

FOURTEENTH ANNUAL REPORT ON PHYSICIAN ASSISTANT EDUCATIONAL PROGRAMS
IN THE UNITED STATES, 1997-1998

INTRODUCTION

Founded in 1972, the Association of Physician Assistant Programs (APAP) serves as the national organization representing physician assistant (P.A.) educational programs in the United States. The Association serves as a conduit for communication among P.A. educators by sponsoring meetings, organizing research studies and providing a forum to conduct the business of the membership. Another important role for the Association is to serve as a resource for individuals and organizations interested in the aspects of the physician assistant profession that pertain to the selection and education of the P.A. students and the characteristics of physician assistant programs. In addition, APAP provides representation to various bodies that help to chart the course of the P.A. profession, including the Commission on Accreditation of Allied Health Education Programs (CAAHEP) and the National Commission on Certification of Physician Assistants (NCCPA), among others.

As the primary organ for collection and dissemination of data about its member physician assistant educational programs, the Association publishes the "Physician Assistant Programs Directory."¹ The Directory provides a listing and description of APAP member programs. Each listing provides comprehensive information concerning each program's admission requirements, curriculum, institutional affiliates, credentials awarded and other descriptive data. The Directory also provides a summary of postgraduate educational programs for P.A.'s, information about accreditation and P.A. certification. As of October, 1997, there were 104 physician assistant programs accredited (full or provisional) by the Commission on Accreditation of Allied Health Educational Programs in the United States.²

In 1984, the process of establishing a national database on P.A. programs was initiated by Denis Oliver, Ph.D., Director of The University of Iowa Physician Assistant Program and then Past-President of the Association. The first national survey was developed and administered in the Fall of 1984. The questionnaire requested information on a variety of program "activities" including institutional sponsorship, financial support, program personnel (faculty and support staff), characteristics of applicants and students enrolled, curriculum, student attrition, and graduate employment characteristics. The findings from the 1984 survey were published as the First Annual Report on Physician Assistant Educational Programs in the United States, 1984-85 and, to date, a total of fourteen Annual Reports³⁻¹⁶ have been published, including the present Report.

Dr. Oliver retired as author after publication of the eleventh Report. In 1995, the APAP Board of Directors authorized individuals from the Saint Francis College Department of Physician Assistant Sciences to author future Reports. Data from the annual report has been published in numerous other venues where discussions of the P.A. profession are ongoing. Examples of these publications include the Journal of Medical Education, AAPA News and the Journal of the American Academy of Physician Assistants. Selected data have been published in the Annual Reports to the President and Congress on the States of Health Personnel in the United States and in a publication of the Association of Academic Health Centers.

The data presented in the Report over the years represents responses from greater than 90% of the P.A. programs surveyed. This high rate of response leads the authors to present the findings contained herein to be representative of the physician assistant educational programs in the United States. Given that the basic elements of the annual survey have remained consistent over its fourteen year history, a significant amount of data has been generated that can be used to depict the "typical" or "average" P.A. educational endeavor. The consistency in collection of data has also provided the ability to detect trends or document changes as they occur over time. Identified trends have been analyzed to generate reports on the following items:

- * Characteristics of AMA-accredited P.A. Programs that have Closed.⁵
- * Characteristics of Graduate-Level P.A. Programs.^{6,9}
- * Analysis of Alien and U.S. Unlicensed Medical Graduates Admitted to P.A. Programs.⁸
- * Analysis of P.A. Program Personnel Turnover.¹⁰⁻¹⁶
- * A Review of Program Characteristics by Sponsoring Institution.³

METHODS

The Survey Instruments

Two questionnaires (surveys #1 and #2) were administered. The first survey was seven pages in length, mailed in October, 1997, to 104 programs that were identified as accredited from databases maintained by APAP and the American Academy of Physician Assistants (AAPA). Survey #1 consisted of three major sections (see the Appendix for a copy of both questionnaires):

- A. General Program Information: Includes date of admission of first class, length of program, consortia membership, sponsoring institution, sources of financial support, student expenses and financial aid and credentials earned.
- B. Program Personnel: Includes characteristics of program faculty and staff, clinical activity of P.A. personnel, and an assessment of program personnel turnover, attrition and recruitment.
- C. Applicant/Student Information: Includes the number, gender, age, ethnicity, residency, academic and health care experience background of applicants and students enrolled, including the disabled. A section requesting information of unlicensed medical graduate (UMG) applicants and students enrolled is also included.

Survey #2 was five pages in length, was mailed in November and requested information on:

- A. Graduate Information: includes information on student attrition and deceleration, characteristics of recent and all graduate employment, program directors' opinions concerning employment opportunities and starting salary for recent graduates.
- B. Additional Information: includes information on the need for physician assistant education, the current state of clinical training sites, competition for clinical sites, payment of clinical sites, current market demand and testing of physical exam skills.

Survey Period and Response Rate

The first survey was mailed (10/1/97) to 104 P.A. programs, including twelve programs enrolling students for the first time in the 1997-98 academic year. An initial deadline of November 14, 1997 was established. A total of 98 responses were received for a response rate of 94.2%.

The second survey was mailed upon receipt of survey #1 (all sections). If survey #1 was not received by the deadline, a follow-up letter was mailed, which included a copy of survey #2. Seventy-one survey #2's were received, with an additional 28 programs stating that they did not have graduate information to report.

Data Entry and Analysis

In the process of editing each questionnaire, obvious misinterpretations or inconsistencies in the responses to specific items were resolved by telephoning or e-mailing the person completing the survey. A series of contingency checks were made to identify invalid characters or extreme values in any field.

In general, analyses of the data consisted of descriptive statistics on the variables of interest, e.g. arithmetic mean, standard deviation, median, and range of values. Medians were listed on tables when they differed significantly from the mean. T-tests were used to determine levels of statistical significance between groups. Regression equations were developed for program budget and student enrollment as well as various parameters associated with personnel salary and certain variables which were expected to influence salary, i.e., gender, months of experience, academic credentials and academic rank. Data are not reported when only one person is represented in a category.

Tables and figures presented in this report represent aggregate data from the respondents. Due to missing data and/or unusable answers, the number of respondents to a particular questionnaire item varied. In most cases, the maximum number of valid responses was 98, however, in some cases, data on nonrespondents was obtained from the APAP Directory or personal communication with nonrespondent programs, in which case a total of 104 programs were represented.

Quality Improvement

Given that the Report is an ongoing enterprise, the authors are interested in improving its usefulness to our customers. In 1995, the APAP Board of Directors approved the formation of an advisory board to review the planning and direction of the Report and to help to continually improve the product.

Constructive comments on how to improve the Report or any of its survey instruments are welcome at any time. Please address any comments to: Albert Simon, M.Ed., PA-C, Physician Assistant Program, Baylor College of Medicine, One Baylor Plaza, Room 633E, Houston, TX, 77030-3411 (e-mail: asimon@bcm.tmc.edu) or Marie Link, Department of Physician Assistant Sciences, Saint Francis College, P.O. Box 600, Loretto, PA 15940 (e-mail: MLink@sfcpa.edu).

The "Typical" P.A. Program

The data reported herein represents our best estimate of the population value for the variables involved and were used to describe the characteristics of the "typical" P.A. program. Mean and/or median values were reported for each characteristic examined. In calculating mean values, entries with zero values were usually included while 'missing' values were uniformly excluded. When only partial data were available, the number of respondents was identified.

In some cases, totals reported for a given category may not reflect a simple summation of the subcategories. For example, in the table presenting data on applicant age (Table 55), one program may report the total number of applicants, but not report data for any of the age subcategories for applicants. In such a case, means for each of the age groups are reported based on the programs that provided information. The programs that reported only the total number of applicants were included in the "total" figure (N=74), but not in the subcategory data (N=65). Thus, the number of responding programs upon which the category or subcategory means were based may differ. In addition to reporting aggregate data for the "typical program," program respondents were also compared on the basis of geographic region.

Analysis of Trends Over Time: 1984-1997

In comparing current data to similar data collected in previous years, trends occurring in various aspects of P.A. educational programs were identified. Specific variables for which comparisons have been made include program budget, student expenses and financial aid, salaries of program personnel, number of applicants and students enrolled, student characteristics (age, gender, ethnicity, health related experience, G.P.A. and attrition) and employment characteristics of program graduates (i.e., rate of employment, medical specialty, type of practice, starting salary).

Additional Copies of this Report

Copies of this Report may be purchased by contacting: Association of Physician Assistant Programs, 950 N. Washington Street, Alexandria, VA 22314-1552 (703-548-5538).

SECTION I. GENERAL PROGRAM CHARACTERISTICS

Listing of P.A. Programs by Geographical Region

Operational programs are listed by state and APAP consortium in Table 1. The Northeastern (N=22) and Midwestern (N=24) regions had the largest number of programs, while the Heartland (N=10) had the fewest number of programs. In total, 41 states (including the District of Columbia) currently have an operational P.A. program. Nonrespondents to Survey #1 appear in bold text (N=5).

Table 1. Consortium Regions of Operational Physician Assistant Programs

NORTHEASTERN CONSORTIUM (N=22.): Connecticut, Maine, Massachusetts, New Jersey, New York

Albany-Hudson Valley	Daemen College	Springfield College
Bayley Seton Hospital	LeMoyn College	SUNY/Hlth Sci Brooklyn
Bronx Lebanon Hosp. Center	Northeastern University	SUNY/Stony Brook
Brooklyn Hosp/L.I. University	Quinnipiac College	Touro College
Catholic Med. Ctr., Brooklyn	Rochester Institute of Tech.	Univ. Of New England
CUNY/Harlem Hospital	Rutgers University	Wagner College/Staten Isl
Cornell University	Seton Hall University	Yale University
D'Youville College		

EASTERN CONSORTIUM (N=16): Maryland, Pennsylvania, Wash. D.C.

Allegheny Univ. of Hlth Prof.	Essex Community College	Lock Haven University
Allentown Coll. St. Francis de Sales	Gannon University	PA College of Technology
Anne Arundel Community College	George Washington Univ.	Phila College of Textiles
Beaver College	Howard University	St. Francis College
Chatham College	King's College	Seton Hill College
Duquesne University		

SOUTHEASTERN CONSORTIUM (N=18): Alabama, Florida, Georgia, Kentucky, N.Carolina, S. Carolina, Tennessee, Virginia, West Virginia

Alderson-Broadus College	East Carolina University	South College
Barry University	Emory University	Trevecca Nazarene University
Bowman Gray/Wake Forest	Medical College of Georgia	Univ. of Alabama - Birmingham
College of Health Science	Medical Univ South Carolina	University of Florida
College of West Virginia	Methodist College	University of Kentucky
Duke University	Nova Southeastern University	University of South Alabama

MIDWESTERN CONSORTIUM (N=24): Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, North Dakota, Ohio, South Dakota, Wisconsin

Augsburg College	Luthern College	Univ. of North Dakota
Butler U/Methodist Hospital	Marquette University	Univ of Osteopathic Med
Central Michigan Univ.	Medical College of Ohio	Univ. of South Dakota
Cook County/Malcolm X	Midwestern University	University of WI - LaCrosse
Cuyahoga (P.A. and S.A.)	St. Louis University	University of WI-Madison.
Finch Univ of Hlth Sci	Southern Illinois University	Wayne State University
Grand Valley State University	University of Detroit Mercy	Western Michigan University
Kettering College	University of Iowa	

HEARTLAND CONSORTIUM (N=10): Kansas, Louisiana, Nebraska, Oklahoma, Texas

Baylor College of Medicine	University of Nebraska	University of Texas/Galveston
Interservice PA Program	Univ. of North Texas Hlth Sci Cent	University of Texas/SW Med Ctr
Louisiana St. University	University of Oklahoma	Wichita State University
Union College		

WESTERN CONSORTIUM (N=14): Arizona, California, Colorado, Idaho, Montana, New Mexico, Oregon, Utah, Washington

Charles Drew Univ
Idaho State Univ
Kirksville Coll Osteopathic
Oregon Hlth Sci Univ
Pacific University

Rocky Mountain College
Stanford University
Univ of California at Davis
University of Colorado
University of New Mexico

Univ of Southern California
University of Utah
University of Washington
Western Univ. of Hlth Science

The above listing is based upon the newly established APAP Consortium guidelines. Each program responded as to which consortia they belonged to.

The geographic distribution of the 104 operational P.A. Programs is shown in Figure 1.

Figure 1. Geographic Distribution of Programs



A summary of P.A. programs by sponsoring institution and by highest credential awarded is shown in Table 2 (next page). The majority of P.A. programs were sponsored by either a university (62%) or 4-year college (26%). Four programs were associated with a two-year college, five programs were sponsored by a hospital, three with a medical college and one was sponsored by the armed services. The majority of programs (52%) awarded a baccalaureate degree on graduation, 29 programs awarded a master’s degree (28%), and the remaining programs (N=21; 20%) awarded either a certificate or an associate degree as the highest credential granted. Over the past 5 years, twelve baccalaureate programs converted to masters programs, three programs converted from a certificate to a baccalaureate degree and two programs converted from an associate to baccalaureate program. Some programs offer a graduate degree on completion of additional courses (e.g., pub. hlth, prev. med., geriatrics, exer. sci.). These programs were not included as “entry-level” masters programs.

Table 2. P.A. Programs by Type of Sponsoring Institution and Credential Awarded*

<u>Type of Sponsoring Institution</u>			<u>Highest Credential Awarded</u>		
	<u>N</u>	<u>%</u>		<u>N</u>	<u>%</u>
University	64	61.54	Master	29	27.88
4-Year College	27	25.96	Baccalaureate	54	51.92
Community College	4	3.85	Associate	5	4.81
Hospital**	5	4.81	Certificate	<u>16</u>	<u>15.38</u>
Medical College	3	2.88	Total	104	100.00
Military**	<u>1</u>	<u>0.96</u>			
Total	104	100.00			

* Nonrespondent information was drawn from APAP.

** Degrees granted from University/College Affiliates.

Financial Characteristics of P.A. Programs

Information concerning the sources of financial support for P.A. programs is shown in Table 3. Only data from those

Table 3. Sources of Financial Support for Physician Assistant Programs

<u>Source of Financial Support</u>	<u>Mean</u>	<u>Median</u>	<u>Range</u>	<u>N</u>	<u># With No Support</u>
<u>Internal</u>					
Sponsoring Institution	\$441,129	\$367,000	\$ 7,000 - 1,425,000	85	5
Tuition and Fees (Retained by Program)	\$478,162	\$303,750	\$ 3,000 - 2,798,000	34	56
<u>External</u>					
Federal Grants	\$157,765	\$144,500	\$ 5,000 - 337,000	34	56
State Grants	\$167,556	\$150,000	\$ 9,000 - 310,000	9	81
Foundations	\$ 92,778	\$ 68,000	\$ 2,000 - 303,000	9	81
Private Donation	\$ 10,090	\$ 11,000	\$ 2,000 - 100,000	11	79
Industry	\$ 66,400	\$ 10,000	\$ 4,000 - 204,000	5	85
A.H.E.C. Support	\$ 16,250	\$ 10,500	\$ 5,000 - 38,000	8	82
Other	\$ 68,000	\$ 56,000	\$ 4,000 - 238,000	18	72
Total Program Support	\$679,096	\$582,500	\$63,000 - 2,798,000	90	0

programs reporting financial support from the sources indicated were used to calculate the sample mean and range for each category. The number of programs reporting no support from a particular source (last column) is also shown. Note, data presented in the latter column excludes those programs that did not respond to a specific item. Most programs (N=68) reported support from more than one source, for example, 32 programs reported two sources, 21 programs three sources, 10 programs four sources and 5 programs reported five or more sources of support.

The sources of financial support were classified as either internal or external. Internal support referred to funds available from within the sponsoring institution and/or tuition and fees retained by the program. External support included those funds available from outside the institution, such as federal or state grants, support from public or private foundations, and/or from private industry.

The primary source of internal financial support for the majority (N=85) of programs was the sponsoring institution, providing an average of \$441,129/year/program (S.D.=\$250,680). Five programs reported that they received no financial support from their sponsoring institution. Thirty-four respondents indicated that they received substantial support from student tuition and fees paid directly to the program (mean=\$478,162, S.D.=\$595,340). Fifty-six programs did not receive revenue from student tuition or fees.

External financial support for programs was primarily from federal training grants from the Department of Health and Human Services, Division of Medicine, Bureau of Health Professions. Thirty-four programs (38% of the respondents to this item) received federal funds during 1997-1998 fiscal year. The amount of federal support ranged from \$5,000 to \$337,000, averaged \$157,765 per program (S.D.=\$76,218) and accounted for 21.5% of the total budget, slightly lower than the figure (22.4%) reported last year. Fifty-six programs indicated they did not receive federal grant support in 1997-1998. In addition to federal training grants, nine programs indicated they received state grants averaging \$167,556 per year and eighteen programs reported financial assistance received from other sources (e.g., rate appeals, teaching contracts hospitals, training grant, clinical service, scholarships, Title III and program projects) averaging \$68,000 per program.

The total annual financial support from all sources for the 90 programs reporting averaged \$679,096 per program (median=\$582,500; S.D.=\$446,578). An analysis of the association between total budget and total student enrollment was examined. Two correlations were derived, the first using full-time (F.T.) students enrolled ($r = 0.53$; $p < .0001$) and the other utilizing the sum of F.T. and ½ of the part-time (P.T.) students ($r = 0.551$; $p < .0001$). The results demonstrated a statistically significant relationship between enrollment and program budget.

The following prediction equations were derived from the data using a least squares analysis, estimating program budget and total student enrollment:

- (a) Total Program Budget = (462.503) + (3.09 x # F.T. students enrolled) (in \$1,000's)
- (b) Total Program Budget = (457.113) + (3.12 x # (F.T. + P.T./2) students enrolled) (in \$1,000's)

Thus, using equation "a" for a program with an enrollment of 50 F.T. students, one would predict a budget of \$617,003 per year while equation "b" predicts, for a program with 50 F.T. and 10 P.T. students, a budget of \$628,713/year.

In terms of the reported program budget, the cost of training the average P.A. student for one year of professional training can be roughly estimated by dividing the program budget by the total number of students enrolled (F.T. + P.T./2). Thus, for the 1997 academic year, the cost for the typical program was approximately \$8,436 to educate each student (mean budget of \$679,096 divided by an average enrollment 80.5 of students/program). This figure is 0.5% higher than in the previous year.

The estimated cost/student is based on number of students enrolled and reported "program" budget. It should be noted, however, that these figures may exclude (1) overhead costs provided by the institution, (2) faculty, other than "core" program faculty (e.g., basic science faculty) that are supported by their respective departments and (3) preceptors responsible for the clinical training of P.A. students. Therefore, the values reported herein may be

substantially underestimated.

