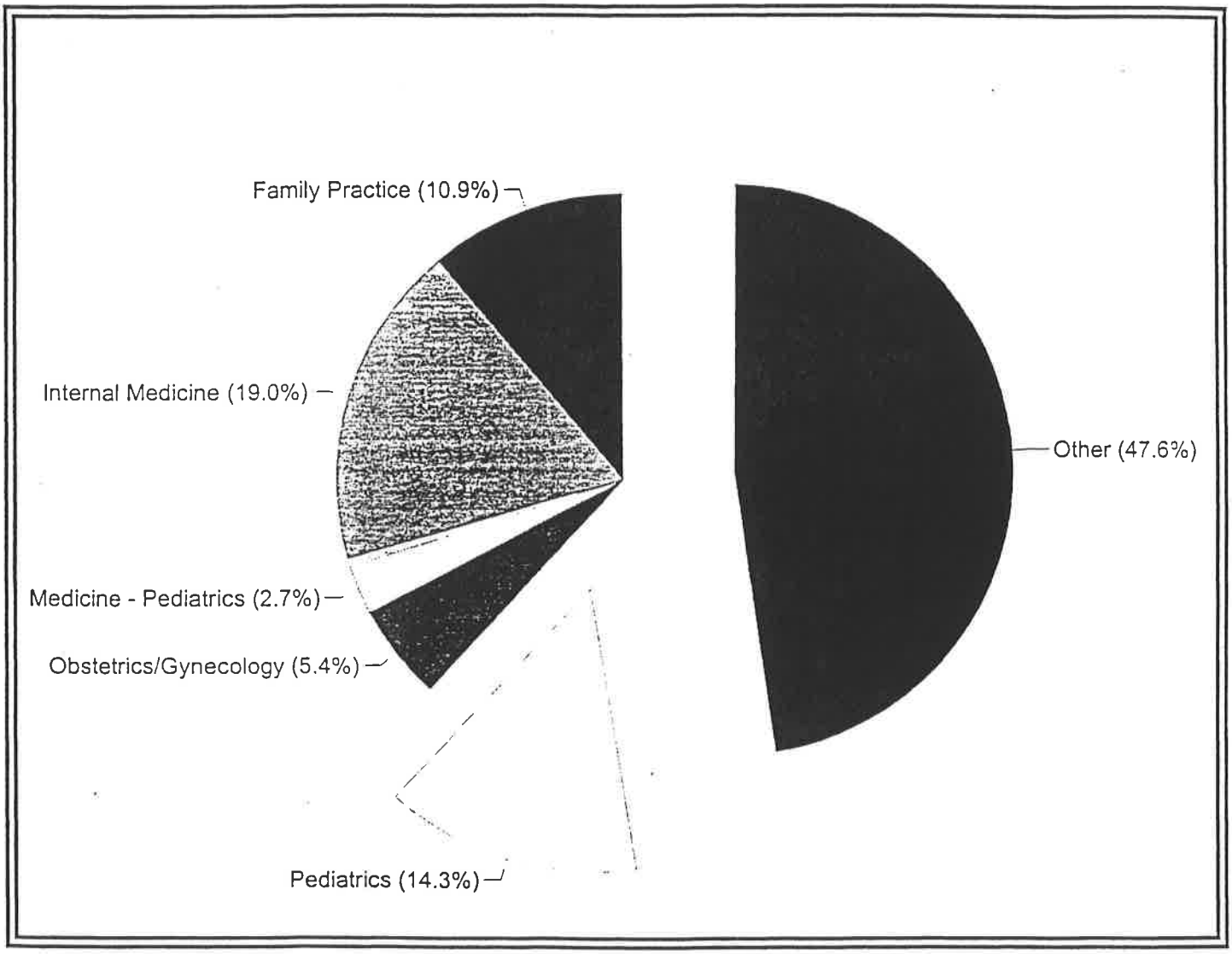
2000 Residency Target Placements
UNC School of Medicine

