

---

# Physician Assistants

## A Young Profession Celebrates the 35<sup>th</sup> Anniversary of Its Birth in North Carolina

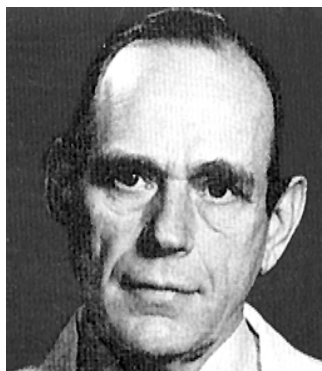
Reginald D. Carter, PhD, PA, and Justine Strand, MPH, PA-C

The physician assistant (PA) profession began at Duke University Medical Center. It celebrates its 35<sup>th</sup> birthday on October 6, 2000. The national success of PA programs can be traced to North Carolina's leadership in developing and using this new kind of health care professional. The North Carolina Medical Society, North Carolina Medical Board, state legislators, and state agencies like the Office of Rural Health and Area Health Education Centers (AHECs) worked together to make the program a reality. The evolution of the profession has been described in several articles in the *North Carolina Medical Journal*.<sup>1-5</sup> We review here the development of the PA concept, the establishment of the profession, the expansion of the Duke curriculum from certificate to master's degree, and trends in practice characteristics of Duke PA alumni.

### History and Background

In the 1950s Duke hospital faced an increased demand for services and a shortage of all types of nursing and allied health personnel. Dr. Eugene A. Stead, Jr., then chairman of the Department of Medicine, envisioned a physician's assistant as a way to provide clinical support<sup>6-10</sup> and to allow rural physicians to leave their practices to pursue continuing education opportunities. His experience at Emory University during World War II had convinced Dr. Stead that after two years of training individuals would be prepared to help doctors in patient care. In the 1940s, he had seen medical students help run Grady Hospital, while doctors were educated and deployed to the military in three years.

In the late 1950s and early 1960s, Dr. Stead and Thelma Ingles, RN, proposed a program to train nurse clinicians at Duke Hospital. Three times the National League of Nursing denied accreditation to the program, asserting that it was at least inappropriate and perhaps dangerous for nurses to assume medical tasks. Dr. Stead considered recruiting Durham firemen to his fledgling program, but then decided that veterans of the military medical corps were more suitable candidates.



**Figure 1.** Dr. Eugene A. Stead, Jr., founder of the Duke PA program.

On February 1, 1966, Dr. William Anlyan (Dean of the School of Medicine at Duke) appointed a committee to explore the potential roles for a PA, including education and experience requirements, and the scope of responsibilities. In September 1967, Dr. E. Harvey Estes, Jr., in the Department of Community Health Sciences, assumed administrative responsibility for the new program. Dr. Estes moved quickly to establish the concept in North Carolina and the nation. The first three PA students graduated at Duke on October 6, 1967.

A series of conferences held between March 1968 and April 1972 promoted the PA concept. The first two focused on curriculum development and ways to establish PA programs. The third solicited the leadership of organized medicine to set accreditation standards for PA education and to develop national certification through standardized examinations and continuing medical education requirements. Third party reimbursement, public and professional acceptance of PAs, hospital credentials, productivity and cost-benefits of using PAs, and professional liability issues were also discussed. The fourth conference drafted

---

Dr. Carter is Director of the Physician Assistant Program and Ms. Strand is Chief of the Physician Assistant Division in Duke's Department of Community and Family Medicine, Box 3848, DUMC, Durham 27710.

model state laws to enable physicians to use PAs in their practices. These conferences helped solidify leaders of the "PA movement" into a highly organized and effective team of health policy innovators.

Initial funding for the PA program at Duke came from an unlikely source. As a member of a study section of the National Heart Institute, Dr. Stead had been discussing informally the idea of training former military corpsmen as PAs. In 1965, Dr. Herbert Saltzman from Duke asked the Institute for funds to train hyperbaric chamber operators, as well as a more general type of assistant for physicians. The request was approved, launching the first formal training program of this type in the US. Until then, the Institute had supported the training of only MD and PhD candidates.

In December 1966, Dr. Stead received a three-year grant from the Josiah Macy, Jr., Foundation. Other grants followed from organizations like the Carnegie and Rockefeller Foundations and the Commonwealth Fund. In May 1970, on the second attempt, a national review board approved the North Carolina Regional Medical Program's request for partial funding of the Duke program (the board had been reluctant to fund an educational program that did not offer its graduates an academic degree). These funds were extended for another year in July 1970.