Program Budget and Federal Support by Region

A comparison of federal support and total program budget by geographic region is shown in Table 4. Programs located in the Western region reported the largest total budget (\$890,357/program). The most federal grant support

Table 4. Total Program Budget and Federal Training Grant Support by Geographic Region

Geographic Region	N	Total Budget		Federal Grants		% of Budget	Fed. Support	
		Mean	S.D.	Mean	S.D.		Yes	No
Northeastern	17	\$725,300	\$394,939	\$140,571	\$ 93,637	22.4%	7	10
Eastern	15	\$632,733	\$362,125	\$107,250	\$ 62,559	13.7%	4	11
Southeastern	16	\$836,625	\$646,578	\$177,667	\$ 55,928	25.0%	6	10
Midwestern	20	\$451,125	\$210,783	\$141,000	\$ 9,000	31.3%	2	18
Heartland	8	\$553,000	\$177,267	\$137,400	\$ 69,916	21.5%	5	3
Western	14	\$890,357	\$481,387	\$191,600	\$ 69,553	19.8%	10	4
Total	90	\$679,096	\$446,578	\$157,765	\$ 76,218	21.5%	34	56

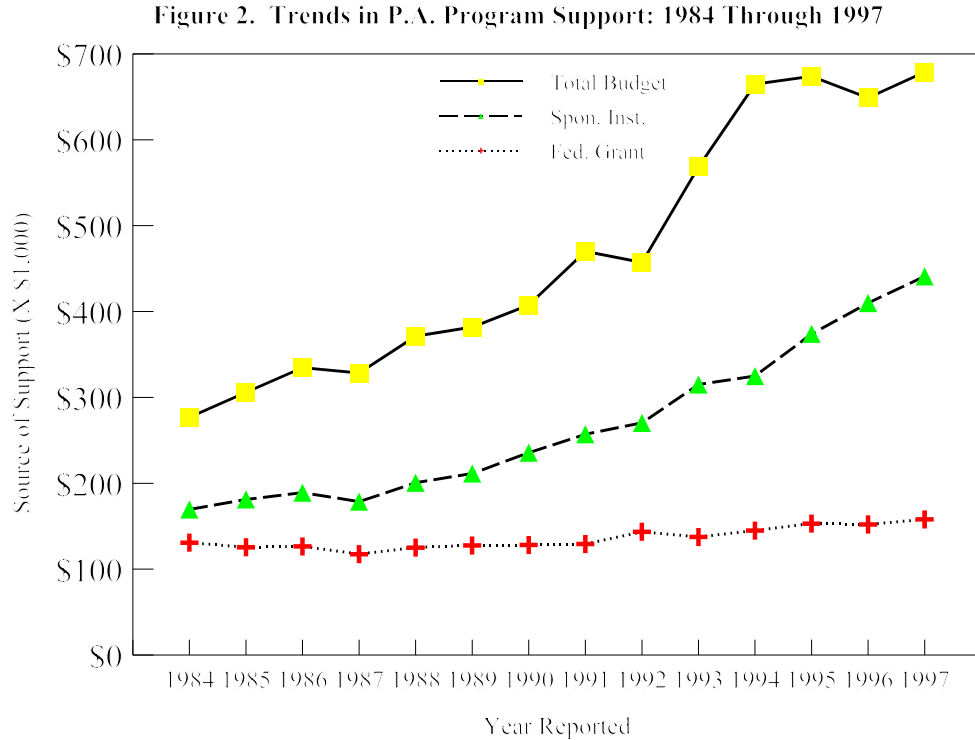
was located also in the Western region, averaging \$191,600/program. Programs in the Midwestern region reported the smallest total budget (\$451,125/program) and those in the Eastern region had the least amount of support from federal training grants (\$107,250/program). The proportion of total program budget derived from federal funds was lowest (13.7%) in the Eastern region, while programs in the Southeastern and Midwestern regions derived at least one-fourth of their total budgets from federal sources.

Trends in P.A. program support from 1984 through 1997 are shown in Table 5 and shown graphically in Figure 2 (next page). The total budget column is not a summation of institutional and federal grant support. The total budget for 1997 increased by over \$30,000 from the previous year. The level of training grants accounted for 21.5% of the total budget, no significant change from 1996. Overall, the total program budget increased an average of 11.4% annually from 1984 to 1997 and program support from the sponsoring institution increased by an average of 8.8% per year for this same period. Although federal support has remained within a narrow range over the years, the

Table 5. Trends in Physician Assistant Program Support, 1984 Through 1997

Year	Sponsor. Instit.		Federal Grant		Total Budget		% Budget Fed. Grant	
	N	Mean	N	Mean	N	Mean	N	Mean
	1984-85	31	\$169,581	27	\$130,889	37	\$276,919	27
1985-86	35	\$181,171	31	\$125,484	38	\$305,868	31	41%
1986-87	37	\$189,135	25	\$126,457	42	\$334,690	33	39%
1987-88	39	\$178,590	35	\$117,429	45	\$328,444	35	38%
1988-89	40	\$200,700	34	\$125,118	44	\$371,386	34	34%
1989-90	35	\$211,400	33	\$127,600	44	\$381,978	34	33%
1990-91	41	\$235,780	36	\$128,222	47	\$409,745	36	31%
1991-92	44	\$257,182	37	\$129,243	48	\$470,063	37	28%
1992-93	49	\$270,346	35	\$143,514	55	\$457,200	35	31%
1993-94	47	\$315,085	35	\$137,514	55	\$568,564	35	24%
1994-95	54	\$324,889	41	\$144,926	58	\$664,797	41	22%
1995-96	65	\$373,957	37	\$152,514	71	\$673,975	37	23%
1996-97	67	\$410,456	35	\$152,300	77	\$648,871	35	22%
1997-98	85	\$441,129	34	\$157,765	90	\$679,096	34	22%

proportion of the total budget from federal training grants has decreased from 41% in 1985 to 22% in 1997. As shown in Figure 2 there has been a sustained increase in both the total program budget and institutional support since 1984. Since 1984, total program budget increased by over 145% while support from the sponsoring institution increased 160%. Although Federal training grant support has remained relatively constant, averaging \$135,641 over fourteen years, the proportion of the total budget from this source has declined substantially.



Student Educational Expenses

For the class entering in 1997, respondents estimated student tuition and educational expenses for the entire length of the program. These results are shown in Table 6. No information was requested concerning living expenses. It should be noted that for the first five Annual Reports, tuition was reported for the student's ENTIRE professional program, for the next eight Annual Reports tuition was reported for the current academic year, however, with this Report, tuition and other educational expenses (e.g., books, fees, equipment) were again reported for the entire professional program.

Table 6. Tuition and Expenses of P.A. Students

<u>Tuition for Entire Program</u>	<u>Mean</u>	<u>Range</u>	<u>N</u>	<u>Mean/Month/Program</u>
Resident Student	\$20,296	\$2,300-64,400	91	\$1,010
Nonresident Student	\$26,228	\$6,100-64,400	91	\$1,305
<u>Books, Fees, and Equipment</u>	\$ 3,736	\$ 800-17,275	92	\$ 186
<u>Total Student Costs: (Tuition, Books, Fees, Equipment)</u>				
Resident Student	\$24,057	\$4,400-67,900	91	\$1,196
Nonresident Student	\$29,989	\$7,600-67,900	91	\$1,491

On average, there was a \$5,932 difference between resident and nonresident tuition among the 91 programs responding. Data are also expressed as the mean cost per student per month. The results of this computation are

shown in the right column of Table 6, and indicate that the typical resident student paid an average tuition of \$1,010 per month while the nonresident paid \$1,305 per month, a 29% difference.

Expenses associated with books, equipment and fees averaged \$3,736 per student for their entire professional training. These expenditures represented approximately 15.5% and 12.5% of the total educational expenses for resident and nonresident students, respectively. The total expenses incurred by the typical P.A. student for their entire P.A. education (includes tuition, books, equipment, and fees) averaged \$24,057 for residents and \$29,989 for nonresidents. The average total cost per month was \$1,196 for residents and \$1,491 for nonresident students.

As shown in Table 7, the majority of students (84.7%) received financial aid which averaged \$13,890 per student per year and accounted for 106% of the costs of tuition, fees, books, and equipment (\$13,066) for the typical resident

Table 7. Financial Aid Support Provided P.A. Students

Financial Aid Characteristic	Mean	Range	Number
% Receiving Financial Aid	84.7%	38-100%	84
Amount of Aid Received/Year	\$13,890	\$1,200-34,500	77

student. Using these values, one can estimate that the typical resident P.A. student would be indebted approximately \$27,780 (2 X \$13,890) at the conclusion of their professional education.

Student Expenses by Geographic Region

Tuition (for the entire curriculum) and total costs for P.A. students during the 1997-98 academic year are shown by geographic region in Table 8. The average resident tuition and total expenses incurred by P.A. students varied extensively across geographic region. Resident tuition was highest for students enrolled in programs located in the Eastern region (\$26,239/curriculum) and lowest for programs located in the Heartland region (\$8,200/curriculum). Nonresident tuition varied less across regions with a difference of approximately \$6,118 between the highest and

Table 8. Expenses of P.A. Students by Geographic Region

Geographic Region	N	Mean Tuition		Total Costs/Month		% Receiving Finan.Aid
		Resident	Nonresident	Resident	Nonresident	
Northeastern	18	\$23,871	\$26,404	\$1,078	\$1,271	85.4%
Eastern	15	\$26,239	\$28,329	\$1,251	\$1,364	79.2%
Southeastern	16	\$23,962	\$28,454	\$1,059	\$1,216	89.6%
Midwestern	20	\$15,384	\$22,388	\$ 891	\$1,267	80.0%
Heartland	8	\$ 8,200	\$28,506	\$ 421	\$1,280	81.9%
Western	14	<u>\$19,071</u>	<u>\$25,389</u>	<u>\$1,114</u>	<u>\$1,455</u>	<u>86.1%</u>
Total	91	\$20,296	\$26,228	\$1,010	\$1,305	84.7%

lowest values. Total student expenses per month for residents were highest among programs in the Eastern region and lowest in the Heartland region, whereas nonresidents in the Western and Southeastern regions had the highest and lowest total costs, respectively. The proportion of students receiving financial aid varied from 79.2% in the Eastern region to 89.6% in the Southeastern region.

Trends in P.A. Student Expenses

Comparisons between tuition and student expenses, and the proportion of students receiving financial aid from 1984 through 1997, are shown in Table 9 (next page) and Figure 3 (next page). Tuition has increased 218% and 192% over the past fourteen years for resident and nonresident students, respectively, an average of 12.9% and 11.7% per year, respectively. Similarly, total student expenses (which includes tuition, books, equipment, and fees over the entire program) increased by 220% and 201% over the fourteen-year period for resident and nonresident students,

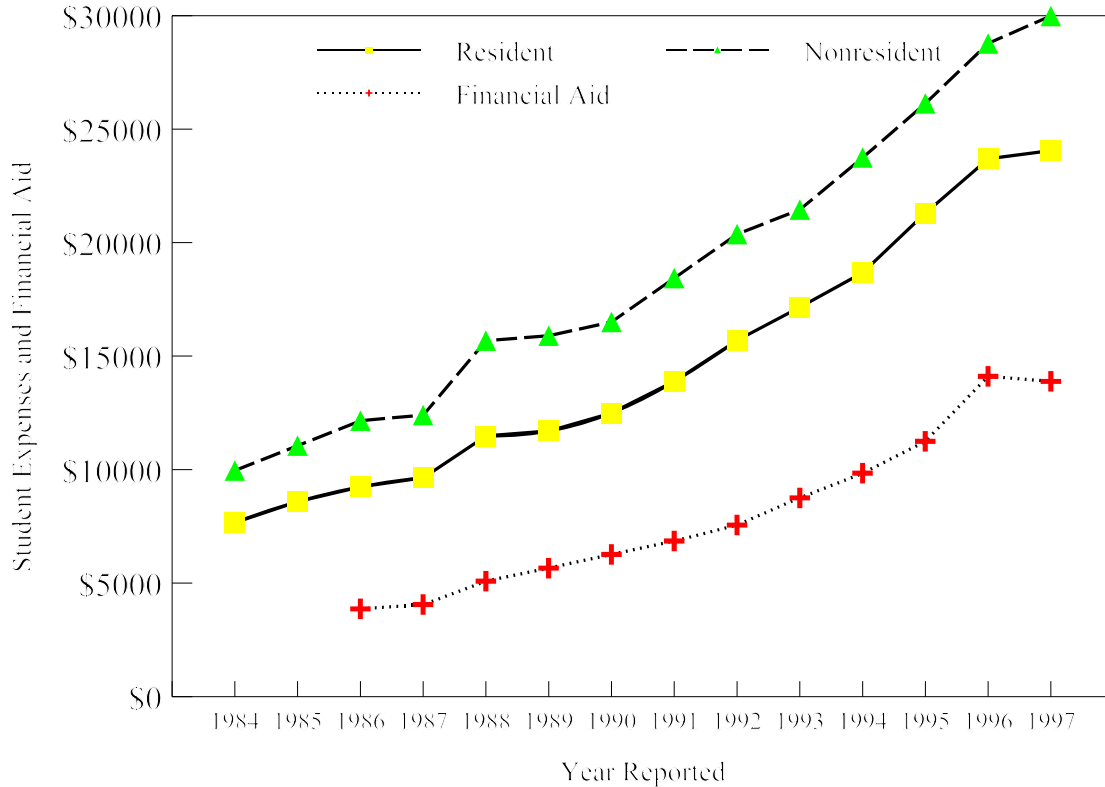
respectively.

Table 9. Trends in P.A. Student Expenses, 1984 Through 1997

Academic Year	<u>Mean Tuition</u>				<u>Total Expenses</u>				<u>% With</u>		<u>Fin. Aid Received</u>
	<u>Resident</u>		<u>Nonresident</u>		<u>Resident</u>		<u>Nonresident</u>		<u>Fin. Aid</u>		
	<u>N</u>	<u>Mean</u>	<u>N</u>	<u>Mean</u>	<u>N</u>	<u>Mean</u>	<u>N</u>	<u>Mean</u>	<u>N</u>	<u>%</u>	
1984-85	37	\$ 6,378	36	\$ 8,986	35	\$ 7,669	34	\$ 9,962	33	65%	N/A
1985-86	40	\$ 7,098	40	\$ 9,565	40	\$ 8,588	40	\$11,055	40	65%	N/A
1986-87	46	\$ 7,626	43	\$10,451	45	\$ 9,247	42	\$12,155	39	63%	\$3,866
1987-88	47	\$ 8,012	47	\$10,775	47	\$ 9,643	47	\$12,494	43	63%	\$4,060
1988-89	47	\$ 9,472	47	\$13,660	47	\$11,485	47	\$15,681	43	67%	\$5,086
1989-90	47	\$ 9,978	47	\$14,174	47	\$11,706	47	\$15,902	43	69%	\$5,663
1990-91	47	\$10,620	47	\$14,614	47	\$12,495	46	\$16,511	42	71%	\$6,268
1991-92	48	\$11,714	47	\$16,240	48	\$13,890	47	\$18,440	45	71%	\$6,860
1992-93	55	\$13,092	55	\$17,772	55	\$15,694	55	\$20,375	51	71%	\$7,558
1993-94	55	\$14,470	55	\$18,774	55	\$17,153	55	\$21,457	49	71%	\$8,755
1994-95	59	\$16,030	59	\$21,106	59	\$18,676	59	\$23,752	53	77%	\$9,846
1995-96	69	\$17,872	69	\$22,702	69	\$21,308	69	\$26,132	64	79%	\$11,251
1996-97	76	\$20,132	76	\$25,088	76	\$23,695	76	\$28,775	68	79%	\$14,114
1997-98	91	\$20,296	91	\$26,228	91	\$24,057	91	\$29,989	84	85%	\$13,890

The proportion of students receiving financial aid averaged 70% from 1984 through 1996 and has varied within a narrow range, i.e., 63% to 85%, over time. It should be noted that the data shown in Table 9 and Figure 3 represents the tuition and costs expended by the typical student for the entire professional program and does not include pre-

Figure 3. Trends in P.A. Student Expenses: 1984 Through 1997



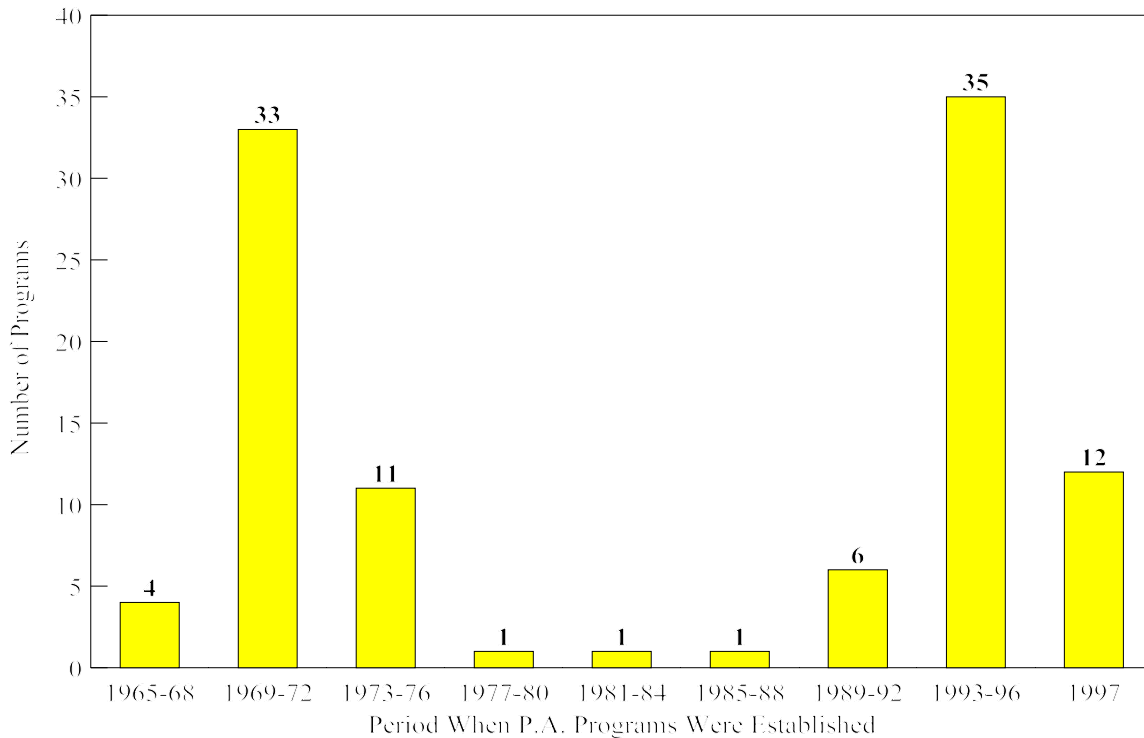
program academic preparation or living expenses. Beginning with the 1986 annual survey, respondents were asked to estimate the amount of financial aid received per student. Inspection of Figure 3 illustrates that while financial aid received by the typical student increased by approximately 259% since 1986, total expenses increased by 160% for resident and 147% for nonresident students during that same period. Unfortunately, since 1990-1991, student expenses increased 92.5% and 81.6% for resident and nonresidents, respectively, however, there was also a 122% increase in financial aid during that period.