Primary Care Placements: Seniors
N = 147



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28 Mar 2000, 11:14

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

Update: Primary Care Education Plan
Wake Forest University School of Medicine

Respectfully Submitted by

James N. Thompson, M.D.
Dean and Vice President

April 5, 2000

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

2000 Update: Primary Care Education Plan
Wake Forest University School of Medicine

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 has consistently allocated approximately 60% of the positions in each class to North Carolina Students, even though State support has been static since 1976. This year, we had 5,398 applications for this year's entering class, 672 from North Carolina residents. Sixty-seven North Carolina residents were selected for the 108-member Class of 2003. Over the past three years, including 1999, WFUSM has enrolled one hundred seventy-nine 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 an eight-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 2002 and 2003 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

Another component of the new curriculum is the introduction of a required 16-week ambulatory experience in Phase III (third-year). Student will complete four-week rotations in ambulatory Internal Medicine, Pediatrics, Family Medicine and Women's Health. The latter clerkship is a multi-disciplinary experience involving faculty from Obstetrics and Gynecology, Surgery, Internal Medicine and Radiology. The 16-week ambulatory experience now comprises 1/3 of the required clerkships in Phase III (third-year); additional primary care experience is

available via electives in Phase IV of the curriculum. The new clerkships described above will begin April 17, 2000.

3. National Primary Care Day

For the past six years, the school has participated in the National Primary Care Day sponsored by a number of organizations including the Association of American Medical Colleges. Time is allocated to this program in the students' schedule to ensure the opportunity to participate. This year, the program included presentations from a number of Wake Forest graduates who have entered generalist residencies and practice. The School sponsored a Career Day and Residency Fair to coincide with National Primary Care Day. Representatives from our own generalist residency programs and other generalist residency programs external to the Medical Center participated.

1. 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. The ORPCE function has been integrated within the medical school's existing structure to facilitate achievement of the program goals. Most notably, the Associate Dean for Medical Education continues to serve as the ORPCE Medical Director and an educational specialist within the Department of Family and Community Medicine serves as the ORPCE education coordinator. This individual also serves as the Community Education Coordinator within the medical student education program.