Dr. Estes, then chair of the Department of Community Health Science, and Dr. Robert Howard, the PA program's first full-time director, had been soliciting funds from various federal agencies since 1967. All attempts failed until congress passed the Comprehensive Health Manpower Act in 1972. This bill authorized support for PA training, and the Duke PA program received its first Bureau of Health Manpower grant in July 1972. The program relied primarily on federal funding until 1982. Today it is financially self-sufficient, using federal funds only to support minority recruitment and to place students in community-based clinical learning sites located in medically underserved AHEC regions of North Carolina and southern Virginia.

## Legal Issues and Legislation

From the beginning, it was recognized that a new type of health care provider might face legal difficulties, given the complexity of laws licensing medical personnel.<sup>11</sup> The initial question was whether graduates' activities would lie outside the scope of work allowed for persons operating under mandatory licenses. In 1966, the North Carolina Attorney General issued an advisory opinion that the performance of physician-supervised activities would not contravene the licensure laws of the state. The program relied on this opinion until 1971, when North Carolina wrote an exception for physician assistants into its Medical Practice Act.

In 1969, a year-long project sponsored by the Department of Health, Education and Welfare and conducted by

Duke's Department of Community Health Sciences determined the most desirable and feasible means of accommodating PAs into the legal framework of medical practice. The ultimate objective was to develop model legislation that, if enacted, would further establish the position of physician assistants. Two ideas dominated the discussion: (1) Since the PA role was ill-defined and the concept still evolving, legislation should preserve maximum role flexibility consonant with patient safety. (2) Because doctors are liable for the actions of their assistants, the doctor should determine the scope of a PA's practice. A final recommendation about exceptions to state medical practice acts made it clear that doctors may delegate tasks to assistants as long as they exert responsible supervision. Quality of care would be safeguarded by continuing vigilance of the supervising doctor.

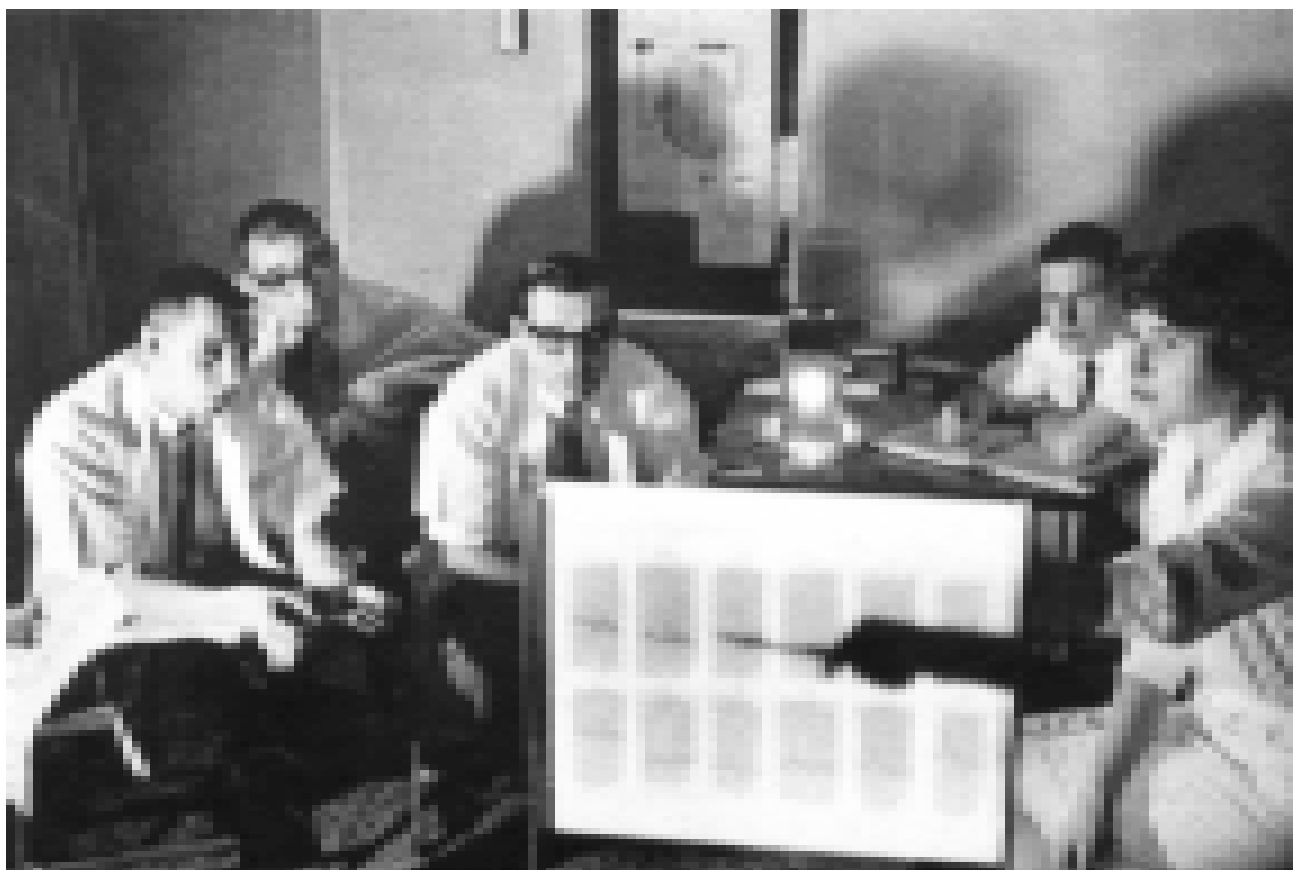
On May 9, 1975, the North Carolina General Assembly passed "an act to limit the prescribing, compounding, and dispensing of drugs by certain persons approved by the North Carolina Board of Medical Examiners and the North Carolina Board of Pharmacy." This bill enabled PAs and nurse practitioners working in semi-autonomous settings (such as rural health centers) to prescribe certain drugs, waiving the requirement of a medical doctor's signature on all prescriptions. In February 1977 a deputy attorney general ruled that "North Carolina statutes proscribe registered nurses and licensed practical nurses from carrying out orders given by physician's assistants." In June 1977, the General Assembly amended the North Carolina Nurse Practice Act to correct this oversight and allow nurses to carry out patient care orders from a PA. Since the 1980s, North Carolina has been a leader in amending its laws and administrative rules to improve the effective use of PAs in the delivery of health care services. In 1993, the Legislature passed a bill enabling PAs or nurse practitioners to serve on the North Carolina Medical Board (formerly the Board of Medical Examiners). The first such person appointed by the governor was Wayne Von Seggen, a PA who now serves as the Board's president.