Year Current P.A. Programs Were Established, 1965 Through 1997

The distribution of respondent programs by year of their first entering class is shown in Figure 4. One hundred four programs are represented, as the data for the nonrespondent programs were obtained from previous Report surveys or the P.A. Program Accreditation Status Report (11/97)² from the AAPA/APAP.

The first P.A. program was established in 1965 at Duke University Medical Center and over the next four years (1965-1968) three additional programs were developed. With the passage by Congress of the Comprehensive Health Manpower Act in 1971, federal training grant support provided the stimulus for the rapid development of the majority

Figure 4. Programs By Year of First Entering Class



of current P.A. programs. Indeed, over the subsequent eight year period (1969 through 1976), forty-four new programs were established. Over the next twelve years, from 1977 through 1988, only three additional programs were established. In the years 1993-1996, 35 new programs were established and in 1997, 12 new programs enrolled students for the first time.

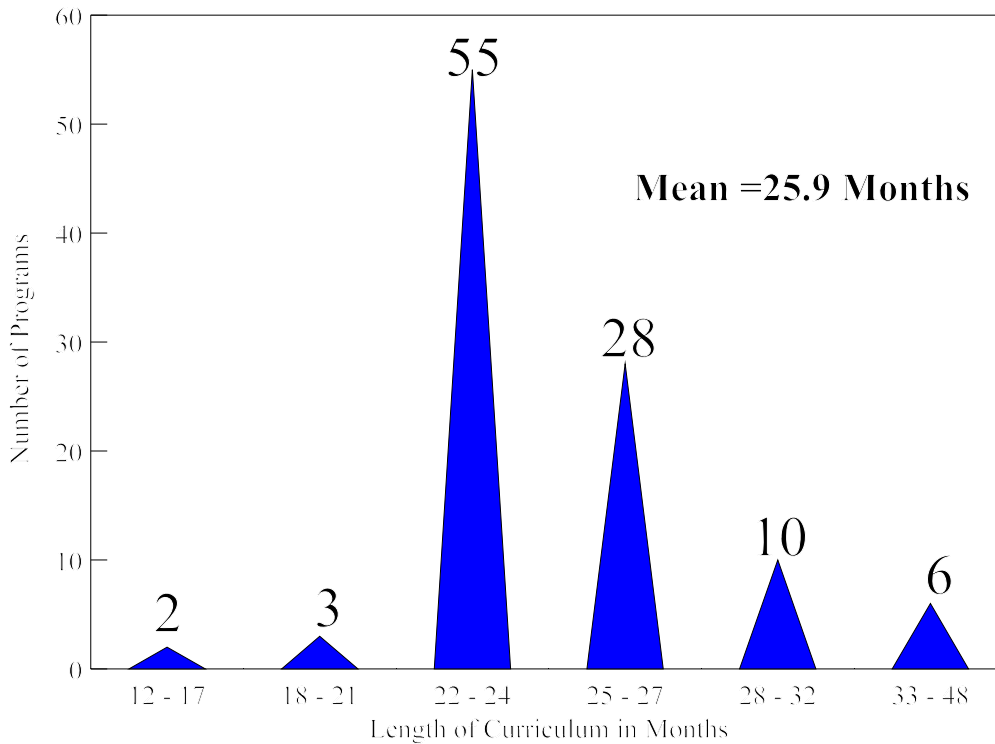
Current P.A. Programs by Length of Curriculum

Historically, the length of the professional P.A. curriculum has varied across programs. For example, at some institutions, the P.A. program is a 4-year baccalaureate curriculum that admits students as freshmen. The first two years of this curriculum involves liberal arts and preparatory science courses followed by two years of professional P.A. studies. In some cases, these programs admit students with advanced standing at the beginning of the professional curriculum, typically two years in length. At the other extreme, graduate-level programs admit students who have

completed all liberal arts and preparatory science courses and have earned a baccalaureate degree prior to admission. The graduate or master's level curriculum typically includes additional courses and/or experiences in research related activities in addition to the professional curriculum.

Figure 5 illustrates the diversity across programs relative to the length of the curriculum. The mean length of the curriculum was 25.9 months (N=104) with a range of 12 to 48 months. For convenience, the programs were organized into six groups. The majority of programs were between 22-24 months (55) and 25 to 27 months (28) in length. The median was 24 months. The length of the curriculum of P.A. programs has increased in the past several years, for example, in 1986 and 1990, the average length of the curriculum was reported as 23.7 and 24.0 months, respectively. The mean of 25.9 months represents an increase of 3.2% from last year. Non-respondent information was obtained from the APAP Program Directory.

Figure 5. P.A. Programs by Length of Curriculum (N=104)

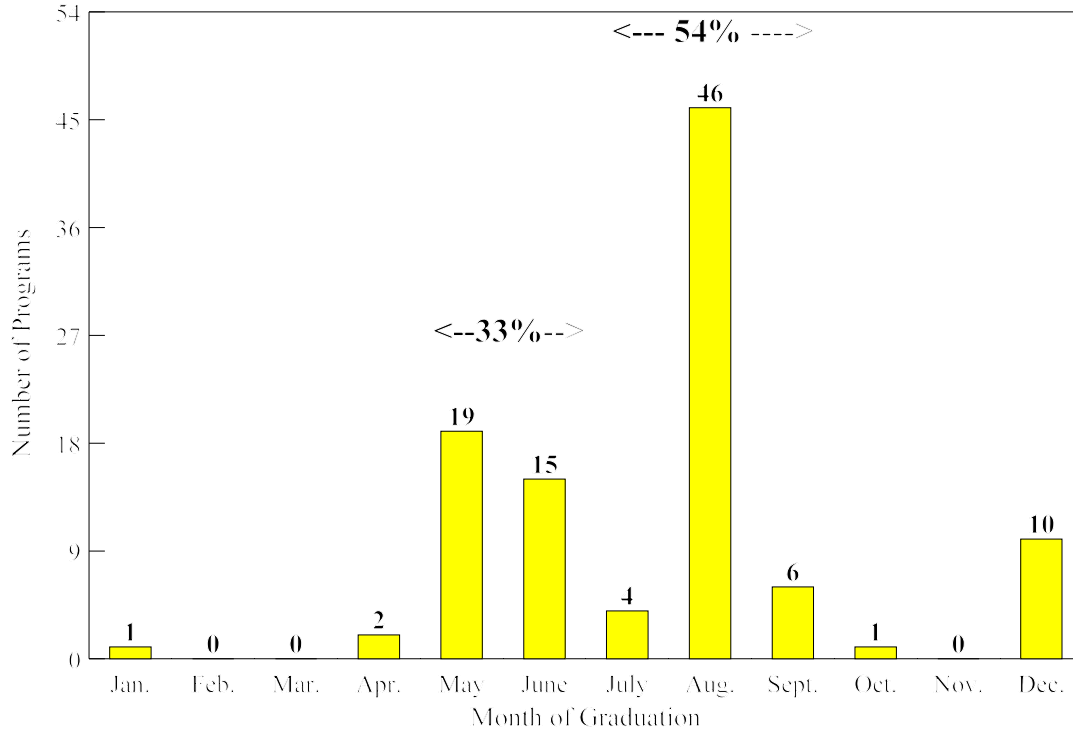


Current P.A. Programs by Month of Graduation

The distribution of P.A. programs by month of graduation is shown in Figure 6 (next page). Data for nonrespondent programs and those that have been newly established were supplemented by information from the 1997 P.A. Program Directory as well as information from the AAPA and APAP Physician Assistant Program Accreditation Status Report, November, 1997.²

Currently, a majority (N=90; 86.5%) of programs graduate students over two periods, (a) between May and June (N=34; 32.7%) and (b) July, August and September (N=56; 53.8%). It should be noted that two programs graduate two classes per year and one program graduates three classes per year.

Figure 6. P.A. Programs By Months of Graduation (N=104)



National Health Service Corps (N.H.S.C.) Support

The number and proportion of students receiving support from the National Health Service is shown in Table 10. Of the four types of support available, Loan Repayment accounted for 119/328 (36%), followed by N.H.S.C. scholarships (33.2%). In total, 158 scholarships were reported among the first year class and 148 among the second year class.

Table 10. Students: Public Health Service Scholarships

Class	N.H.S. Corps		COSTEP		Loan Repay.		Comm. School		Total
	N	%	N	%	N	%	N	%	N
1st Year	43	27.2%	9	5.7%	71	44.9%	35	22.2%	158
2nd Year	53	35.8%	11	7.4%	48	32.4%	36	24.3%	148
3rd Year	<u>13</u>	59.1%	<u>5</u>	22.7%	<u>0</u>	0.0%	<u>4</u>	18.2%	<u>22</u>
Total	109		25		119		75		328

SECTION II. PROGRAM PERSONNEL

Classification of Physician Assistant Program Personnel

In 1984, the first APAP survey yielded information on the "core" personnel employed by P.A. programs. Core personnel were defined as those who devoted at least 50% of their time directly to program-related activities. These findings indicated that a total of 258 individuals were employed by the 36 programs responding (7.2 individuals/program and 6.0 FTE's/program). At that time, the personnel were classified into four categories based on their position: administrative (106; 41%), clerical (45; 18%), educational (96; 37%), and research (11; 4%). The total number of employees per program ranged from 3 to 13 with an average of one employee for every 7.7 students enrolled in the typical program.

Program personnel (excluding clerical persons) were further classified into two groups, those that were credentialed as a P.A. and those that were not (herein referred to as non-P.A.'s). The reader is referred to previous Annual Reports for a more detailed description of these personnel for each year. Based on the personnel data over the past fourteen years, it has been shown that there are an average of 3.5 to 3.9 physician assistants (P.A.'s) employed per program. This figure excludes program directors, many of whom were P.A.'s.

For purposes of our present personnel analysis, program staff and faculty were divided into three groups: (a) program directors, (b) medical directors, (c) "program personnel" which included P.A.'s (excluding program directors) and non-P.A.'s (excluding program directors). The P.A. and non-P.A. groups were further subdivided into four categories (I, II, III, and IV) on the basis of their position titles as summarized in Table 11. Category I includes program personnel whose responsibilities were generally associated with the first-year curriculum, typically including courses

Table 11. Classification of Program Personnel by Category

Category	Typical Position Titles	
I	Lecturer/Instructor Educ./Acad. Coordinator	Educational Specialist Course Coordinator
II	Clinical Coordinator Clinical Instructor	Clinical Skills Coordinator
III	Assoc. or Assist. Director Program Assistant	Executive Assistant Co-Director
IV	Admin. Secretary Admin. Assistant Office Supervisor	Secretary Data Manager

in the basic and behavioral sciences and/or the curriculum associated with history/physical examination skills as well as components of introduction to clinical medicine courses. Category II personnel were those involved in the second year or clinical rotation phase of the educational program. These individuals generally assumed clinical teaching or evaluation responsibilities and/or coordinated the students' clinical training assignments. Category III describes those individuals who had primarily administrative-level positions, but excluded those that were program or medical directors. Category IV included personnel who were mainly classified as support staff. Category IV personnel were not considered faculty.

It should be appreciated that program faculty and staff often share responsibilities across teaching, administrative and research activities. Despite this limitation, this classification is a useful way to describe and analyze core program personnel. The majority of the tables that follow in this section list Category IV personnel information, however it is not included in the total/mean columns. Please refer to each individual table to determine if it is included or not.

Number of P.A. and Non-P.A. Program Personnel by Category

The number of P.A. and non-P.A. program personnel by category is shown in Table 12. It should be noted that program directors are not included in Tables 12 through 31, unless specifically indicated. Across all four categories, there were 674 (207 Category IV) personnel reported by survey respondents (N=98; 6.9 per program), 386 P.A.'s and

Table 12. P.A. and Non-P.A. Program Personnel by Category

<u>Characteristic</u>	<u>Personnel Category</u>				<u>Categories I - III</u>	
	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>		
<u>Physician Assistants</u>						
Total Number	191	165	29	1	385	385
# of Programs*	80	87	27	1	97	98
Mean #/Program	2.4	1.9	1.1	1.0	4.0**	3.9***
<u>Non-Physician Assistants</u>						
Total Number	48	16	18	206	82	82
# of Programs*	35	11	17	90	50	98
Mean #/Program	1.4	1.5	1.1	2.3	1.6**	0.8***

* Number of programs reporting at least one P.A. or non-P.A. in a category.

** Mean is based on number of programs reporting personnel in a category.

*** Mean based on all (N=98) programs.

288 non-P.A.'s. Ninety-seven programs indicated that they had at least one Category I - III P.A. (mean of 4.0/program) and 50 programs indicated that individuals without a P.A. credential were employed in at least one of the I - III categories (mean of 1.6/program).

The majority of program personnel in Categories I - III were credentialed as P.A.'s (82%) as compared to non-P.A.'s (18%). Proportionately, there were relatively few non-P.A.'s in Category II positions (8.8% of Category II personnel). Across all programs (N=98), the mean per program is 3.9 P.A.'s and 0.8 non-P.A.'s.

Number of P.A. Program Personnel by Region

The total number of personnel (P.A. and non-P.A. personnel) associated with P.A. programs by geographic region and category is shown in Table 13 (next page). Physician assistant programs located in the Heartland region of the United States employed the greatest number of Category I - III P.A.'s per program, while the Western region employed the greatest number of non-P.A.'s per program. Programs located in the Midwestern region had the fewest P.A.'s associated with the program (mean of 3.1/program). Programs in the Eastern and Northeastern regions employed the least number of Category I-III non-P.A.'s (0.4/program and 0.5/program, respectively). Programs in the Heartland region employed the greatest number of Category IV personnel per program (2.8/program), while programs in the Eastern region employed the least (1.5/program).

Table 13. P.A. and Non-P.A. Program Personnel by Category and Region

Geographic Region	Personnel Category						Mean per Program (Cat I-III)
	N	I	II	III	IV	Total	
Northeastern	21	23 (5)	46 (2)	8 (3)	0 (47)	77 (57)	3.7/(0.5)
Eastern	16	49 (4)	24 (2)	2 (1)	0 (24)	75 (31)	4.7/(0.4)
Southeastern	17	35 (11)	23 (3)	7 (2)	0 (36)	65 (52)	3.8/(0.9)
Heartland	9	22 (10)	19 (0)	4 (3)	0 (25)	45 (38)	5.0/(1.4)
Midwestern	21	27 (8)	36 (3)	3 (4)	1 (37)	67 (52)	3.1/(0.7)
Western	<u>14</u>	<u>35 (10)</u>	<u>17 (6)</u>	<u>5 (5)</u>	<u>0 (37)</u>	<u>57 (58)</u>	<u>4.1/(1.5)</u>
Total	98	191 (48)	165 (16)	29 (18)	1 (206)	386 (288)	3.9/(0.8)

* # of non-P.A. personnel are in parentheses, mean/program is based on N=77.

General Characteristics of P.A.'s and Non-P.A.'s Employed by Programs

The general characteristics of physician assistant personnel employed by P.A. programs, by category, excluding non-P.A. program personnel, are shown in Table 14. Please note that the "total" column includes information on the one physician assistant person listed as a Category IV. Across all categories, P.A.'s devoted an average of 90% of their time to the program; the majority were classified as full-time employees. There were some differences between categories in the percent of time the P.A. worked. Twenty-five of the 29 P.A.'s in Category III were employed on

Table 14. General Characteristics of Physician Assistant Personnel

Characteristic	Personnel Category			Total***
	I	II	III	
<u>Characteristics</u>	<u>N = 190*</u>	<u>N = 165</u>	<u>N = 29</u>	<u>N = 385</u>
<u>Mean % Time</u>	90.6%	88.3%	94.5%	89.7%
<u>Annual Salary</u>	<u>N = 177</u>	<u>N = 154</u>	<u>N = 25</u>	<u>N = 356</u>
Mean**	\$53,314	\$53,730	\$62,849	\$54,164
Range	\$26,300 - \$81,868	\$28,000 - \$68,500	\$50,000-\$72,700	\$26,300-\$81,868
<u>Months in Position</u>	<u>N = 190</u>	<u>N = 161</u>	<u>N = 27</u>	<u>N = 378</u>
Mean	38.9	32.6	76.1	38.9
Median	24.0	32.0	72.0	36.5
Range	1-240	1-277	2-372	1-372

* Number of P.A.'s in category.

** Salaries adjusted to 1 FTE

*** Includes one employee listed as a Category IV

a full-time basis, whereas P.A.'s in Categories I and II averaged 0.90 FTE. The mean annual salary across all categories was \$54,164 with a range from \$26,300 to \$81,868. On average, individuals had been in their position for 38.9 months (range 1-372 months). There was some difference in mean salary across categories, ranging from \$53,314 for Category I to \$62,849 for Category III, a 18% increase. P.A.'s in Category III had held their positions for the longest period of time, averaging 76.1 months, while the majority of P.A.'s in Category I had been associated with the program for the least amount of time (median: 24 months).

Clinical Activity of Physician Assistant Personnel

General characteristics of the clinical activity of P.A. personnel are shown in Table 15. Note, P.A. credentialed program directors were **also** included in this analysis, however, medical directors **were not**. The following information was requested of respondents: the number of personnel that were clinically active, mean number of hours worked per week, number that were reimbursed for their clinical services, the amount paid for said services (mean

Table 15. General Characteristics of Clinically Active Physician Assistant Personnel

<u>Characteristic</u>	<u>P.A. Personnel Category</u>			<u>Program</u>	<u>Total</u>
	<u>I</u> N=190	<u>II</u> N=165	<u>III</u> N=29	<u>Directors</u> N=96	
Clinical P.A.'s	115(61%)	85(52%)	11(38%)	31(32%)	242(50%)
<u>Hrs Worked/Week</u>					
Mean	10.3	13.6	9.6	8.2	11.0
(N)	(115)	(85)	(11)	(31)	242
Range	2-35	1-50	6-20	2-60	1-60
<u>Number (%) Paid for Services</u>	107(93%)	78(92%)	11(100%)	27(87%)	223(92%)
<u>Mean Wage/Hour</u>	\$31.49	\$31.65	\$34.34	\$34.34	\$32.03
(N)	(87)	(62)	(11)	(24)	(184)
<u>Annual Amount*</u>	\$15,569	\$20,661	\$15,824	\$13,516	\$17,032
<u>Adjust. Salary**</u>	\$59,632	\$54,443	\$58,128	\$71,172	\$60,165
<u>% Salary From Clinical Earnings</u>	26.1%	37.9%	27.2%	19.0%	28.3%

* Estimated at 48 weeks per year.