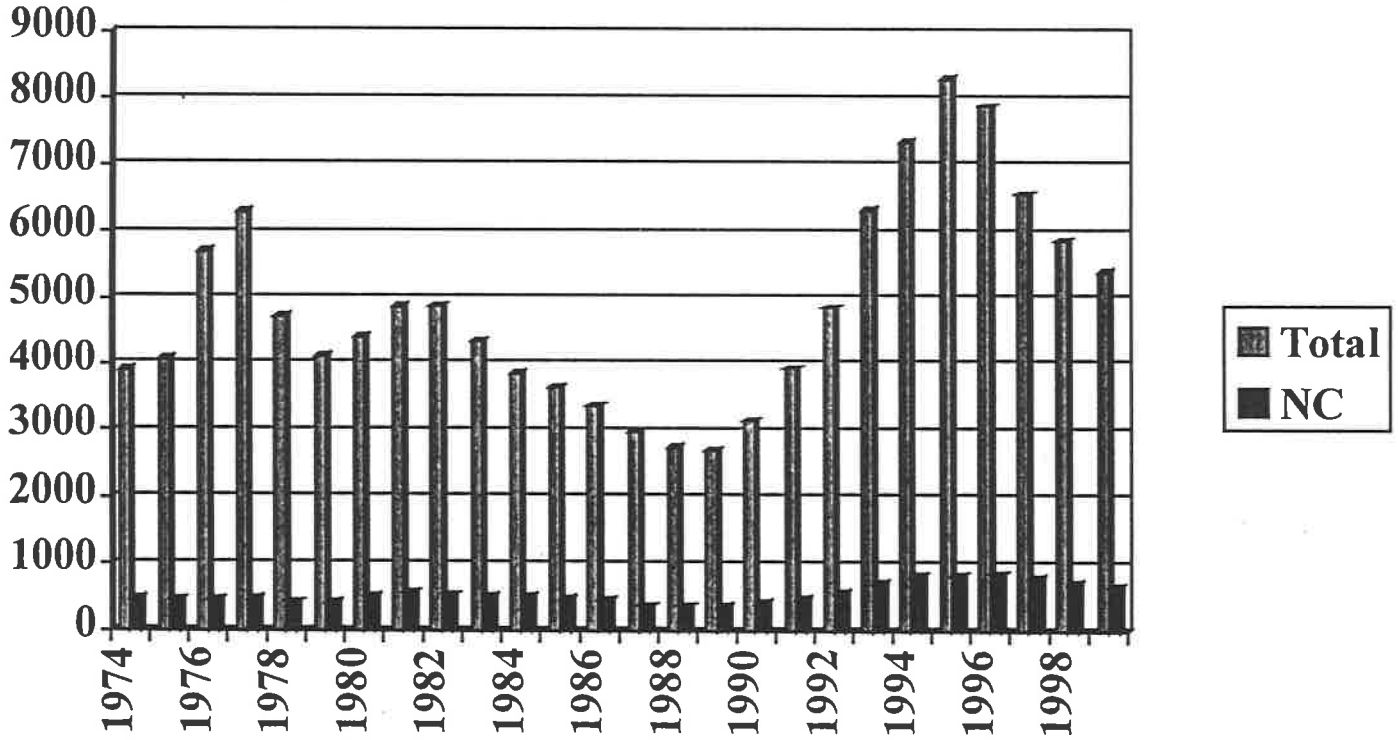
5. Program Evaluation

The School regularly tracks the residency selection of its graduating classes. During the past three years, 52%, 64% and 58% of the class have selected a first-year residency position in family practice, obstetrics and gynecology and pediatrics (see Appendix for 17-year trend). Since 1994, over 50% of WFUSM graduates have entered primary care residencies. Longitudinal outcomes also document the school's success in providing graduates for primary care practice. Forty-four and forty-three percent of 1992 and 1993 graduates were in primary care patient practice as of 1997 and 1998 respectively. These numbers compare very favorably with the statewide averages of 43% and 45% (North Carolina medical students retention in Primary Care – 1992 and 1993 Graduates compiled by North Carolina AHEC Program, Cecil G. Sheps Center for Health Services Research).

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 this 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 the WFUSM



Percent of Wake Forest University School of Medicine Students

Entering Primary Care Specialties •

1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
66%	64%	55%	52%	55%	44%	46%	56%	49%	41%	50%	51%	65%	58%	52%	64%	58%

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

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

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

Respectfully Submitted by

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2000 Update: Primary Care Education Plan
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 1996 and 1998 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.

The following chart shows the allocation of the $15,000 residency training grants as of March, 2000. It should be noted that the financial amount of these residency grants has not changed since 1974, and only partially supports 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
March, 2000

	Family Practice	Internal Medicine	Pediatrics	Medicine/ Pediatrics	OB/GYN	Total
Wake Forest University	28.00	7.00	4.50	0.00	3.00	42.50
Charlotte AHEC*	49.00	5.00	6.00	0.00	2.00	62.00
Duke University	21.00	5.00	4.25	4.75	2.00	37.00
Southern Regional AHEC	19.00	0.00	0.00	0.00	0.00	19.00
Greensboro AHEC	14.00	7.00	4.00	0.00	0.00	25.00
Mountain AHEC	31.00	0.00	0.00	0.00	3.00	34.00
Coastal AHEC	12.00	12.00	0.00	0.00	6.00	30.00
East Carolina University	42.00	6.00	5.75	2.00	3.00	58.75
UNC	7.00	2.00	1.50	3.50	0.50	14.50
Wake AHEC	5.00	4.00	7.00	0.00	0.00	16.00
Total	221.25	43.00	27.25	10.75	16.50	338.75

* Includes 24 family practice residents in Cabarrus County

Current Status: Primary Care Residency Training in North Carolina, 2000. Two types of expansion of primary care residencies have occurred in North Carolina. The first is the development of new family practice residency programs. The second is 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 includes developing rural tracks for second- and third-year family practice residents.