## Program Accreditation

In December 1971, the House of Delegates of the AMA adopted "Essentials for an Educational Program for the Assistant to the Primary Care Physician," which established standards for the education of physician assistants. The Duke program was one of the first to be approved in 1972. The Duke PA program was re-accredited for the maximum period of 7 years in October 1996.

## Evolution of the PA Curriculum

Dr. Stead saw the ideal candidate for an intensive two-year curriculum as someone with prior health care experience, as



**Figure 2.** Nursing instructor Kathleen Andreoli teaches EKG interpretations to the first four physician assistant students enrolled at Duke (l. to r., Don Guffey, Vic Germino, Dick Scheele, Ken Ferrell). Photo reproduced from *Look*, September 6, 1966; produced by Roland H. Berg; photographed by Phillip Harrington.

in the military medical corps. He was not overly concerned about formal education nor about what type of certificate would be conferred at graduation. Stead believed that “a person with a high school education, a reasonable rate of learning, and a tolerance of the unavoidably irrational demands often made by sick people can learn to do well those things a doctor does each day. Under the wing of the doctor, such a physician’s assistant can collect clinical data, including the history and physical examination, organize the material in a way which allows its use in diagnosis, and carry out any required therapeutic procedure which the doctor commonly uses.”<sup>12</sup> Guided by this principle and with the approval of an ad hoc committee appointed by Dr. Barnes Woodhall, then Vice-Provost for Medical Affairs at Duke University, Dr. Stead launched his program in October 1965. The first four students, Victor Germino, Donald Guffey, Richard Scheele, and Kenneth Ferrell, were all former Navy hospital corpsmen, dedicated to providing health care services (Figure 2).