** Base Salary + Clinical Earnings for those clinically active.

hourly wage) and whether their clinical earnings were included in the salary reported in the personnel table. Based on the data reported, the amount and percent of annual salary derived from clinical service was calculated. Lastly, for those personnel who received earnings through their clinical service in addition to their regular salary, a gross salary (combining program and clinical sources) was calculated. Half (50%) of the program personnel that were credentialed as P.A.'s had clinical responsibilities in addition to their program activities. This proportion varied across the three categories and was greatest for those in category I (61%). Thirty-two percent of program directors (P.A.'s) also had clinical responsibilities.

On average, P.A.'s in Categories I-III spent 11.0 hours per week providing patient care; program directors who were P.A.'s spent an average of 8.2 hours per week. The range in time spent was very broad, from one hour per week to 60 hours per week. Ninety-two percent of P.A. personnel received additional compensation for their clinical services. Category III P.A.'s were the most likely to receive compensation and Category II the least likely. The mean hourly wage averaged \$32.03/hour and varied from \$31.49 for Category I to \$34.34 per hour for program directors and Category III.

Given the mean number of hours worked per week, the average hourly wage, and, assuming an average of 48 weeks were worked per year, the annual earnings from patient care services of the P.A.'s with clinical responsibility was

estimated. On average, these individuals earned \$17,032 from their clinical activity. Program Directors had the lowest additional income (\$13,516) and those in category II had the highest (\$20,661).

An "adjusted" annual income (base salary + clinical earnings) was determined for those indicating they received earnings from both sources. On average, there was a 11.1% increase over base salary for those personnel that were clinically active. And, clinical earnings accounted for over one-fourth of the personnel salary. It would appear that the base salary for clinically active personnel is lower than those not in practice. In subsequent tables, salary figures will not include clinical earnings.

General characteristics of non-P.A. credentialed personnel by category is shown in Table 16. Across categories, the typical non-P.A. in Categories I - III devoted 89% of their time to the program; the majority were classified as full-time employees.

Table 16. General Characteristics of Non-P.A. Personnel
Personnel Category

	I	II	III	IV	Total (Cat. I - III)
<u>Characteristic</u>	<u>N = 47</u>	<u>N = 14</u>	<u>N = 18</u>	<u>N = 207</u>	<u>N = 79</u>
Mean % Time	87.3%	100.0%	86.1%	93.5%	89.3%
<u>Annual Salary*</u>	<u>N = 39</u>	<u>N = 14</u>	<u>N = 17</u>	<u>N = 191</u>	<u>N = 70</u>
Mean	\$51,020	\$47,846	\$43,181	\$24,327	\$48,481
Median	\$50,000	\$53,225	\$40,597	\$24,000	\$49,613
Range	\$29,300- \$87,500	\$27,300- \$61,600	\$24,000- \$83,088	\$12,600 - \$47,386	\$12,600- \$87,500
<u>Months in Position</u>	<u>N = 49</u>	<u>N = 16</u>	<u>N = 18</u>	<u>N = 198</u>	<u>N = 83</u>
Mean	47.4	41.0	98.7	54.6	57.3
Median	18.0	27.0	52.0	24.0	24.0
Range	1-264	2-216	1-300	1 - 312	1-312

* Salaries adjusted to 1 FTE

The mean salary for non-P.A.'s across Categories I - III was \$48,481, ranging from \$12,600 to \$87,500. On average, these individuals had been employed 57.3 months (median of 24, range of 1-312 months). Non-P.A.'s in Category I earned the highest average salary (\$51,020), however those in Category II had the highest median (\$53,225). Non-P.A.'s in Category III had the lowest average salary (\$43,181). Utilizing the median, Category I non-P.A.'s had been associated with the program for the shortest period of time, while Category III non-P.A.'s had been employed almost three times as long. Overall, non-P.A.'s had a lower average annual salary than did personnel who were P.A.'s. Category IV personnel had a mean salary of \$24,327 with a broad range of \$12,600 to \$47,386. Category IV personnel had been in their position an average of 54.6 months (median: 24 months).

Characteristics of program personnel in Categories I - III, by ethnicity and gender, are shown in Table 17 (next page). It should be noted that data on P.A. and non-P.A. program personnel were combined for the analyses in Tables 17 and 21. Proportionately, there were more women (59%) among the P.A. and non-P.A. personnel; 58% of the white (231/395) and 64% of the non-white personnel (43/67) were women. In total, 67 P.A. program staff and/or faculty from 33 programs were identified as members of an ethnic minority (42 Black/African-American, 10 Latino/Hispanic, eight Asian, two Native American/Alaskan Native, and five Other). This constitutes 14.5% (67/462) of the total number of faculty and staff and 34% of the programs responding. In all categories, males earned higher annual salaries than their female counterparts where comparisons were possible. Males were employed longer in their current position than females in every category, except Other and Asian/Pacific Islander.

Table 17. Salary and Months in Position of Category I - III P.A. and Non-P.A. Personnel by Ethnicity and Sex

<u>Ethnicity</u>	<u>Number of Personnel</u>			<u>Mean Annual Salary</u>		<u>Mean Months in Position</u>	
	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
White/Non-Hisp.	164	231	395	\$56,101	\$51,118	45.1	41.3
Black/African-Amer.	15	27	42	\$54,596	\$52,163	46.1	42.7
Latin/Hisp.	6	4	10	\$58,078	\$45,750	44.3	20.7
Asian/Pac. Isl.	2	6	8	\$56,250	\$53,890	6.5	39.7
Nat. Amer./Alaskan	0	2	2	-----	\$40,945	-----	39.5
Other	<u>1</u>	<u>4</u>	<u>5</u>	<u>\$64,000</u>	<u>\$60,750</u>	<u>20.0</u>	<u>39.8</u>
Total	188	274	462	\$56,088	\$51,329	44.6	41.1

Characteristics of program personnel in Category IV, by ethnicity and gender, are shown in Table 18. Category IV personnel consisted mainly of females (94.9%). Fifty-four (28%) Category IV P.A. program staff from 21 programs were identified as members of an ethnic minority. In categories where comparisons were available, males earned higher annual salaries than their female counterparts. Utilization of the median reveals that females were employed longer in their current position than males, 24 and 16 months, respectively.

Table 18. Salary and Months in Position of Category IV Personnel by Ethnicity and Sex

<u>Ethnicity</u>	<u>Number of Personnel</u>			<u>Mean Annual Salary</u>		<u>Mean (Median) Months in Position</u>	
	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
White/Non-Hisp.	5	137	142	\$30,097	\$23,753	51.8	52.6
Black/African-Amer.	4	30	34	\$28,097	\$26,289	64.7 (20)	49.4
Latin/Hisp.	1	14	15	-----	\$24,483	14.0	43.0
Asian/Pac. Isl.	0	4	4	-----	\$23,963	-----	23.3
Nat. Amer./Alaskan	<u>0</u>	<u>1</u>	<u>1</u>	-----	<u>\$32,000</u>	-----	<u>252.0</u>
Total	10	186	196	\$29,208	\$24,266	53.2 (16)	51.8 (24)

The relationship between salary, percent time, and months in position for P.A. and non-P.A. personnel by sex is shown in Table 19 (next page). Overall, male personnel earned higher annual salaries than female personnel. In one category, P.A. Category III, the women personnel earned more than the men. On average for Categories I - III, non-P.A. personnel had been in their positions substantially longer than P.A. personnel.

Table 19. Analysis of Salary, Percent Time and Months in Position of P.A. and Non-P.A. Personnel by Sex

Categories	<u>Mean Annual Salary</u>				<u>Mean % Time</u>				<u>Mean Months in Position</u>			
	<u>Male</u>	<u>N</u>	<u>Female</u>	<u>N</u>	<u>Male</u>	<u>N</u>	<u>Female</u>	<u>N</u>	<u>Male</u>	<u>N</u>	<u>Female</u>	<u>N</u>
<u>Cat. I</u>												
P.A.	\$54,737	70	\$52,311	106	92.0	76	89.5	112	38.9	76	39.1	113
Non-P.A.	\$59,224	19	\$43,225	20	83.4	25	91.5	23	51.3	25	43.3	24
<u>Cat. II</u>												
P.A.	\$55,180	60	\$52,804	94	86.7	62	89.2	103	35.9	62	30.8	100
Non-P.A.	\$54,377	5	\$44,218	9	100	6	95.5	10	31.2	6	46.9	10
<u>Cat. III</u>												
P.A.	\$61,188	14	\$64,962	11	96.3	16	92.3	13	74.3	15	72.5	13
Non-P.A.	\$61,659	5	\$35,482	12	90.0	5	84.6	13	109.8	5	94.4	13
<u>Cat. IV</u>												
Non-P.A.	\$29,347	8	\$24,107	182	79.1	11	94.6	188	44.6	11	54.3	180
<u>Cat. I - III</u>												
P.A.	\$55,549	144	\$53,190	211	90.3	154	89.5	228	41.2	153	37.3	226
Non-P.A.	\$58,808	29	\$41,177	43	87.1	36	90.4	46	56.1	36	58.2	47

Personnel by Region: Salary, Months in Position and Ethnicity

Data regarding salary and time in position for P.A. and non-P.A. personnel by geographic region is presented in Table 20. P.A.'s associated with programs located in the Southeastern region reported the highest annual salary. The lowest mean P.A. salary was in the Eastern region. Non-P.A.'s in the Southeastern region had the highest salaries, while those in the Heartland region had the lowest salaries. P.A.'s salaries were higher than Non-P.A.'s in every region,

Table 20. Program Personnel: Salary and Time in Position by Region

Geographic Region	<u>Mean Salary: Categories I - III</u>				<u>Months in Position</u>	
	<u>P.A.</u>	<u>N</u>	<u>Non-P.A.</u>	<u>N</u>	<u>P.A.</u>	<u>Non-P.A.</u>
Northeastern	\$54,410	72	\$46,593	10	36.6	35.8
Eastern	\$50,316	66	\$49,109	6	44.0	11.6
Southeastern	\$56,169	65	\$52,538	13	37.6	46.0
Midwestern	\$54,785	62	\$49,103	14	28.8	44.5
Heartland	\$55,006	35	\$45,805	8	40.2	88.0
Western	<u>\$54,926</u>	<u>55</u>	<u>\$47,916</u>	<u>21</u>	<u>46.5</u>	<u>82.0</u>
Total	\$54,175	355	\$48,662	72	39.3	56.8

while on average Non-P.A.'s were employed for more months. There was not a statistically significant correlation ($r = 0.23$; $p > .01$) between time in position and salary.

The salaries of Category I - III P.A. program personnel (P.A.'s and non-P.A.'s) by ethnicity and geographic region are shown in Table 21 (next page). Mean salaries of White personnel were higher than their Black/African-American counterparts in three of the five regions reported where comparison could be made. Latino/Hispanic personnel had salaries higher than Black/African-Americans in the Western region.

The salaries of Category IV P.A. program personnel (P.A.'s and non-P.A.'s) by ethnicity and geographic region are

Table 21. Analysis of Program Personnel by Geographic Region and Ethnicity
Category I - III

Geographic Region	Mean Annual Salary					
	White	N	Black/ African-Amer	N	Lat/Hisp	N
Northeastern	\$53,230	71	\$56,941	6	\$51,000	2
Eastern	\$50,054	59	\$51,431	10	-----	1
Southeastern	\$55,930	63	\$53,719	11	\$46,750	2
Midwestern	\$53,635	71	\$50,725	2	-----	0
Heartland	\$52,917	40	-----	1	\$55,000	2
Western	<u>\$53,283</u>	<u>56</u>	<u>\$52,038</u>	<u>12</u>	<u>\$59,323</u>	<u>3</u>
Total	\$53,235	360	\$52,994	42	\$53,147	10

shown in Table 22. Mean salaries of Black/African-American personnel were higher than their White counterparts in half of the regions.

Table 22. Analysis of Program Personnel by Geographic Region and Ethnicity
Category IV

Geographic Region	Mean Annual Salary					
	White	N	Black/African- American	N	Lat/Hisp	N
Northeastern	\$24,821	27	\$31,318	10	-----	1
Eastern	\$24,495	18	\$24,121	3	-----	0
Southeastern	\$21,580	48	\$22,536	4	\$15,750	2
Midwestern	\$24,517	28	\$22,902	5	-----	0
Heartland	\$23,291	14	\$27,861	3	\$19,000	4
Western	<u>\$25,365</u>	<u>22</u>	<u>\$23,508</u>	<u>4</u>	<u>\$24,667</u>	<u>3</u>
Total	\$23,678	157	\$26,476	29	\$20,650	10

Trends in P.A. Program Personnel Salaries from 1986 Through 1997

Trends in P.A. personnel salary from 1986 through 1997 are shown in Table 23 (next page). Note, salary data was not available for 1987-88. There has been a 95% increase in P.A. salaries (all categories combined) from 1985-86 to 1997-98, an average of 7% per year. Proportionately, the largest annual increase in salary (10.9%) for all categories occurred between 1989 and 1990.

Months in position did not vary substantially, averaging 41.2 months over the 13-year period (range of 36.3 to 51.4). A thorough discussion of personnel turnover is presented at the end of Section II.

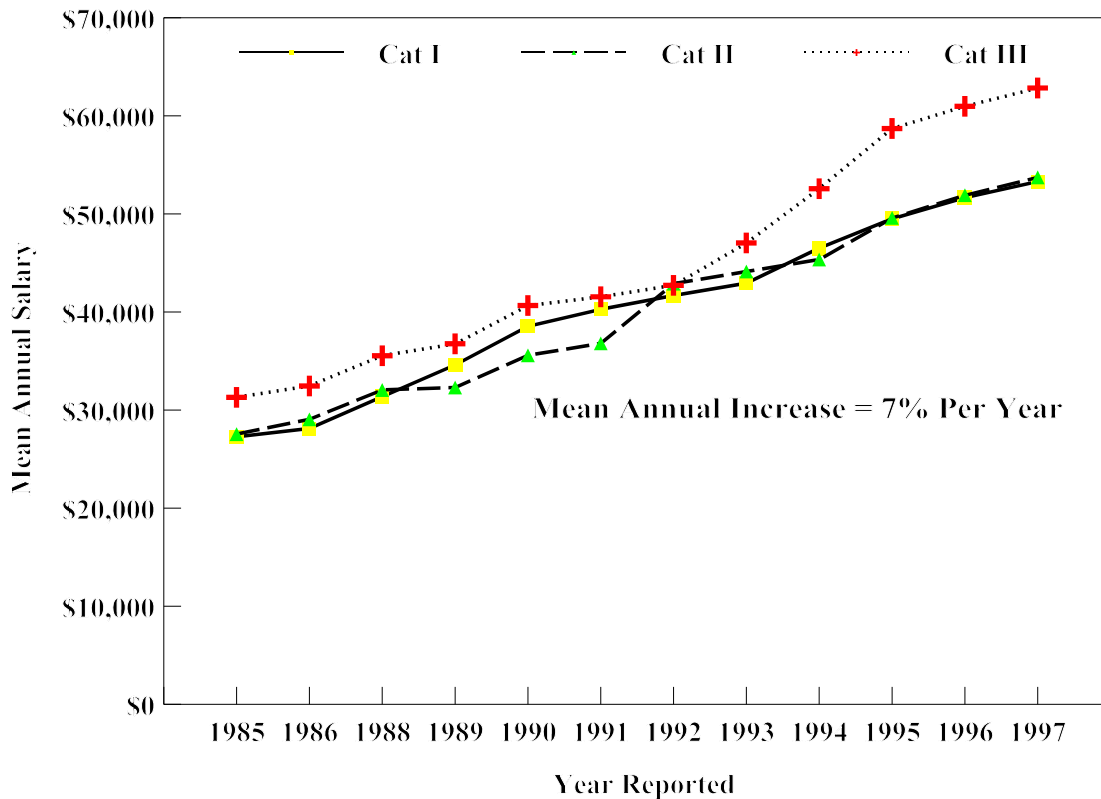
A three-way analysis of variance (ANOVA) of salary was conducted to investigate the effects of the following parameters: personnel category, gender and geographic region. Main effects were found for sex (F=23.01; p<.0001; men higher than women) and geographic region (F=2.36; p<.01; the Southeast had higher salaries than the any other category). The category of personnel demonstrated no significant main effects. No significant interactions were found. Taken together, category, gender and region accounted for 19% of the variance in salaries (R=.40).

Table 23. Salary and Months in Position for P.A. Personnel, 1985 Through 1997

<u>Categories</u>	<u>Cat. I</u>	<u>Cat. II</u>	<u>Cat. III</u>	<u>All Cat.</u>	<u>Months in Position</u>
1985-86	\$27,264	\$27,553	\$31,298	\$27,769	36.6
1986-87	\$28,129	\$29,060	\$32,451	\$29,010	36.3
1988-89	\$31,362	\$32,054	\$35,547	\$32,099	39.9
1989-90	\$34,610	\$32,300	\$36,756	\$33,723	43.9
1990-91	\$38,547	\$35,578	\$40,661	\$37,404	40.1
1991-92	\$40,280	\$36,807	\$41,552	\$39,192	51.4
1992-93	\$41,689	\$42,885	\$42,719	\$42,471	42.0
1993-94	\$42,945	\$44,127	\$47,038	\$43,956	41.6
1994-95	\$46,498	\$45,357	\$52,578	\$46,549	42.5
1995-96	\$49,510	\$49,589	\$58,720	\$50,469	39.0
1996-97	\$51,662	\$51,906	\$60,973	\$52,550	41.6
1997-98	\$53,314	\$53,730	\$62,849	\$54,164	38.9

Trends in salary for all categories of program personnel (data for P.A.'s and non-P.A.'s were combined) from 1985 through 1997 are illustrated in Figure 7. Salaries for personnel consistently increased each year with the largest increase occurring in 1990.

Figure 7. Trends in P.A. Program Salaries: 1985 Through 1997



Program Personnel: Academic Classification

The number of Category I - III personnel (P.A.'s and non-P.A.'s) classified as faculty and staff, as well as the tenure track status of those in faculty positions, are shown in Table 24.

For all categories combined, more than three fourths (N=398; 85%) of personnel were classified as faculty. This

Table 24. Program Personnel: Classification and Tenure Track Status

Classification	Personnel Category						Total	
	I		II		III		Number	(%)
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Faculty	215	89.6%	151	83.4%	32	68.1%	398	85.0%
Staff	25	10.4%	30	16.6%	15	31.9%	70	15.0%
Tenure Status								
In Tenure Track*	66	30.7%	35	23.2%	8	25.0%	109	27.4%
Faculty Tenured**	14	6.5%	4	2.6%	2	6.3%	20	5.0%

* Percent of TOTAL faculty in tenure track not tenured.