According to the March, 2000 report of the National Resident Matching Program there were 546 first-year residency positions available in North Carolina, with 302, or 55% in the primary care specialties of family practice, internal medicine, pediatrics, and obstetrics/gynecology. The following presents the status of primary care residency training in the state as of March, 2000.

A. New Family Practice Residency Programs

Coastal AHEC: New Hanover Regional Medical Center, in conjunction with UNC-Chapel Hill and Coastal AHEC in Wilmington, North Carolina, has developed a new family practice residency program in Wilmington. This program 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 funding, Coastal AHEC is developing special rural experiences for their family practice residents in selected regional communities. Coastal AHEC has no plans to expand its other existing residency programs.

Cabarrus Family Medicine Residency: The Cabarrus Family Medicine Residency Program in Concord, in association with the Duke University Medical Center and Charlotte AHEC, has a total of 24 residents, eight in each of three years. The program graduated its first class of eight residents, in June, 1999, with six of the eight entering practice in rural towns in the state.

B. Expansion of Existing Primary Care Programs along with the Development of Rural/Inner-City Rotations

Mountain AHEC: The Mountain AHEC has implemented expansion of 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 expanded the family practice residency program in Charlotte from 18 residents to 24 residents. In addition, a new rural track family practice residency has been developed in Monroe, which, like the Hendersonville program, has two residents in each of the three years. Finally, a new urban track family practice program has been developed in Charlotte in collaboration with the Biddle 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 have completed the planned expansion of the family practice residency program 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. There are no other plans to modify primary care residency education at the Greensboro AHEC.

Southern Regional AHEC: The Southern Regional AHEC (formerly the Fayetteville AHEC) remains at 18 family practice residents with no plans to expand at the current time. Residents rotate to four rural sites during the 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.

Coastal AHEC: As noted, the Coastal AHEC has no plans to expand its existing residency programs in internal medicine and OB/GYN, since it has developed a new family practice residency program as described above.

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 1998. The family practice residency program has a total of 30 residency positions. In pediatrics (38 residents) and internal medicine (82 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. Though many specialty residencies are decreasing the number of residency slots, no decreases 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. One additional position in pediatrics and two new positions in medicine/pediatrics were added in July 1996. General internal medicine has increased from eight to ten positions in each year. As a result, residency training positions in primary care fields have increased 14%, from 126 to 144, since 1994.

UNC School of Medicine: The UNC School of Medicine and the UNC Hospitals has expanded their family practice residency program in a phased manner 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 44 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 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 teaching

of all medical, nurse practitioner, physician assistant, PharmD, and certified nurse midwifery students in North Carolina. In 1993-94, the ORPCEs provided assistance to 595 individual students; this number reached 2,295 in 1998-99. Similarly, while the ORPCEs supported 693 student months of training in 1993-94, the total number of student months supported in 1998-99 was over 3,600. These primary care experiences occur in approximately 1090 community sites and with more than 1,800 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 Internet)

For Students
- Coordinate student housing
- Assist with student logistics and travel
- Facilitate quality educational experiences consistent with curricular goals
- Ensure Internet connections and access to library and information services

For Health Science Schools
- Identify and recruit preceptor sites
- Coordinate the placement and teaching of students in community-based sites
- Assist with the evaluation of community-based education.

Summary

This 2000 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. When combined with the fact that there also will be some as yet unspecified reductions in the number of specialty residency positions, North Carolina has reached its goal of having approximately 50% of all residency positions in primary care by the year 2000. Currently, 55% of all first-year positions are in one of the four primary care specialties. 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.