Stead recruited a clinically trained nurse educator, Kathleen Andreoli, RN, to organize the first nine-month didactic phase of the curriculum. Andreoli had been instrumental in setting up the nursing component of the cardiac

care unit in 1965 under the direction of Dr. Andrew Wallace. Wallace was named medical director of the PA program and, with Stead, Andreoli, and Mr. James Mau, an administrator in the Department of Medicine, formed the program’s academic and administrative team. Hospital conference rooms were used for lectures, and the adjoining wards were used to teach physical diagnosis and history-taking skills. Students learned laboratory, surgical, and clinical skills in the work setting. Formal instruction consisted of 140 hours of clinical medicine and nursing, 60 hours of anatomy and physiology, 60 hours of pharmacology, 100 hours of animal surgery, and 90 hours of electronics instrument theory and troubleshooting. Hospital doctors, nurses, and support staff gave lectures and taught students clinical, nursing, and technical skills. Student feedback was immediate, and schedules and content were changed as needed. The students were opportunistic learners. They shared with each other the skills and knowledge learned in the Navy and didn’t hesitate to ask house staff to let them see interesting cases in return for doing routine clinical tasks. During the second year, students were assigned to various teaching services and clinical laboratories at Duke Hospital, Durham Veteran’s Administration Hospital, Lin

coln Hospital in Durham, and the North Carolina State Prison clinical facilities in Raleigh.

There had been little publicity about the program before the first class was selected. This changed dramatically after articles in the *Reader's Digest*<sup>13</sup> and *Look Magazine*<sup>14</sup> announcing the new Duke program to the public. The first four students had been hand-picked from a small pool of applicants; 200 people applied for the second class and over 1000 for the third class in 1967. Class size quickly expanded; there were four part-time and nine full-time students in the class of 1968 and 12 students in 1969. More students meant new challenges—to secure adequate classroom space and laboratory facilities, and to redefine the content of the curriculum and teaching methods.

In 1967, Stead stepped down as chairman of the Department of Medicine, and the PA program moved its base of operation to the newly created Department of Community Health Sciences. Dr. Harvey Estes, Jr. appointed Dr. Robert Howard as the program's first full-time medical/program director. A family doctor, Howard had just left the Air Force and was used to working with corpsmen. Howard recruited Mr. David Lewis, whose background was in public education, as assistant director. A classroom trailer was purchased to house students, and the curriculum was expanded and formalized. Based on student feedback and criticism, basic science instruction was expanded, and PA students were treated more like medical students than technicians on clinical rotations. The medical instruments course was replaced by courses in microbiology, human growth and development, and clinical laboratory procedures. Clinical learning opportunities increased, and community physicians began accepting PA students into their practices. Other academic medical centers began requesting Duke PA students to test the feasibility of undertaking similar programs, or to test the concept of using PAs to bolster the practices of their clinical staff.

The core curriculum was designed to educate generalist PAs, but in 1968 the program experimented with specialist training in surgery, radiology, and psychiatry. Dr. David C. Sabiston, Jr., chairman of the Department of Surgery, Dr. Thomas T. Thompson, chief of Radiology at the Durham Veteran's Administration Hospital, and Dr. Marvin J. Short, a psychiatrist based at Broughton Hospital in Morganton, NC, were instrumental in establishing specialty rotations for PA students.<sup>15,16</sup> The radiology and psychiatry modules required students to spend an additional four months in training, after which they were issued certificates as "Physician's Assistants in [Psychiatry or Radiology]." This inscription caused some PAs problems when they later sought employment as generalist PAs, because most medical boards viewed the special designation as a limitation, not an expansion, of scope of practice. Specialist certificates were abandoned in 1972 shortly after the University approved awarding bachelor's degrees to PA graduates. The accreditation standards for the

education of primary care PAs adopted by the AMA in 1971 and the Federal Government's 1972 requirement that grants be awarded only to PA programs educating PAs for primary care practice also contributed to their abandonment. Remaining innovative, Duke began educating PAs for the US Coast Guard in 1971 and joined the School of Pharmacy at the University of North Carolina at Chapel Hill to train pharmacist PAs—a forerunner of today's clinical pharmacist. The UNC collaboration lasted two years, but the training of PAs for the Coast Guard continued until 1990 when Duke decided to award the master's degree to its graduating PAs.