** Percent of TOTAL faculty tenured (e.g., 14/215 = 6.5%)

distribution of individuals classified as faculty varied greatly between 68.1% for Category III and 89.6% for Category I. Recall, Category III includes typically administrative-type personnel who may be less likely to be appointed to an academic level position.

Overall, more than one-fourth (27%) of the faculty were on the tenure track. However, only 5% of the faculty were tenured. Viewed in another way, 18% of those faculty in a tenure track were tenured, with the highest proportion of these tenured faculty in Category III (25%).

Table 25 shows the academic classification and tenure status of Category I - III personnel by gender. The proportion of men holding faculty rank was greater than women, 90% and 82%, respectively. A larger proportion of male faculty were on tenure track compared to female faculty, 32% versus 24%, respectively. Although very few faculty were tenured (5%), a much larger proportion of male faculty were tenured (8.7%) as compared to female faculty (2.2%).

Table 25. Program Personnel: Classification and Tenure Track Status by Gender

Personnel Classification	Female		Male		Total	
	Number	(%)	Number	(%)	Number	(%)
Faculty Appointment	226	81.6%	172	90.0%	398	85.0%
Staff Appointment	51	18.4%	19	10.0%	70	15.0%
Tenure Status						
Tenure Track Faculty	54	23.9%	55	32.0%	109	27.4%
Tenured Faculty*	5	2.2%	15	8.7%	20	5.0%

* Percent of TOTAL faculty tenured.

A summary of the highest degree held by each category of program personnel is shown in Table 26. All but 2% of Category I - III program personnel were reported to have earned a bachelors or higher degree. Less than one-half of the P.A. and non-P.A. personnel held a baccalaureate degree (43%) as their highest degree. The same is true for those who held a master's degree (N=197; 42.5%). Fifty-seven individuals (12%) were identified as having earned a doctorate, slightly higher than the distribution reported for the 1996-97 academic year. Proportionately, Category I and III personnel tended to have more doctorate degrees than those in Category II.

The number and academic rank of program faculty, by category, are shown in Table 27. Overall, half (N=193; 50%)

Table 26. Program Personnel: Highest Degree Held

Highest Degree	Program Personnel Categories								Categories I - III	
	I		II		III		IV		#	%
	#	(%)	#	(%)	#	(%)	#	(%)		
Doctorate	42	17.5%	9	5.1%	6	13.0%	1	1.6%	57	12.3%
Masters	101	42.1%	71	39.9%	25	54.3%	10	16.4%	197	42.5%
Bachelors	93	38.8%	96	53.9%	12	26.1%	33	54.1%	201	43.3%
Associate	4	1.7%	2	1.1%	3	6.5%	17	27.9%	9	1.9%
Total	240	100.0%	178	100.0%	46	100.0%	61	100.0%	464	100.0%

of the P.A. and non-P.A. faculty held the academic rank of instructor or lecturer, while over one-third (N=148; 38%) held professorial rank at the Assistant level.

Table 27. Program Personnel: Academic Rank of Faculty

Academic Rank	Program Personnel Categories							
	I		II		III		Total	
	N	(%)	N	(%)	N	(%)	N	(%)
Full Professor	3	1.4%	3	2.0%	2	6.3%	8	2.1%
Associate Prof.	22	10.5%	12	8.2%	5	15.6%	39	10.1%
Assistant Prof.	75	35.9%	58	39.5%	15	46.9%	148	38.1%
Instructor/Lect.	109	52.2%	74	50.3%	10	31.3%	193	49.7%
Total	209	100.0%	147	100.0%	32	100.0%	388	100.0%

P.A. and Non-P.A. Personnel Salary Analysis

Salaries for Category I - III P.A. and non-P.A. program personnel by academic classification are shown in Table 28 (next page). The mean annual salary of faculty-level personnel was \$54,709 (N=355), 20% higher than those appointed to staff positions (\$45,444; N=68). In general, the annual salaries of non-P.A. personnel with faculty rank (\$56,686, N=42) were 4% higher than salaries of P.A. personnel with faculty appointments (\$54,444; N=313). Faculty salaries differed substantially between categories with Category III faculty earning the highest annual income.

Table 28. Faculty and Staff Salaries by Category

<u>Classification</u>	<u>Program Personnel Categories</u>							
	<u>I</u>		<u>II</u>		<u>III</u>		<u>Categories I - III</u>	
	<u>Mean</u>	<u>N</u>	<u>Mean</u>	<u>N</u>	<u>Mean</u>	<u>N</u>	<u>Mean</u>	<u>N</u>
<u>Faculty</u>								
P.A.	\$53,390	161	\$54,281	129	\$62,737	23	\$54,444	313
Non-P.A.	\$57,062	27	\$54,934	10	\$58,160	5	\$56,686	42
Total	\$53,917	188	\$54,328	139	\$61,920	28	\$54,709	355
<u>Staff</u>								
P.A.	\$51,360	14	\$50,884	25	\$64,138	2	\$51,693	41
Non-P.A.	\$36,998	11	\$30,125	4	\$36,941	12	\$35,954	27
Total	\$45,041	25	\$48,021	29	\$40,826	14	\$45,444	68

Among the personnel classified as staff, those that were P.A.'s earned a substantially higher (43.8%) salary (\$51,693) than non-P.A.'s (\$35,954). In comparison to the previous year (1996-97), there was a 2.3% increase in faculty salaries and 16.3% increase in staff salaries.

The relationship between salary and gender of P.A. and non-P.A. faculty and staff is summarized in Table 29. Approximately 89% of the program personnel were classified as faculty. Salaries for male faculty were 6% higher than those of female faculty (\$56,604 versus \$53,278, respectively). Male staff earned substantially higher salaries than did female staff, \$51,975 vs. \$42,912, respectively.

Table 29. Program Personnel Salary of Faculty and Staff in Categories I - III by Gender

<u>Classification</u>	<u>Female</u>		<u>Male</u>	
	<u>Mean</u>	<u>N</u>	<u>Mean</u>	<u>N</u>
<u>Faculty</u>				
P.A.	\$53,383	186	\$56,091	127
Non-P.A.	\$52,194	18	\$59,017	27
Total	\$53,278	204	\$56,604	154
<u>Staff</u>				
P.A.	\$51,829	24	\$51,501	17
Non-P.A.	\$34,351	25	\$56,000	2
Total	\$42,912	49	\$51,975	19

Compared to the previous year (1996-97), faculty salaries have increased 3.1% for females and 1.3% for males, while staff salaries increased by 15.6% for females and 12.0% for males.

Annual salary of program personnel by highest degree earned for all categories is shown in Table 30 (next page). Doctoral-level personnel (N=47) earn the highest salary (overall for Categories I - III = \$56,527) and associate degree level individuals the lowest (\$46,477). Category III individuals earned substantially more at the doctorate and master's degree level; Category III personnel with doctorates earned the highest salary.

Table 30. Salary of Faculty and Staff Personnel by Highest Degree Held
Program Personnel Categories

Highest Degree	<u>I</u>		<u>II</u>		<u>III</u>		<u>IV</u>		<u>Categories I - III</u>	
	<u>Mean</u>	<u>N</u>	<u>Mean</u>	<u>N</u>	<u>Mean</u>	<u>N</u>	<u>Mean</u>	<u>N</u>	<u>Mean</u>	<u>N</u>
Doctorate	\$56,197	35	\$54,115	7	\$62,216	5	-----	1	\$56,527	47
Masters	\$54,828	89	\$56,158	64	\$59,985	24	\$29,251	9	\$56,008	177
Bachelors	\$49,441	88	\$51,925	92	\$48,189	9	\$27,617	30	\$50,591	189
Associate	\$60,098	4	\$42,509	2	\$30,961	3	\$22,058	15	\$46,477	9
Not Reported	-----	<u>1</u>	<u>\$36,400</u>	<u>3</u>	-----	<u>1</u>	<u>\$23,470</u>	<u>135</u>	<u>\$37,440</u>	<u>5</u>
Total	\$52,939	217	\$53,239	168	\$54,888	42	\$24,262	190	\$53,249	427

The salary of personnel classified as faculty is shown by academic rank and category in Table 31. Overall, there was an increase in mean salary with higher academic rank. The range of mean salaries was broad, \$51,938 at the rank of instructor in Category I to \$69,000 for those at the full professor level in Category I.

Table 31. Salary of Program Faculty by Academic Rank and Category

Academic Rank	<u>I</u>		<u>II</u>		<u>III</u>		<u>Total</u>	
	<u>Mean</u>	<u>N</u>	<u>Mean</u>	<u>N</u>	<u>Mean</u>	<u>N</u>	<u>Mean</u>	<u>N</u>
Full Professor	\$69,000	3	\$63,652	2	\$59,937	2	\$64,883	7
Associate Prof.	\$59,982	22	\$54,834	12	\$62,583	5	\$58,731	39
Assistant Prof.	\$54,994	68	\$56,206	55	\$62,689	13	\$56,220	136
Instructor/Lect.	\$51,938	105	\$52,768	69	\$58,268	6	\$52,467	180
Not Reported	<u>\$47,640</u>	<u>2</u>	<u>\$52,127</u>	<u>8</u>	<u>\$67,021</u>	<u>2</u>	<u>\$53,861</u>	<u>12</u>
Total	\$54,075	200	\$54,347	146	\$61,836	28	\$54,762	374

Program Directors of Physician Assistant Programs

The general characteristics of program directors are shown in Table 32 (next page) and include percent of time, annual salary and months in position for P.A. and non-P.A. directors by gender and highest degree held. On average, program directors devoted 96% of their time to program-related activities. While the percentage of time ranged from 50% to 100%, the majority of the directors (N=83; 86%) were working full-time. Eighty-two percent of the directors were P.A.'s (N=74).

The mean average salary for program directors was \$70,031, ranging from \$49,500 to \$101,750. Program directors who were non-P.A.'s earned a higher salary than those who were P.A.'s (\$72,147 and \$69,573, respectively). The average months in position did not vary greatly from physician assistant to non-physician assistant. The median months in position was 37 months.

Male program directors had higher average salaries (\$71,841) than did female directors (\$68,138). The mean time in position of female directors exceeded that of male directors by approximately 33 months (84.8 versus 52.0 months, respectively). The median number of months in position for male and female program directors is 31 and 51 respectively. One program director held an associates degree as highest.

In comparison to the 1996-97 data, mean salaries increased by 0.3% (\$70,031 versus 69,808) and the percent of directors with a Doctorate degree as the highest degree held increased from 30% to 35%.

Table 32. Characteristics of Program Directors

<u>Characteristics</u>	<u>Mean</u>	<u>S.D.</u>	<u>Range</u>	<u>N</u>		
Percent Time	95.9%	11.7	50% - 100%	96		
<u>Annual Salary</u>	<u>\$70,031</u>	<u>\$11,186</u>	<u>\$ 49,500 - 101,750</u>	<u>90</u>		
P.A.	\$69,573	\$10,325	\$ 49,500 - 101,750	74		
Non-P.A.	\$72,147	\$14,626	\$ 50,000 - 100,000	16		
Male	\$71,841	\$12,632	\$ 49,500 - 101,750	46		
Female	\$68,138	\$ 9,063	\$ 50,000 - 87,500	44		
Doctorate	\$72,961	\$12,927	\$ 50,000 - 101,750	32		
Masters	\$69,266	\$ 9,854	\$ 49,500 - 100,000	51		
Bachelors	\$61,327	\$ 5,722	\$ 56,000 - 70,000	6		
Associate				1		
<u>Months in Position</u>	<u>68.30</u>	<u>80.00</u>	<u>1-318</u>	<u>95</u>		
P.A.	68.50	78.10	1-314	76		
Non-P.A.	67.10	87.20	1-318	19		
Male	52.00	70.00	1-300	48		
Female	84.80	86.10	5-318	47		
<u>Highest Degree Held</u>	<u>Female</u>	<u>%</u>	<u>Male</u>	<u>%</u>	<u>Total</u>	<u>%</u>
Doctorate*	16	47.1%	18	52.9%	34	35.4%
Masters	25	46.3%	29	53.7%	54	56.3%
Baccalaureate	6	85.7%	1	14.3%	7	7.3%
Associate	1	100.0%	0	0.0%	1	1.0%

* Includes Ph.D., Ed.D., J.D., Pharm.D. and M.D. Degrees

Program Director Salaries: Regional Differences

A summary of program directors' salary and months in position by geographic region is shown in Table 33. Program directors associated with programs located in the Eastern region had substantially lower mean salaries (\$64,842) compared with the rest of the United States. Directors in the Heartland and Western regions had the highest mean salaries (\$77,001 and \$73,817, respectively). The lowest individual salary for a program director was in the Heartland

Table 33. Salary and Months in Position of Program Directors by Region

<u>Geographic Region</u>	<u>Program Director Salary</u>			<u>Months in Position</u>			
	<u>N</u>	<u>Mean</u>	<u>Range</u>	<u>N</u>	<u>Mean</u>	<u>Median</u>	<u>Range</u>
Northeastern	18	\$ 70,434	\$50,000- 95,181	20	90.7	47	8-318
Eastern	16	\$ 64,842	\$50,000- 80,000	16	64.0	29	2-244
Southeastern	14	\$ 70,997	\$50,000-101,750	15	66.3	29	1-300
Midwestern	20	\$ 67,704	\$52,667- 78,000	21	45.8	28	1-314
Heartland	8	\$ 77,001	\$49,500-100,000	9	69.0	41	1-264
Western	14	\$ 73,817	\$55,560-100,000	14	76.4	43	17-300
Total	90	\$ 70,031	\$49,500-101,750	95	68.3	37	1-318

region (\$49,500) and the highest was in the Southeastern region (\$101,750). Program directors in the Northeastern region had been employed in their positions the longest time, over seven years (91 months), and those in the Midwestern region the shortest period of time (46 months). Please note that the median months in position are listed on the table. There is a significant difference between the mean and medians for each region.

Medical Directors of Physician Assistant Programs

The characteristics of P.A. program medical directors are shown in Table 34. Percent time data were available for 85 medical directors, of which four were employed as such on a full-time basis, the remainder, on average, devoted less than one-quarter (24%) of their time to program-related activities. The mean annual salary of the medical

Table 34. Characteristics of Program Medical Directors

	Mean	S.D.	Median	Range	N
<u>Percent Time</u>	27.3	23.2	20.0	5%-100%	85
<u>Annual Salary</u>	\$ 99,372	\$40,965	\$100,000	\$27,500-240,000	75
Female	\$ 95,968	\$32,077	\$101,500	\$30,126-149,000	18
Male	\$101,455	\$43,057	\$100,000	\$27,500-240,000	56
<u>Months in Position</u>	54.8	63.0	30.0	2-314	83
Female	53.6	65.3	40.0	5-313	21
Male	55.3	62.2	29.5	2-314	62

directors reporting (N=75) was \$99,372 but varied extensively, ranging from \$27,500 to \$240,000. Female medical directors (N=18) earned a slightly lower annual mean salary (\$95,968) than did male medical directors (\$101,455). Comparison of medians show female medical directors with an annual salary of \$101,500, higher than their male counterparts (\$100,000).

Overall, medical director salaries increased by 11% from the previous year. Respondents which originally had not made corrections for full-time equivalent were contacted in order to clarify figures. The majority of medical directors were male (62; 75%). The average months in position is slightly lower for females directors (53.6 months). The median months in position for female medical directors is 40 months, while the median number of months for male medical directors is 29.5 months.

Data concerning medical director salaries, months in position and geographic region are shown in Table 35. Medical directors of those programs in the Southeastern region had the highest mean salaries (\$105,619). Those directors in

Table 35. Salary and Months in Position of Medical Directors by Region

Geographic <u>Region</u>	Medical Director's Salary*				Months in Position			
	<u>N</u>	<u>Mean</u>	<u>Median</u>	<u>Range</u>	<u>N</u>	<u>Mean</u>	<u>Median</u>	<u>Range</u>
Northeastern	16	\$ 99,979	\$106,515	\$30,126-200,000	18	68.7	48.0	5-228
Eastern	12	\$ 95,584	\$100,000	\$30,000-140,000	13	47.8	21.0	2-191
Southeastern	12	\$105,619	\$104,000	\$36,000-240,000	14	44.7	20.0	3-168
Midwestern	16	\$ 96,638	\$105,000	\$27,500-170,000	19	51.0	37.0	6-314
Heartland	7	\$ 90,337	\$ 85,000	\$50,000-125,000	7	40.9	29.0	16- 96
Western	<u>12</u>	<u>\$105,020</u>	<u>\$ 93,350</u>	<u>\$64,000-170,000</u>	<u>12</u>	<u>64.8</u>	<u>28.5</u>	<u>5-313</u>
Total	75	\$ 99,372	\$100,000	\$27,500-240,000	83	54.8	30.0	2-314

* Corrected for full-time equivalent.

the Heartland region had the lowest salaries (\$90,337). The Northeastern region has the highest median salary

(\$106,515). Medical directors in the Northeastern region were in their positions for the longest period of time (68.7 months). It should be noted that the range in both salaries (range of \$27,500 to \$240,000) and months in position (from 2 to 314 months) was extensive. Please note that the median months in position differ significantly from the medians.

The medical specialties of P.A. program medical directors are shown in Table 36. The majority of medical directors (N=67; 83.8%) were practicing in primary care specialties, predominantly family medicine (N=45;56.3%) and internal medicine (N=16; 20%). Only thirteen medical directors were in non-primary care specialties.

Table 36. Medical Specialties of P.A. Program Medical Directors

Primary Care			Non-Primary Care		
Medical Specialty	N	(%)	Medical Specialty	N	(%)
Family Medicine	45	56.3%	Cardiology	3	3.8%
Internal Medicine	16	20.0%	Nephrology	2	2.5%
Pediatrics	6	7.5%	Psychiatry	2	2.5%
Obstetrics/Gyn.	0	0.0%	Emergency Med.	1	1.3%
Total	67	83.8%	Other	5	6.3%
				13	16.4%

Comparisons between Medical and Program Directors

A comparison between medical and program directors' salaries from 1984-85 through 1996-97 is shown in Table 38. Note, information concerning the characteristics of medical directors was not available in 1987-88.