In 1968, Dr. Howard explored awarding academic credit for courses offered by the PA program. He felt the caliber of the curriculum was "at or above the level of general college course work." He was also aware that five months earlier the Commonwealth Foundation had funded Dr. Hu C. Meyers at Alderson-Broadus College in West Virginia to prepare "college-trained" PAs. On September 19, 1969, Estes and Howard proposed to Dr. Thomas D. Kinney, Dean of Medical Education, and Dr. William Anlyan, Vice President for Health Affairs, that a bachelor's degree be made optional for PA students who met general undergraduate requirements. The university provost held a series of meetings to resolve whether the undergraduate college or the medical school should grant the degree. Estes, Howard, and Kinney wanted it in the medical school since the program's faculty was based there and other baccalaureate programs were being considered (for pathology assistants and nuclear therapists). All parties finally agreed that the medical school should establish requirements for a Bachelor of Health Sciences (BHS) degree for allied health programs. The medical center's administration granted permission to offer the degree on September 1, 1971—and entering students learned that they would have to pay tuition for the first time. The bachelor's degree required the basic science departments to teach courses to allied health students, and the chairmen of several departments balked at the idea of teaching students who did not have proper college prerequisites. Estes and Howard felt that demanding prerequisites of all students would destroy the original intent of providing career entry to corpsmen, licensed practical nurses, and other clinical personnel with "non-academic" health care education and experience. They resisted attempts to divide students into two groups to be taught basic sciences by different faculty according to degree eligibility. Stead waded into the conflict, reiterating his position that PAs needed a more applied basic science course than that taught to medical students. He argued that in most cases such a course could be taught better by practicing physicians than by basic scientists. Compromises were reached, and on May 16, 1972, the Medical School Advisory Committee agreed to go ahead. Twelve students were awarded the BHS degree on May 4, 1973.

Howard and Lewis left the program in 1972 and moved to Florida to establish a family medicine residency and PA

**Table 1. Demographic profile of PA classes at 5-year intervals**

Class	Total	Men Number (%)	Women Number (%)	Minorities Number (%)
67-71	71	67 (94)	4 (6)	5 (7)
72-76	203	166 (82)	37 (18)	15 (7)
77-81	198	116 (59)	82 (41)	13 (7)
82-86	192	92 (48)	100 (52)	10 (5)
87-91	196	55(28)	140 (72)	20 (10)
92-96	203	56 (28)	148 (73)	26 (13)
97-00	174	47 (27)	127 (73)	37(21)
Total	1237	599 (48)	638 (52)	126(10)

Data do not include 60 students (42 men and 18 women) who withdrew before graduating. This group includes 18 minorities. Percentages may not be exact because of rounding.

program there. At the time of their departure, student enrollment had risen to 40 students per year, and classroom and laboratory space were made available in a newly constructed allied health building on the Durham Veteran's Administration Hospital campus. Reginald Carter, PhD, a physiologist, was recruited to replace Lewis, and Estes served as program director until Dr. Michael Hamilton, a general pediatrician working at Lincoln Hospital in Durham, was recruited to fill this position in 1975. Carter was responsible for assuring that the curriculum conformed to University degree and AMA accreditation standards. He completed course work as a part-time student and became a PA himself in 1978.

Based upon his experience as a student and the recommendation of accreditation site visitors to teach more preventive medicine and behavioral science, Carter proposed a complete overhaul of the first year curriculum. It would reduce the time devoted to basic science by integrating course content and minimizing duplication of effort. The curriculum was streamlined so that content of one course built on that of parallel courses. For example, students learned head and neck anatomy at the same time they were learning how to examine these regions in physical diagnosis. The clinical medicine course focused on the 100 most common clinical problems seen in primary care practices; radiology, ECG interpretation, therapeutics, and preventive health measures were integrated into the course where most appropriate. The chairs of clinical and basic science departments were asked to support the new curriculum, and, with their approval, the Allied Health and Medical School Advisory Boards imple-

mented the integrated, competency-based curriculum in 1980.

While Carter worked on the first phase of education, Hamilton worked to improve clinical training. The accreditation site visitors felt that students spent too much time in hospital-based inpatient and ambulatory clinics and not enough time in community-based primary care clinics. Hamilton used the newly created family medicine residency program to establish a team practice clinic in southern Durham. This clinic, which opened in 1981, offered interdisciplinary education opportunities for family medicine residents and medical, nursing, and PA students.

By 1980, the PA curriculum was in the hands of a small group of educators based in the Department of Community and Family Medicine. The program was recognized for its innovative use of standardized patients to teach physical diagnosis and patient assessment skills, and for its development of computer-based systems to manage and evaluate the curriculum. Carter became program di-

rector and chief of the PA Division in 1985 when Hamilton moved to a part-time role. Dr. Joyce Copeland assumed the role of medical director in 1990.

By 1985 most PA students already possessed bachelor's degrees, so several PA programs began offering their graduates advanced degrees. In 1987, the Duke program asked the medical school to establish a Master of Health Sciences degree and award it to PA graduates. Associate Program Director Patricia Dieter, MPA, PA-C, developed the proposal; it had the support of Dr. George Parkerson, Jr., chair of the Department of Community and Family Medicine, Dr. Doyle Graham, Dean of Medical Education, and Dr. Ralph Snyderman, Chancellor for Health Affairs, and was quickly endorsed. Courses in epidemiology, research, and health systems were added to the curriculum and, unlike the BHS proposal, the MHS proposal moved smoothly through all the necessary committees. It was approved, with a few minor modifications, by the Academic Council in January 1989; students entering the program in 1990 were awarded the MHS degree. Because the BHS curriculum had already been taught at an advanced level, the Provost allowed former graduates who had a bachelor's degree on matriculation to return to Duke to complete additional coursework and receive an MHS degree. During the next five years, over 100 alumni completed the work needed for the MHS degree.

In 1996, students moved into new educational facilities provided by the medical school. The space consists of a state-of-the-art multimedia classroom, small conference rooms, and a clinical-skills laboratory. Each student workspace provides computer connection to the university's Common

Services Network and the Internet. Students lease laptop computers during the two years they are enrolled in the program. Course syllabi, assignments, handouts, lecture notes, links to electronic journals, and other learning resources are available by computer. Quizzes, examinations, and course evaluations are administered and analyzed by computer.

The PA program now enrolls 44 students annually. The curriculum runs for 25 months (a 12-month preclinical phase and a 13-month sequence of clinical rotations). The highly integrated preclinical curriculum presents content in manageable units. Course work consists of lectures, small group and computer-assisted tutorials and patient case simulations, laboratory sessions, and standardized patients. After the first semester, students perform weekly evaluations (history and physical examinations) of hospitalized or ambulatory patients. The clinical rotation year is divided into four- and eight-week blocks. There are eight core rotations—inpatient medicine, general surgery, emergency room/surgery outpatient, pediatrics, behavioral medicine, obstetrics and gynecology, outpatient medicine, and research—with the remaining time devoted to electives. Two clinical rotations must be completed in medically underserved settings. All students complete basic and advanced life support instruction. They must pass computer-based examinations after each required rotation, as well as a series of problem-oriented patient assessment examinations observed and evaluated directly by faculty. Students are awarded MHS degrees in May and PA certificates of completion in August of their second year.

In 1998, Justine Strand, MPH, PA-C, became chief of the PA Division; Carter continues as program director. The division is expanding postgraduate educational offerings for PAs in leadership management skills, faculty development and occupational and environmental medicine.

## Student Trends

Tables 1 and 2 show trends in gender, ethnicity, and prior health care experience of entering students over 35 years. Former military corpsmen made up the initial pool of candidates for the program, but it soon became apparent that

**Table 2. Prior health care experience of students at matriculation, at 5-year intervals**

Class	Total	Medical corpsman	Pt. care assistant	Clinical technician	EMT	Nursing	Other
67-71	71	57	4	5	0	2	3
72-76	203	99	39	14	5	13	33
77-81	198	62	58	21	6	19	32
82-86	192	20	64	14	30	17	47
87-91	196	9	14	15	27	12	84
92-96	203	0	41	55	11	6	88
97-00	130	1	76	36	19	6	36
Total	1237	250	331	160	98	75	323

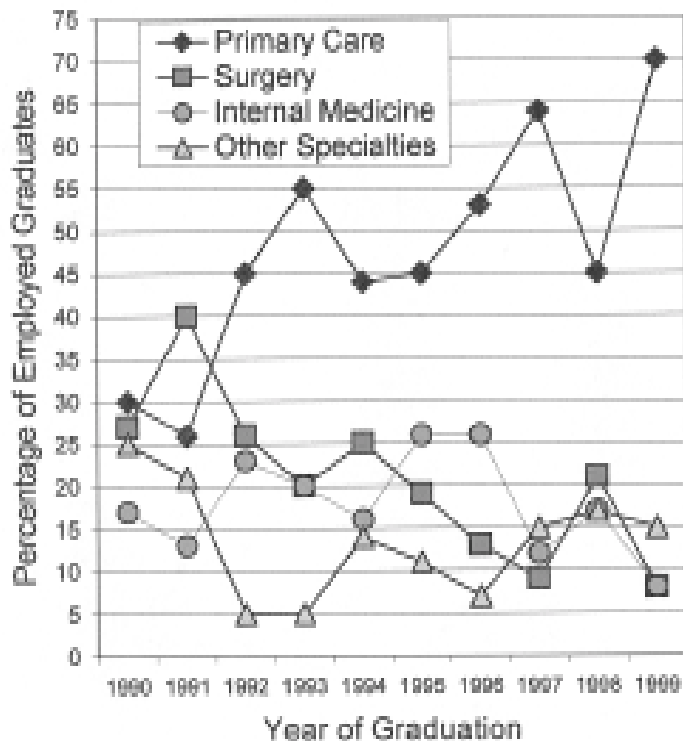
Clinical technician: medical technologist, clerical and research technicians. Other: social workers, counselors, pharmacists, health care administrators and other allied health professionals.