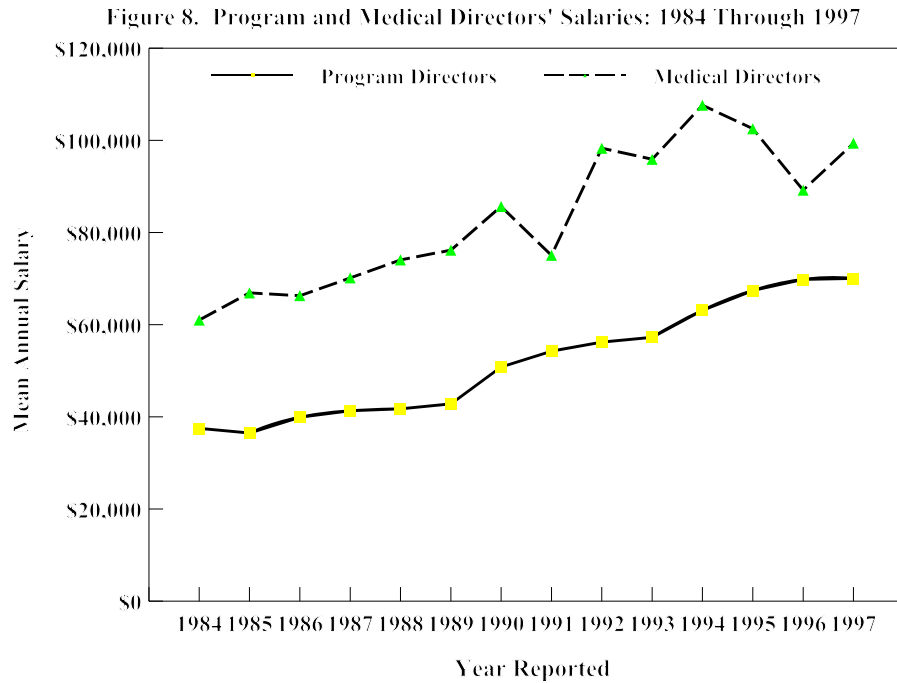
Table 37. Trends in Directors' Salaries and Months in Position from 1984 Through 1997

Academic Year	Program Director			Medical Director		
	Mean	Months	N	Mean	Months	N
1984-85	\$37,499	64.5	31	\$ 61,000	69.1	23
1985-86	\$36,491	69.3	32	\$ 66,900	70.1	21
1986-87	\$39,939	68.8	38	\$ 66,300	63.9	29
1987-88	\$41,324	67.9	38	N/A		
1988-89	\$41,730	90.3	42	\$ 74,056	75.3	36
1989-90	\$42,800	88.8	36	\$ 76,168	78.8	32
1990-91	\$50,824	85.5	41	\$ 85,646	69.1	36
1991-92	\$54,266	98.9	38	\$ 75,071	72.3	39
1992-93	\$56,206	91.4	51	\$ 98,288	69.3	39
1993-94	\$57,241	85.2	50	\$ 95,882	53.8	33
1994-95	\$63,115	89.9	55	\$107,617	67.3	32
1995-96	\$67,437	88.0	67	\$102,509	61.7	55
1996-97	\$69,808	91.7	72	\$ 89,186	64.5	55
1997-98	\$70,031	68.3	90	\$ 99,372	54.8	75
14-yr Mean	\$52,051	82.0	49	\$ 84,334	66.9	39

Between 1984 and 1997, there has been a 87% increase in the mean salary for program directors and a 63% increase for medical directors. The mean time in position has increased for program directors over this period (64.5 to 91.7 months). This year there was a drop in the months in position for programs and medical directors. The 1997-98 mean annual salary for medical directors increased by 11% from the preceding year.

On average, in 1997, medical directors earned an annual salary approximately 42% higher than the typical program director (\$99,372 versus \$70,031). Over the fourteen-year period, the medical directors earned an annual salary of

approximately 62% higher than the typical program director (\$84,344 versus \$52,051). Trends in salary for the program and medical directors from 1984 through 1997 are in Figure 8 and clearly illustrates the variation in directors' salaries since 1984.



A comparison of academic position and tenure status between the directors is shown in Table 38. The majority of medical and program directors held faculty level positions with 16% of these directors classified as staff. More program directors than medical directors in faculty-level positions were on a tenure track and less than one-fifth of the faculty directors were tenured.

Table 38. Program and Medical Directors: Position and Tenure Track Status

Level of Position	Program Director		Medical Director	
	Number	(%)	Number	(%)
Staff Appointment	11	11.5%	18	21.2%
Faculty Appointment	85	88.5%	67	78.8%
Total	96	100.0%	83	100.0%
Tenure Status				
Tenure Track Faculty	42	43.8%	28	32.9%
Faculty Tenured	16	16.7% *	13	15.3%

* Percent of TOTAL faculty tenured

Since 1985-86, the proportion of program and medical directors classified as faculty has remained relatively constant, averaging 80%; in 1997 around 84% of the directors were faculty. The proportion of faculty directors on the tenure track has averaged about 82% over time, and was 44% and 33%, respectively in 1997. The proportion of directors achieving tenured status in 1997 was slightly lower than mean of 21%.

A comparison between the academic rank of medical and program director faculty is shown in Table 39. Approximately the same number of medical directors and program directors (90%) held professorial rank (Assistant

to Full Professor). In both cases, there were relatively few directors classified as instructors or lecturers.

Table 39. Program and Medical Directors: Academic Rank

<u>Academic Rank of Faculty</u>	<u>Program Director</u>		<u>Medical Director</u>	
	<u>Number</u>	<u>(%)</u>	<u>Number</u>	<u>(%)</u>
Full Professor	6	7.4%	18	29.0%
Associate Professor	34	42.0%	15	24.2%
Assistant Professor	33	40.7%	23	37.1%
Instructor/Lecturer	<u>8</u>	<u>9.9%</u>	<u>6</u>	<u>9.7%</u>
Total	81	100.0%	62	100.0%

Regression Analysis of Salaries

Linear regression analysis was used to describe the relationship between salary and months in position for all core program faculty and staff. The resulting regression equations provide a means of determining salary while correcting for months in position. Table 40 identifies regression equations for each of the four P.A. and non-P.A. personnel categories, and for program and medical directors. Equations from Table 40 will "predict" salary within and across each category using the number of months as the independent variable. For example, one would predict that the salary

Table 40. Regression Equations for Salary and Months in Position for P.A. Program Personnel

<u>Characteristic</u>	<u>Base</u>	<u>±</u>	<u>(Constant x Months)</u>	<u>N</u>
Category I	\$ 52,027	+	(\$ 19.77 x _____)	216
Category II	\$ 53,168	+	(\$ 0.12 x _____)	164
Category III	\$ 50,832	+	(\$ 45.04 x _____)	41
Category IV	\$ 23,123	+	(\$ 22.12 x _____)	182
Categories I- III	\$ 52,190	+	(\$ 22.42 x _____)	422
Program Directors	\$ 68,505	+	(\$ 23.21 x _____)	89
Medical Directors	\$105,215	-	(\$ 84.56 x _____)	72

of a Category I individual who has been in his or her position for 38.9 months would be around \$52,796 (i.e. \$52,027 + \$769), a value similar to that reported in Table 14 for the average Category I individual (i.e. \$53,314) having been employed for a mean of 38.9 months.

P.A. Program Personnel Turnover

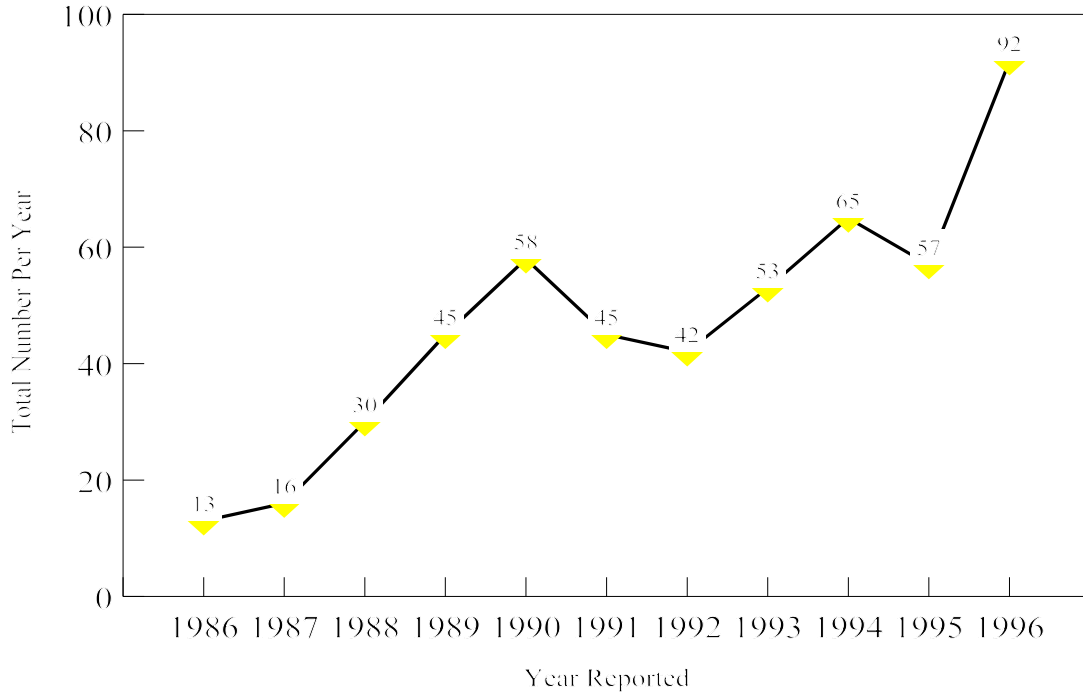
The 1997 survey requested updated information on personnel turnover for the period between September 1996 through August 1997. Program respondents were asked to provide data on the type, frequency and characteristics of personnel terminating and those employed to fill the position. We report herein the turnover activity for 1996-1997 as well as the cumulative data for the eleven-year period (1986-1996) in Table 41 (next page). Data are expressed as both total number and mean number of individuals per program for the time period identified. Over the eleven year-period examined, respondents reported that 516 personnel left their positions, averaging 8.4/program. As shown in Figure 9 (next page), there has been an increase in turnover from 1991 through 1996, except for last year.

Table 41. Program Personnel Turnover
1986 Through 1996

<u>Academic Year</u>	<u>Total Number</u>	
	<u>Departing</u>	<u>Mean/Program</u>
1986-1987	13	0.3
1987-1988	16	0.3
1988-1989	30	0.6
1989-1990	45	0.9
1990-1991	58	1.2
1991-1992	45	0.8
1992-1993	42	0.8
1993-1994	53	0.9
1994-1995	65	0.9
1995-1996	57	0.7
1996-1997	<u>92</u>	<u>1.0</u>
11-year Total	516	8.4
11-year Mean	46.9	0.9

During the 1996-97 academic year, 92 P.A. program personnel departed (N=96 programs reported information) for an average of 1.0 per program. In 1996, personnel turnover per program was comparable to previous years (1989 to the present) and similar to the overall 11-year mean of 46.9 personnel departing per year, an average of 0.9 persons departing/program.

Figure 9. Trends in Personnel Turnover: 1986 Through 1996



Our best estimate of the mean number of core program personnel is 8.6 per program, and includes one program and medical director, 3.7 P.A.'s and 1.0 non-P.A.'s and 1.9 Category IV personnel. Given the average turnover per year we estimate that 11.6% of program personnel departed this year (1.0/8.6), higher lower than the rate of 8.1% the previous year.

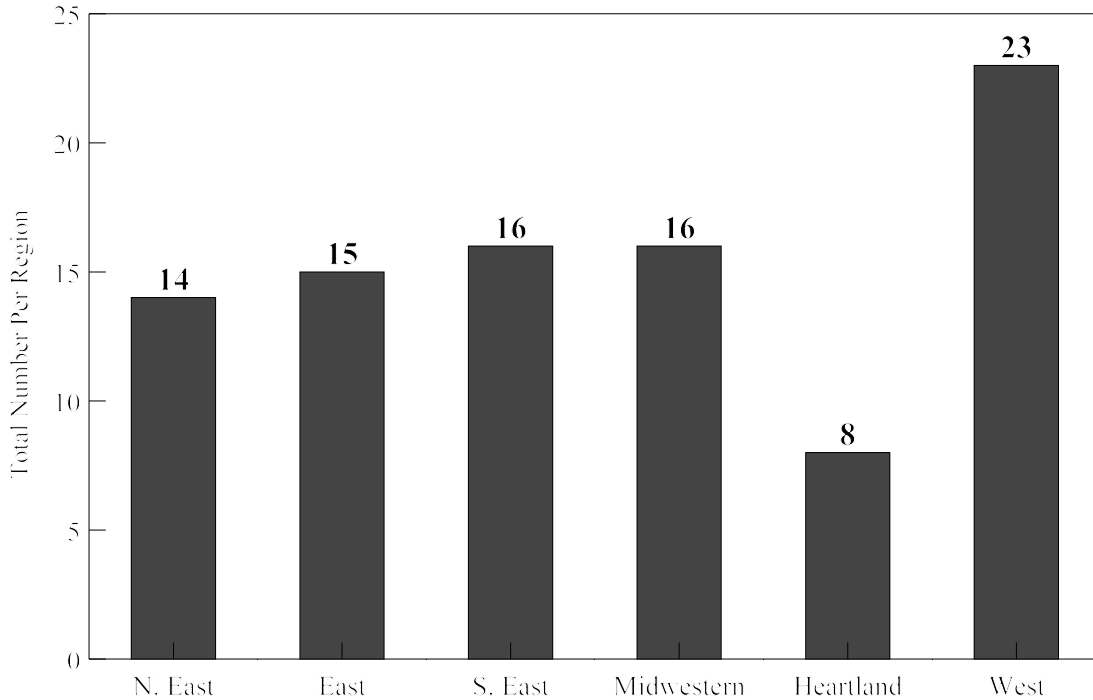
The number of personnel (and mean/program) departing over the past eleven years and those departing in 1996, by region, is shown in Table 42 and illustrated in Figure 10. Turnover varied by region. For example, programs in the

Table 42. Program Personnel Turnover by Region, 1986 Through 1996

<u>Geographic Region</u>	<u>Number in 11 Years</u>	<u>Number in 1996</u>	<u>1996 Mean/Program</u>	<u>N</u>
Northeastern	96	14	0.67	21
Eastern	70	15	0.94	16
Southeastern	84	16	0.94	17
Midwestern	100	16	0.76	21
Heartland	76	8	0.89	9
Western	<u>90</u>	<u>23</u>	<u>1.64</u>	<u>14</u>
Total	516	92	0.94	98

Western region reported the highest turnover (1.64 per program) while programs in the Northeastern region had the lowest rate of turnover (0.67).

Figure 10. Personnel Turnover By Region: 1996-1997
(From 9/1/96 Through 8/31/97)



A comparison of the number and category of personnel departing, those employed, percent of positions unfilled and mean number of weeks to fill the position are shown in Table 43 (next page). Overall, 92 program personnel (twenty-one Category IV) departed in 1996 with turnover highest among Category I personnel and least for Category III. On average 10.2 weeks were required to fill a position. Filling program director positions averaged 15.6 weeks while 5.2 weeks were required to fill Category III positions.

Table 43. Comparison of Personnel Turnover in 1996 by Category

<u>Category</u>	<u>Number Departed</u>	<u>Number Employed</u>	<u>Percent Unfilled</u>	<u>Weeks to Fill Position</u>
I	33	29	12.1%	10.4
II	21	21	0.0%	12.6
III	8	3	62.5%	5.2
IV	21	14	33.3%	7.3
Program Director	7	6	14.3%	15.6
Medical Director	<u>2</u>	<u>2</u>	<u>0.0%</u>	<u>13.1</u>
Total	92	75	18.5%	10.2

Table 44 shows the characteristics of personnel departing and those employed. On average, personnel departed in 1996 were older (3.0 years) than those employed. Approximately the same distribution of male/female personnel departing were employed. There was one more minority employed in 1996 than departed.

Table 44. Characteristics of Personnel Departed and Employed in 1996

<u>Characteristic</u>	<u>Program Personnel</u>			
	<u>Departed</u>		<u>Employed</u>	
Mean Age (yrs)	40.6		37.6	
Range	25-58		22-48	
<u>Gender</u>	<u>(%)</u>	<u>N</u>	<u>(%)</u>	<u>N</u>
Male	34.4%	31	34.7%	26
Female	65.6%	59	65.3%	49
<u>Ethnicity</u>				
White	83.7%	77	78.7%	59
Non-White	16.3%	15	21.3%	16

The academic characteristics of personnel departing and those filling the vacated positions are shown in Table 45. Doctorate includes Ph.D., Ed.D., M.D., D.O. As indicated in Table 45, the majority of personnel employed held a masters degree (47%) as their highest credential, the majority of those departing held a baccalaureate degree (45%). In addition, the majority of personnel departing were P.A.'s (73%) and those employed to fill these positions were also P.A.'s (71%).

The reasons cited for personnel turnover during 1996 and the eleven-year totals, are shown in Table 46. In 1996, less

Table 45. P.A. Program Personnel Turnover in 1996:
Academic Characteristics

<u>Highest Degree</u>	<u>Program Personnel</u>			
	<u>N</u>	<u>Departed</u>	<u>N</u>	<u>Employed</u>
Associate/Certificate	4	4.8%	5	6.7%
Baccalaureate	38	45.2%	23	30.7%
Masters	32	38.1%	35	46.7%
Doctoral	10	11.9%	12	16.0%
P.A. Credentialed	61	72.6%	53	70.7%

than one-fourth (18%) of the individuals departing did so for career advancement. Ten cited geographic relocation

as a reason for leaving their position. Previously the "Other" category included positions that were either eliminated by the program or the personnel were asked to resign, however the number of personnel terminated by the program was substantially higher than in previous years, so it was added as an official category. The "Other" category includes reasons such as unknown, travel, medical and deceased. Over the eleven-year period, career advancement was the primary reason for departing followed by geographic relocation and a return to clinical practice.

A comparison of salaries and months in position between personnel departing and those employed is shown for each

Table 46. P.A. Program Personnel Turnover:
Reasons for Termination in 1996 Compared to the Eleven -Year Totals

<u>Reasons for Terminating</u>	<u>1996</u>		<u>11-Year Totals</u>	
	<u>N</u>	<u>(%)</u>	<u>N</u>	<u>(%)</u>
Career Advancement	11	18.3%	131	26.7%
Geographic Relocation	10	16.7%	93	19.0%
Return to Clinical Practice	8	13.3%	91	18.6%
Termination	6	10.0%	6	1.2%
Retired	5	8.3%	26	5.3%
Job Dissatisfaction	4	6.7%	23	4.7%
Returned to School	3	5.0%	21	4.3%
Salary Dissatisfaction	3	5.0%	19	3.9%
Family Obligations	3	5.0%	3	0.6%
Other	<u>7</u>	<u>11.7%</u>	<u>77</u>	<u>15.7%</u>
Total	60	100%	490	100.0%

year in Table 47. On average, over the eleven-year period, there has been a mean salary increase of 4% for newly employed individuals as compared to those departing.