**Table 3. Practice characteristics of 610 Duke PA alumni**

Practice setting	
Hospitals and institutions	43%
Offices	33%
Clinics	20%
Other	4%
Type of practice	
Primary care	53%
Surgery	23%
Internal medicine	19%
Other	5%

the program offered new career pathways for those in allied health and nursing professions who wanted to expand their roles in patient care. Prompted by federal funding aimed at increasing the number of women and minorities, women began replacing the dwindling number of military corpsmen. From 20% in 1975, the enrollment of women grew to 50% by 1985 and 72% by 1995. The ratio of women to men is now 3:1. Since 1980, the number of students from medically underrepresented groups and disadvantaged backgrounds has increased seven-fold from 5% to 34% of the class entering in 2000. Students from minority or economically/educationally disadvantaged groups now constitute 25-30% of the class.

The curriculum has evolved from certificate to baccalaureate to master's degree status, and the educational level of



**Figure 3.** Specialty choices of new PA graduates 1990-1999.

enrolling students has evolved as well. In the first five years of the program, fewer than 10% of students entered as college graduates; this percentage gradually increased so that for the past decade all students have college degrees when they enter. Today's student is typically between 25 and 32 years old; the average age of entering students has increased from less than 26 years old at the start of the program to nearly 29 years old now. On the other hand, the number of years of prior health care experience obtained by students before entering has declined since 1967 (from almost 5 years to a steady average of 3.5 years now). The average entering student has a grade point average of 3.2-3.6 (up from 2.6 during the first decade of the program), has earned 40-70 natural science credits, and has Graduate Record Examination scores of between 1680-1840.

### Practice Trends

The 1237 graduates of Duke's PA program are employed in 48 states, mostly in the south, southeast and northeast; 417 work in North Carolina. Their work settings reflect the primary care emphasis of the program. Of the 610 alumni who responded to our two last surveys, 53% practice in primary care settings (family medicine, general internal medicine, pediatrics, urgent care, and obstetrics/gynecology) (Table 3).

A gradual trend over the past 10 years finds more

students working in primary care and far fewer in surgery (see Figure, page XXX). In 1990 and 1991, fewer than 30% of students entered primary care practices; in 1999 only 30% did *not* choose primary care careers. In 1992, funds from the Duke Endowment and the federal government, allowed the program to renew its efforts to attract individuals interested in primary care ambulatory medicine, especially in rural, medically underserved communities of North Carolina. Today, only 30% of Duke PA students' clinical education takes place in the Duke University Health System, the rest is based in community and institutional practices in North Carolina and southern Virginia. The program works closely with four AHECs—in Fayetteville, Wilmington, Rocky Mount, and Asheville—to place students in medically underserved communities.

Over the past ten years, salaries paid to PAs have increased at an annual rate of 5% per year from an average of about \$35,000 in 1990 to \$55,000 in 1999. Over the past four years, the rate has slowed to 3.75%, because more students have chosen less lucrative primary care positions. About 30% of Duke PA graduates work in areas with a shortage of health professionals. Employment opportunities are generally good, and the average Duke graduate can expect to earn about \$55,000 upon completion of training. Mid-range salaries of graduates working for more than five years range from \$48,000 and \$70,000, not including fringe benefits.

### Conclusion

The physician assistant profession went from concept to reality in only 35 years, thanks to the innovative thinking of Dr. Eugene Stead and the support and commitment of countless North Carolina physicians. There are now more than 38,000 PAs in the United States, and more than 1,500 practice in North Carolina. PAs have nationally standardized accreditation, board certification, and mandatory recertification.

A positive practice environment enables full use of PAs in North Carolina. In company with their supervising doctors they improve access to health care for the state's citizens. PAs are eligible to join the North Carolina Medical Society, which has an active PA section, and to participate on its many committees.

Alumni of the Duke Physician Assistant Program have provided leadership for the profession since its inception. Duke University PAs formed the American Academy of Physician Assistants in 1968. They have held leadership roles in national and state organizations, and they have founded PA programs across the country. Perhaps most important, they have established a record of service in primary care, particularly in rural and medically underserved citizens in North Carolina and throughout the country.

## References

- 1 Powers L, Howard R. The feasibility of an assistant to the physician. *NC Med J* 1970;31(3):79-83.
- 2 Powers L. North Carolina physicians' interest in physicians' assistants. *NC Med J* 1970;31(12):464-5.
- 3 Hill JE, Jr. The do's and don'ts of responsible PA practice. *NC Med J* 1985;46(11):607-9.
- 4 Gifford JF, Jr. Prototype PA (Amos Johnson and Henry Treadwell). *NC Med J* 1987;48(11):601-3.
- 5 VonSeggen W, Hinds A. Physician Assistants in North Carolina, 1992. *NC Med J* 1993;54(6):276-80.
- 6 Stead EA, Jr. Conserving costly talents, providing physicians' new assistants. *JAMA* 1966;198(10):182-3.
- 7 Carter RD, Gifford JF, Jr. The emergence of the physician assistant profession. In: Perry HB, Breitner B, eds. *Physician Assistants: Their Contribution to Health Care*. New York: Human Science Press, 1982.
- 8 Gifford JF, Jr. The development of the physician assistant concept. In: Carter RD, Perry HB, eds. *Alternatives in Health Care Delivery: Emerging Roles for Physician Assistants*. St. Louis, MO: Warren H. Green, 1984.
- 9 Hooker RS, Cawley JF. *Development of the Profession in Physician Assistants in American Medicine*. New York: Churchill Livingstone, 1997.
- 10 Holt N. "Confusion's masterpiece": the development of the physician assistant profession. *Bull Hist Med* 1998;72:246-78.
- 11 Ballenger M. Legal consideration: the physician's assistant. *Hospitals, JAHA* 1971;45:58-61.
- 12 Stead EA, Jr. Manna from the physician's assistant program: a source of nourishment for medical educators. In: Anlyan, WG, Graves J, et al, eds. *The Future of Medical Education*. Durham, NC: Duke University Press, 1973.
- 13 Lester V. Where the jobs are: health careers unlimited. *Reader's Digest* 1965(August);108-112.
- 14 Berg RH. More than a nurse, less than a doctor. Reprinted from *Look* (September 6, 1966) in *JAAPA* 1992; 5(9):711-3.
- 15 Thompson TT. The evaluation of physician's assistants in radiology. *Radiology* 1974;111:603-6.
- 16 Toth P, Pickrell K, Thompson L. Role of the physician assistant and the plastic surgeon. *South Med J* 1978;71(4):430-1.

### A word from Dr. Stead:

It's great to be number one in national rankings. Most proponents of the Duke medical school are used to being ranked in the top 20, but the Duke PA program is the only component always ranked in first place year after year.

Congratulations to its leader, Reginald Carter, to his faculty, and to the student body, and to the North Carolina Medical Society, whose members have always ably supported the PA program.

Eugene A. Stead, Jr., MD

### A Word from Dr. Estes:

Few of us have the opportunity to participate in the birth and rapid development of a new profession. I was very fortunate to be on Dr. Eugene Stead's team when the Physician Assistant program was conceived, and even more fortunate to be in a position to "take over" the Duke program when Dr. Stead retired from his role as Chair of Medicine in 1967. I hope that I have had a positive effect on the profession, but its remarkable success is clearly due to the PAs themselves, the men and women who chose this path, and to their wise decisions.

PA education was patterned after medical education, but there are important differences. PA education aims at producing a generalist, and all graduates take a certification examination covering the knowledge and skills required in primary care. PAs must be recertified every six years, and the generalist content of this exam is the same, no matter what specialty the examinee has pursued since the last exam. A PA who has worked in orthopedics, or endocrinology, or pediatrics must demonstrate knowledge of generalist topics.

Recertification, and the requirement that all must pass the same recertifying exam, has had a remarkable effect, which physicians should view with envy. This common experiential thread has, in my opinion, caused the PA profession to be a more unified and cohesive professional group than the medical profession. They attend meetings in much higher numbers, they attend a variety of clinically oriented lectures on general medical topics, and they share experiences and problems across their specialty boundaries. Political and economic issues are discussed, as they are in medical meetings, but the basic purpose of preventing disease and treating illness is always the dominant theme.

This is one of many lessons we can learn from our Physician Assistant colleagues. I invite all physicians to learn from them as they rub shoulders with PAs in their practices, and in interactions in the North Carolina Medical Society.

E. Harvey Estes, Jr., MD