Table 47. Salaries of Departing and Newly Employed Personnel,
1986 Through 1996

<u>Academic Year</u>	<u>N</u>	<u>Salary Departing</u>	<u>Months in Position</u>	<u>Salary New Employee</u>	<u>Months Prior Position</u>
1986-1987	13	\$30,868	41.3	\$30,000	35.0
1987-1988	16	\$30,900	73.1	\$33,500	57.4
1988-1989	30	\$33,000	43.5	\$34,000	38.1
1989-1990	45	\$34,000	41.8	\$38,000	55.5
1990-1991	58	\$38,200	22.7	\$40,000	52.3
1991-1992	45	\$38,960	39.4	\$38,450	47.2
1992-1993	40	\$44,748	48.1	\$43,151	54.7
1993-1994	46	\$43,857	31.5	\$44,667	52.3
1994-1995	58	\$44,118	48.4	\$45,536	45.3
1995-1996	43	\$46,771	35.0	\$51,127	39.6
1996-1997	78	\$47,523	48.9	\$51,533	46.6
11-Year Mean	472	\$40,668	40.6	\$42,356	48.3

The greatest salary differences between departing and newly employed personnel were in 1989-90 (11.8%) and 1995-96 (9.3%). Overall, personnel departing had been in their positions an average of 41 months, while those employed had been in their previous position eight months longer (48.3 months).

SECTION III. P.A. APPLICANT AND STUDENT CHARACTERISTICS

Physician Assistant Student Enrollment

The maximum capacity and current enrollment of P.A. students in the most recently enrolled classes, 1997-98 (first-year class), 1996-97 (second-year class) and 1995-96 (third-year class) are shown in Table 48. The proportion of maximum capacity that remained unfilled and the resident status of the students is also presented. The dates in parentheses indicate the academic year of admission and the number indicates the programs responding.

Table 48. Maximum Class Capacity and Current Enrollment in Physician Assistant Programs

		Maximum Capacity	Current Enrollment	% Capacity Unfilled	% Residents
<u>First-Year Class</u> (1997-98)	Mean	41.0	40.4	3.2%	76.5%
	Median	34.5	38.0	5.0%	75.0%
	Range	(4-193)	(4-193)	(0-14%)	(0-100%)
	Number	96	95	95	78
<u>Second-Year Class</u> (1996-97)	Mean	40.2	38.8	11.4%	78.4%
	Median	34.5	33.0	8.5%	80.2%
	Range	(11-184)	(11-184)	(0-45%)	(0-100%)
	Number	86	85	33	69
<u>Third-Year Class</u> (1995-96)	Mean	35.9	32.3	31.1%	79.6%
	Median	34.0	30.0	32.4%	80.1%
	Range	(20-60)	(19-49)	(0-86%)	(23.3-100%)
	Number	19	15	15	13
<u>All Classes</u>	Mean	84.1	81.3	9.8%	77.0%
	Median	77	72.0	5.0%	62.0%
	Range	(8-377)	(8-377)	(0-45%)	(0-100%)
	Number	96	95	95	78

* Includes both full- and part-time students.

The mean maximum capacity for the first-year class increased slightly from last year (40.8) and is reported as 41.0; the mean maximum capacity for the second-year class increased slightly from last year (from 36.9 to 40.2); and the mean maximum capacity for the third-year class increased from 35.2 to 35.9 students. It should be noted that some of the programs with students in a “third year” were cases where there was a 1-6 month overlap between the second and third year of the curriculum (i.e., programs that were 25, 28, 30 months in length). It should be noted that eight of the newly established programs had not matriculated students to the second-year at the time data was collected.

The medians for the maximum capacity and current enrollment of the classes are listed on the table. Note that the medians are lower than the mean in each category.

The percent of capacity unfilled for the first-year class was 3.2% and 11.4% for the senior class (the latter figure likely reflects factors like attrition during the previous year). Maximum capacity of P.A. programs varied extensively for both first- and second-year classes, ranging from 4 to 193 and 11 to 184, respectively. The maximum capacity for all classes averaged 84.1 students and with a mean enrollment of 81.3 students, approximately 9.8% of the maximum capacity (all classes) remained unfilled.

Current enrollment in the first-year class averaged 40.4 students per program (95 programs; range 4 to 193) and 38.8

students/program in the second-year class. In comparison, the number of first- and second-year students in the previous year was 39.5 and 36.3, respectively. It should be noted that the enrollment figures include both full-time and part-time students, the latter accounting for only 1.9% of the enrollment. On average, approximately 77% of the students in the first-year and 78% of the second-year class were residents of the state in which the program was located, figures higher than the previous year (i.e., 69% and 69%, respectively).

The current enrollment for all classes by gender and full- and part-time student status is shown in Table 49. The majority of both full-time and part-time students were female, averaging around 64%. Fifteen programs reported that a "third-year class" was enrolled. It should be noted that respondents were asked to identify only those classes

Table 49. Current Enrollment by Gender and Class-Year

	<u>1st Year Class (N=95)</u>			<u>2nd Year Class (N=85)</u>			<u>3rd Year Class (N=15)</u>		
<u>Full-Time</u>	<u>Mean</u>	<u>(%)</u>	<u>Range</u>	<u>Mean</u>	<u>(%)</u>	<u>Range</u>	<u>Mean</u>	<u>(%)</u>	<u>Range</u>
Male	15.0	38.1%	1-151	13.8	37.2%	1-148	11.9	36.8%	5-27
Female	<u>24.4</u>	<u>61.9%</u>	3- 98	<u>23.3</u>	<u>62.8%</u>	6- 64	<u>20.4</u>	<u>63.2%</u>	13-37
Total	39.4	100%		37.1	100%		32.3	100%	
	<u>1st Year Class (N=9)</u>			<u>2nd Year Class (N=4)</u>			<u>3rd Year Class (N=0)</u>		
<u>Part-Time</u>	<u>Mean</u>	<u>(%)</u>	<u>Range</u>	<u>Mean</u>	<u>(%)</u>	<u>Range</u>	<u>Mean</u>	<u>(%)</u>	<u>Range</u>
Male	3.4	32.7%	1-13	3.0	34.1%	1- 5	N/A	N/A	N/A
Female	<u>7.0</u>	<u>67.3%</u>	1-24	<u>5.8</u>	<u>65.9%</u>	1-17	N/A	N/A	N/A
Total	10.4	100%		8.8	100%				

enrolled in the "professional" component of the curriculum, thus, a 4-year program may only have two years of "P.A.-specific" curriculum. While nine programs reported they enrolled part-time students in the first year; four programs indicated they had part-time students in the second year of the program and no programs reported part-time students in the third-year.

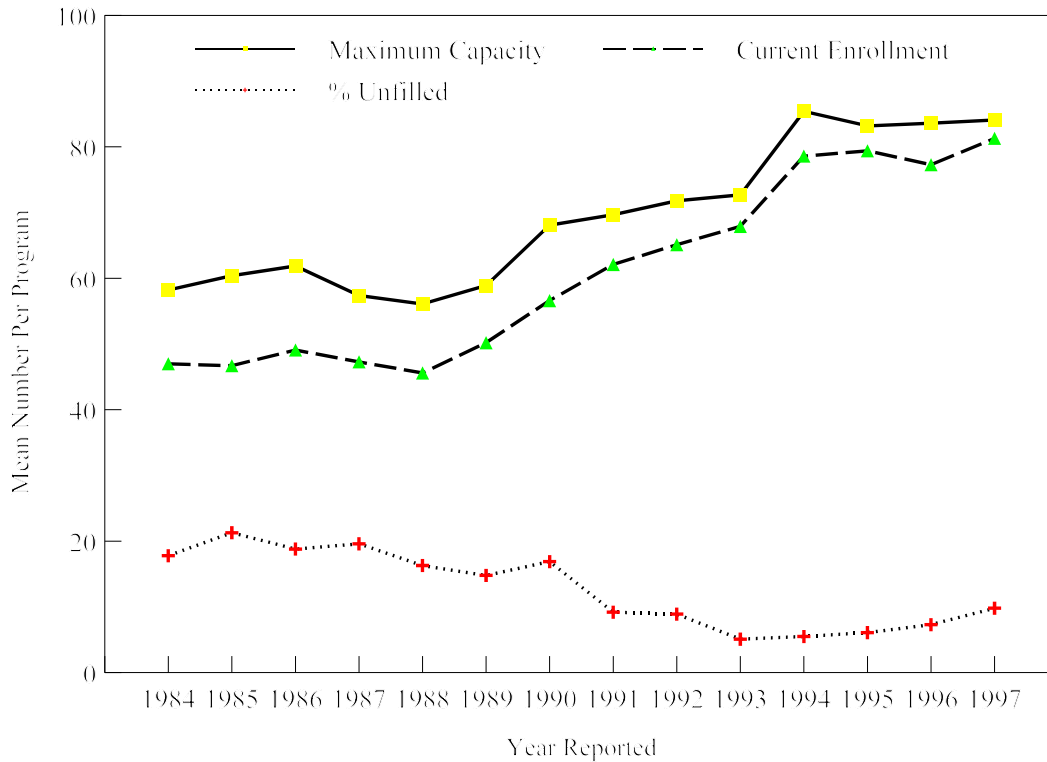
Trends in Maximum Capacity and Student Enrollment

The mean maximum class capacity, total student enrollment and percent of capacity unfilled from 1984 through 1997 are shown in Table 50 (next page). Maximum capacity over the past fourteen years averaged 69 students for all classes and ranged from 56.1 to 85.4. The percent of capacity that remained unfilled varied around a mean of 12.7% and decreased systematically from 1990 to 1993. In the last five years, the percent of unfilled capacity increased from 5.1% in 1993-1994 to this year's percentage of 9.8. The trends in enrollment, maximum and unfilled capacity are illustrated in Figure 11 (next page). Total enrollment from 1984 through 1988 averaged 47.1 students/program and varied little during that period. In the subsequent nine years (1989-97) enrollment averaged 68.8 and showed an overall increase of 62%, from 50.2 students to 81.3 students.

Table 50. Total Student Enrollment of All Classes, 1984 Through 1997

<u>Academic Year</u>	<u>Programs Responding</u>	<u>Maximum Capacity All Classes</u>	<u>Current Enrollment All Classes</u>	<u>Percent Capacity Unfilled</u>
1984-1985	39	58.2	47.0	17.8%
1985-1986	44	60.4	46.7	21.3%
1986-1987	47	61.9	49.1	18.8%
1987-1988	48	57.4	47.3	19.6%
1988-1989	48	56.1	45.6	16.3%
1989-1990	45	58.9	50.2	14.8%
1990-1991	50	68.1	56.6	16.9%
1991-1992	50	69.7	62.1	9.2%
1992-1993	57	71.8	65.1	8.9%
1993-1994	56	72.7	67.9	5.1%
1994-1995	61	85.4	78.6	5.5%
1995-1996	68	83.2	79.4	6.1%
1996-1997	77	83.6	77.3	7.3%
<u>1997-1998</u>	<u>95</u>	<u>84.1</u>	<u>81.3</u>	<u>9.8%</u>
14-Yr. Mean	56.1	69.4	61.1	12.7%

Figure 11. Trends in Enrollment: 1984 Through 1997



P.A. Applicants and Students Enrolled

The number of applicants and those enrolled in the most recent P.A. class (1997-98) is shown in Table 51. In addition, information on those accepted and the mean number of full- and part-time students is also provided. The typical program received 339 applications for the class entering in 1997-1998, ranging from 22 to 1019 applicants. This represented a 12% decrease (44 applicants/program) from the 383 applicants per program the previous year. On average, 46 students were accepted and 40 students per program were enrolled in the first-year class (91 programs; range from 5-193); only 1.5% were part-time students (0.6/program). These findings mark an increase (29%) in first-year enrollment over the 15-year average (i.e., 40.5/program versus an average of 31.5/program). Fourteen percent

Table 51. Applicant and Student Characteristics, Class of 1997-98

	Number	Number	<u>Number Enrolled</u>		
	<u>Applicants</u>	<u>Accepted</u>	<u>F.T.*</u>	<u>P.T.*</u>	<u>Total</u>
Mean	338.6	46.0	39.9	0.6	40.5
Median	292.0	41.0	35.0	4.0	35.0
Range	22-1019	5-193	5-193	0-20	4-193
# Programs	74	83	91	91	91

* F.T. = Full-Time; P.T. = Part-Time

of the applicant pool was accepted (46/339) and of these, 88% were enrolled (40.5/46), thus an average of 12% of those accepted elected not to enroll in a particular program. Overall, 12% of the applicants were enrolled in 1997 (41/339). The ratio of applicants to enrollees was over 8.4:1, a slightly lower ratio than the 9.7:1 value in the previous year.

Applicants and Students Enrolled by Geographic Region

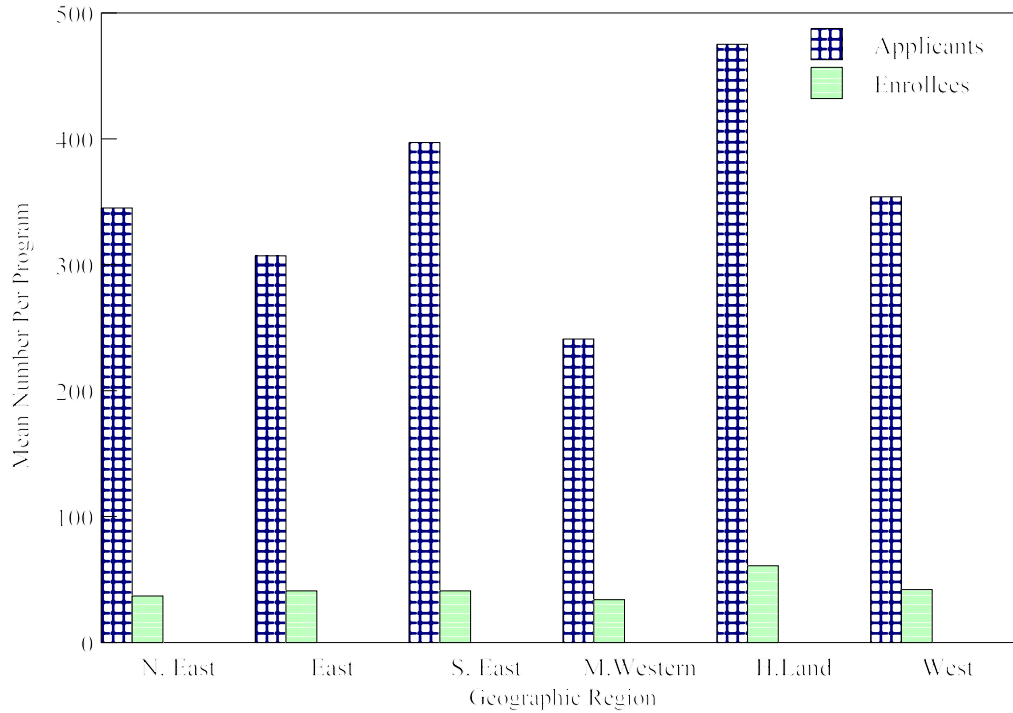
A comparison between the mean number of applicants by geographic region is shown in Table 52 and Figure 12 (next page), 'N' indicates the number of programs responding. Programs in the Heartland region averaged 475 applicants per program, while programs in the Midwestern region, 241 per program. Only one geographic region showed an

Table 52. Number of Applicants and Enrollees by Region

Geographic Region	Applicants		% Change Prev. Year	Enrollees		Ratio
	<u>N</u>	<u>Total</u>		<u>N</u>	<u>Total</u>	
Northeastern	14	345.3	- 7.4%	19	37.2	9.3:1
Eastern	11	306.6	- 23.1%	14	41.3	7.4:1
Southeastern	14	396.6	- 22.2%	16	40.8	9.7:1
Midwestern	16	240.6	- 13.9%	20	34.1	7.1:1
Heartland	6	475.0	+ 17.5%	8	61.1	7.8:1
Western	<u>13</u>	<u>353.8</u>	<u>- 5.2%</u>	<u>14</u>	<u>41.9</u>	<u>8.4:1</u>
Total	74	338.6	- 11.7%	91	40.6	8.3:1

increase in the average number of applicants, the Heartland region with a 17.5% increase. The main reason for these differences is the presence of new programs which have a significantly lower number of applicants. In the Western region, there were three programs with no graduates and in the Eastern region, there were four programs with no graduates. The largest number of enrollees was in the Heartland region (61) and the smallest number was in the Midwestern region (34).

Figure 12. Applicants and Students Enrolled by Region, 1997-1998



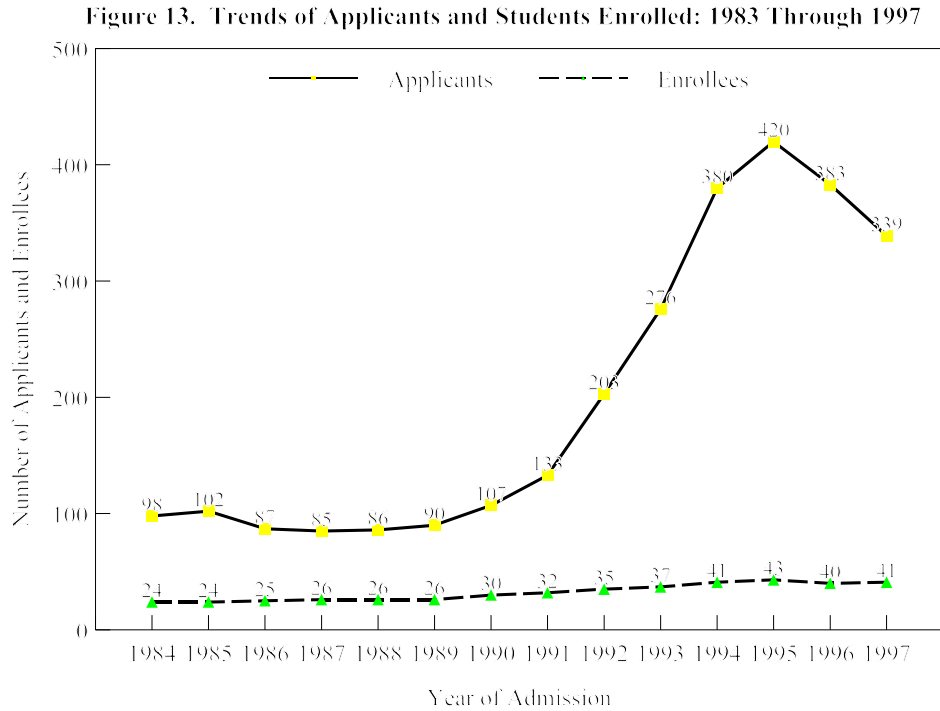
Trends in P.A. Student Enrollment, 1983 Through 1997

The number of applicants and students enrolled in P.A. programs for the fifteen-year period from 1983 through 1997 are shown in Table 53 and Figure 13 (next page). From 1984 through 1997 the number of the applicants ranged from 84.7 to 419.5 persons, and averaged 190.0 over the fifteen-year period. Figure 13 (next page) illustrates the trends in the number of applicants and students enrolled from 1984 through 1998. The mean number of applicants/program

Table 53. P.A. Applicants and Students Enrolled, 1983 Through 1997

Academic Year	Mean Number Applicants	(N)	Mean Number Accepted	(N)	Mean Number Enrolled	(N)	Mean Ratio Appl./Enroll
1983-84	N/A	--	N/A	--	24.0	43	N/A
1984-85	98.4	32	30.4	35	24.1	43	4.0:1
1985-86	101.8	25	44.5	35	24.3	42	4.0:1
1986-87	86.5	30	31.2	40	24.9	47	3.5:1
1987-88	84.7	31	30.2	42	25.6	47	3.3:1
1988-89	86.1	36	30.2	39	25.9	46	3.3:1
1989-90	90.2	33	33.0	40	26.1	46	3.5:1
1990-91	106.5	37	35.6	45	29.6	49	3.6:1
1991-92	133.2	33	36.8	41	32.2	47	4.1:1
1992-93	203.2	51	40.6	49	35.0	57	5.8:1
1993-94	275.7	52	39.6	46	37.0	55	7.4:1
1994-95	379.6	54	44.9	55	41.4	58	9.2:1
1995-96	419.5	53	44.7	62	42.9	71	9.8:1
1996-97	383.3	57	45.6	71	39.6	76	9.7:1
<u>1997-98</u>	<u>338.6</u>	<u>74</u>	<u>46.0</u>	<u>83</u>	<u>40.5</u>	<u>91</u>	<u>8.4:1</u>
15-Yr. Mean	190.0	42	38.0	48	31.5	67	5.6:1

remained relatively constant from 1984 through 1989, then increased systematically by over 350% until 1995. Since 1996, the number of applicants/program has decreased by 19.3%. There had also been a systematic increase in enrollees from 1984 through 1995. Since then, the mean number enrolled has fluctuated between 39.5 and 42.9. The average number of enrollees over the fifteen-year period is 31.5 students/program.



The mean number and relative proportion of male and female students enrolled in P.A. programs over the past fifteen years are shown in Table 54. The proportion of female and male P.A. students enrolled from 1983 through 1997

Table 54. First-Year Class Enrollment, 1983 Through 1997

Academic Year	Female			Male		Total	
	<u>N</u>	<u>Mean</u>	<u>(%)</u>	<u>Mean</u>	<u>(%)</u>	<u>Mean</u>	<u>N</u>
1983-84	39	13.6	58.4%	9.7	41.6%	24.0	43
1984-85	39	14.6	61.6%	9.1	38.4%	24.1	43
1985-86	42	15.3	63.0%	9.0	37.0%	24.3	41
1986-87	44	15.5	62.2%	9.4	37.8%	24.9	47
1987-88	47	15.7	61.6%	9.9	38.4%	25.6	47
1988-89	46	16.2	62.3%	9.8	37.7%	25.9	46
1989-90	46	16.4	62.8%	9.7	37.2%	26.1	46
1990-91	47	16.3	55.1%	13.3	44.9%	29.6	49
1991-92	47	19.4	60.2%	12.8	39.8%	32.2	47
1992-93	55	20.7	59.8%	13.9	40.2%	35.0	56
1993-94	55	22.2	61.5%	13.9	38.5%	37.0	55
1994-95	60	24.4	60.2%	16.1	39.8%	41.1	55
1995-96	71	22.8	58.2%	16.4	41.8%	39.2	71
1996-97	77	23.5	61.4%	14.8	38.6%	38.3	77
<u>1997-98</u>	<u>95</u>	<u>24.4</u>	<u>61.9%</u>	<u>15.0</u>	<u>38.1%</u>	<u>39.4</u>	<u>95</u>
15-Yr Mean	54	18.7	60.7%	12.2	39.3%	31.1	55

remained relatively constant, averaging 60.7% and 39.3%, respectively. These figures include part-time students.

Trends in the percent of applicants enrolled is illustrated in Figure 14. Although the number of applicants and students enrolled has increased since 1987-88, they have not done so at an equivalent rate. Thus, the proportion of applicants enrolled has systematically decreased from a high of 31% in 1987 to a low of 10% in 1996, with an increase to 12% in 1997.

Figure 14. Trends in Percent of Applicants Enrolled: 1984 Through 1997



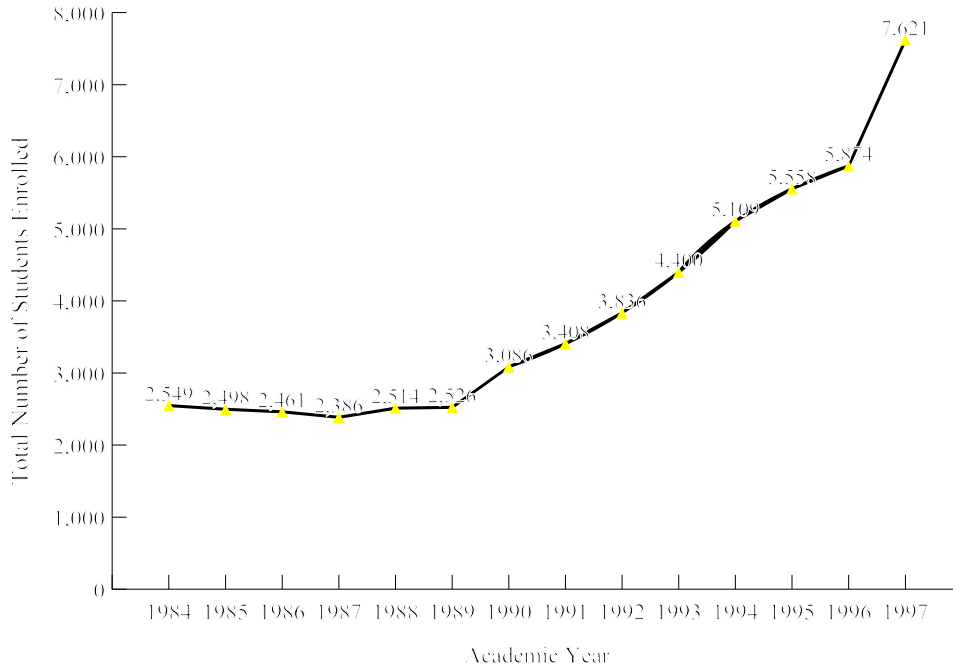
Total Enrollment in P.A. Programs

Figure 15 (next page) illustrates the trends in total student enrollment from 1984 through 1997. Estimates of total enrollment are based on summing mean values for enrollment in the 1st, 2nd and 3rd year classes, then multiplying by the number of programs represented. For the 96 programs we estimate total enrollment to be 7,621 in 1997. (The calculations were as follows, 1st yr. $95 \times 40.4 = 3,838$, 2nd yr. $85 \times 38.8 = 3,298$ and 3rd yr. $15 \times 32.3 = 485$). As both the mean number of students enrolled and the number of programs increase, the total number of P.A. students enrolled has increased considerably.

Total enrollment remained relatively constant from 1984 through 1989. Subsequently, there had been a linear and relatively steep sustained increase until 1996. This year saw a dramatic increase to 7,621 students enrolled. The two factors influencing the number of P.A. students enrolled have been, (a) a larger number of first-year students enrolled and (b) an increase in the total number of programs.

In addition, since 1984 the number of P.A. programs has changed as follows: 53 (1984); 51 (1985); 49 (1986); 50 (1987); 51 (1988 and 1989); 55 (1990 and 1991) 59 (1992); 63 (1993); 67 (1994); 81 (1995); 89 (1996); 104 in 1997.

Figure 15. Trends in Student Enrollment: 1984 Through 1997



Applicants and Students Enrolled by Age

The age distribution of applicants, students accepted and those enrolled for the first-year class is shown in Table 55. The data are expressed as the mean number of individuals per program within each of the age categories examined.

Table 55. Applicants and Enrollees by Age, Class of 1997-98

Age	<u>All Applicants</u>		<u>Number Accepted</u>		<u>Number Enrolled</u>	
	<u>Mean</u>	<u>(%)</u>	<u>Mean</u>	<u>(%)</u>	<u>Mean</u>	<u>(%)</u>
	(N=65)		(N=82)		(N=90)	
Under 20	10.3	3.1%	3.0	6.5%	1.3	3.2%
20-23	80.3	23.9%	8.9	19.2%	8.5	20.7%
24-26	82.6	24.6%	9.5	20.5%	8.4	20.4%
27-29	54.1	16.1%	6.8	14.7%	6.3	15.3%
30-33	44.1	13.1%	6.6	14.3%	6.0	14.6%
Over 33	<u>65.0</u>	<u>19.3%</u>	<u>11.5</u>	<u>24.8%</u>	<u>10.6</u>	<u>25.8%</u>
Total	338.6	100.0%	46.0	100.0%	40.5	100.0%
	(N=74)*		(N=83)		(N=91)	

* Number of programs reporting.

Approximately one-fourth of the applicants were less than 24 years of age and approximately 40% were between 24-29 years. Less than one-half (40%) of the students enrolled in the first-year class were over 30 years of age; over one-half were between the ages of 20 and 29 and only 3% were under 20 years of age.

Students Enrolled by Age and Geographic Region

The distribution of students enrolled in the 1997-98 class by age and geographic region is shown in Table 56. The table reports the percentage of students per program (N=90 programs) in each age category. Students enrolled in those

Table 56. P.A. Student Enrollment by Age and Region, Class of 1997-98

Geographic Region	Age at Application					
	< 20 (%)	20-23 (%)	24-26 (%)	27-29 (%)	30-33 (%)	>33 (%)
Northeastern	7.5%	23.9%	21.8%	13.9%	13.3%	19.6%
Eastern	8.9%	29.6%	20.7%	14.0%	9.7%	17.1%
Southeastern	0.5%	21.7%	26.3%	14.1%	11.9%	25.5%
Midwestern	0.5%	18.2%	20.9%	15.5%	16.7%	28.2%
Heartland	0.0%	26.0%	19.8%	15.1%	15.7%	23.4%
Western	<u>0.2%</u>	<u>8.7%</u>	<u>16.7%</u>	<u>18.3%</u>	<u>17.0%</u>	<u>39.2%</u>
Total	3.2%	20.7%	20.4%	15.3%	14.6%	25.8%

programs located in the Eastern region tended to be younger than those in other regions, 38.5% were 23 years of age or less. This finding may be due to the presence of more 4-year programs in the region, which in turn, enroll younger students. Conversely, students in the Western and Midwestern regions were notably older than P.A. students in other regions, 39.2% and 28.2% were over 33 years of age, respectively.

Trends in Enrollment by Age

Trends in the age of enrolled students from 1983 to 1997 are shown in Figure 16 (next page). The data were grouped into the following three age categories: under 24 years of age, those between 24 and 29 years and those over 29 years of age. The proportion of enrollees less than 24 years of age increased to 23.9% in 1997, from a pattern of decrease through 1995. Those between the ages of 24 and 29 initially decreased from 1983 to 1989, and then plateaued with values fluctuating between 30% and 36%. The enrollment of students that were over 29 years of age had systematically increased over time beginning at 32% of the enrollees in 1983, peaking in 1992 (56%) and then decreasing to the current level of 40% of enrollees.

Average Age of Applicants

The survey included questions asking the average age of all of the programs' applicants, accepted applicants and currently enrolled full- and part-time students. As a result of these questions, the average applicant age was 28.6, accepted applicant age was 29.3, full-time student age was 28.9 and the average age for the part-time student was 33.6. Table 57 (next page) lists average ages of these categories by geographic region. The Western region had the highest average age of applicants, accepted applicants and full-time students (30.5, 32.4, and 32.4 respectively). The Northeastern region had the lowest average age of applicants, accepted applicants and full-time students (26.0, 26.8, and 26.7 respectively).

Figure 16. Trends in Enrollee Age: 1983 Through 1997

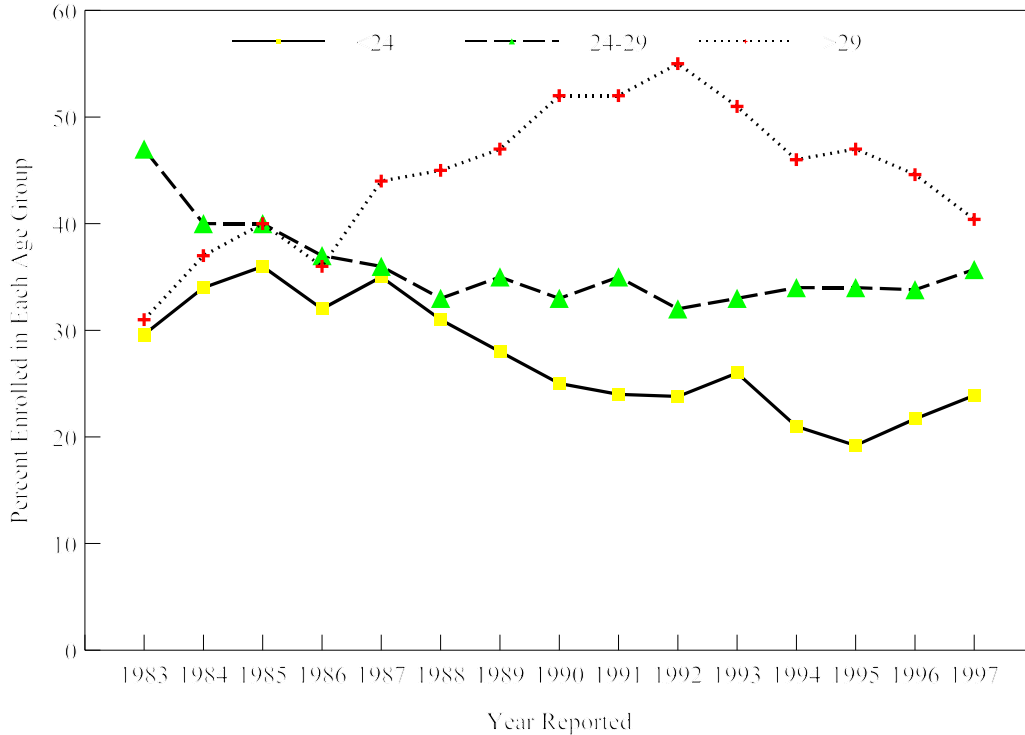


Table 57. Average Age of Applicants, Accepted Applicants and Enrollees by Region

Geographic Region	Applicants		Accepted Applicants		Enrollees Full-Time		Enrollees Part-Time	
	N	Average Age	N	Average Age	N	Average Age	N	Average Age
Northeastern	12	26.0	15	26.8	19	26.7	1	-----
Eastern	8	29.5	13	27.5	14	26.9	3	30.0
Southeastern	13	28.0	16	28.7	16	28.4	2	35.5
Midwestern	15	29.9	18	30.9	20	30.3	0	-----
Heartland	4	28.6	6	28.7	7	28.6	1	-----
Western	<u>11</u>	<u>30.5</u>	<u>14</u>	<u>32.4</u>	<u>14</u>	<u>32.4</u>	<u>2</u>	<u>37.0</u>
Total	63	28.6	82	29.3	90	28.9	9	33.6

Applicants and Students Enrolled by Ethnicity

The ethnicity of applicants and students enrolled in the first-year class is shown in Table 58 (next page). The data are expressed as the mean number and percentage of applicants and enrollees per program from each ethnicity category. Almost three-fourths of the applicants (74.6%) were White/Non-Hispanic; 6.8% were Black/African-American, 4.5% were Latino/Hispanic, 7.7% and 0.8% were Asian/Pacific Islander and Native American/Alaskan Native, respectively. Overall, 25.4% of the applicants were members of an ethnic minority, 27% of whom were Black/African-American. Among those enrolled, 79.2% were White/Non-Hispanic and the remainder (20.8%) were from an ethnic minority. A comparison between the proportion of minority applicants and those enrolled suggests that preference is not given to applicants on the basis of ethnicity, for example, 25.4% of the applicants and 20.8% of those enrolled were described as an ethnic minority. Twenty-nine of the 91 program respondents (32%) did not

enroll any Black/African-American students and forty programs did not enroll any Hispanic students. Five programs (5.5%) did not enroll any type of minority student in 1997.

Table 58. Applicants and Students Enrolled by Ethnicity

<u>Ethnicity</u>	<u>All Applicants</u>		<u>Number Enrolled</u>		<u># of Programs</u>
	<u>Mean</u>	<u>(%)</u>	<u>Mean</u>	<u>(%)</u>	<u>w/o Minorities</u>
	(N=70)		(N=91)		(N=91)
White/Non-Hispanic	252.6	74.6%	32.4	79.2%	0
Black/African-American	23.0	6.8%	2.5	6.1%	29
Latino/Hispanic	15.4	4.5%	2.2	5.4%	40
Asian/Pac. Islander	26.0	7.7%	2.4	5.9%	22
Nat. Amer./Alaskan	2.6	0.8%	0.4	1.0%	65
Other	19.0	5.6%	1.0	2.4%	72
Total (N=75)	338.6	100%	40.9	100%	5

Ethnic Representation of Applicants and Enrollees by Geographic Region

The mean number and proportion of P.A. applicants and students enrolled in the first-year class on the basis of both ethnicity and geographic region is in Table 59.

Table 59. Applicants and Enrollees by Ethnicity and Geographic Region

<u>Geographic Region</u>	<u>Applicants</u>				<u>Enrollees</u>			
	<u>White</u>		<u>Non-White</u>		<u>White</u>		<u>Non-White</u>	
	<u>Mean</u>	<u>%</u>	<u>Mean</u>	<u>%</u>	<u>Mean</u>	<u>%</u>	<u>Mean</u>	<u>%</u>
Northeastern	230.0	69.6%	100.6	30.4%	28.4	76.5%	8.7	23.5%
Eastern	223.9	73.0%	82.7	27.0%	35.0	84.7%	6.3	15.3%
Southeastern	317.4	80.0%	79.2	20.0%	33.3	81.8%	7.4	18.2%
Midwestern	204.5	83.7%	39.8	16.3%	29.9	87.9%	4.1	12.1%
Heartland	312.6	76.1%	98.0	23.9%	45.3	74.0%	15.9	26.0%
Western	204.4	62.5%	122.8	37.5%	28.0	66.8%	13.9	33.2%
Total	252.6	74.6%	86.0	25.4%	32.4	79.2%	8.5	20.8%

For purposes of comparing across programs, minorities were grouped into a single category and designated non-white. There was considerable variation in the proportion of minorities applying to, and enrolled in, programs across regions. Programs in the Western region had the largest proportion of non-white applicants at 38% and the Midwestern region the least number, with only 16% being non-white. The Western region enrolled the largest percentage (33%) of non-white students. Programs in the Midwestern region had a the fewest number of non-white enrollees (12%).

The number and percent of programs reporting no minority students enrolled in the first-year class is shown in Table 60 (next page). Five programs, in separate regions, had no minority students enrolled.

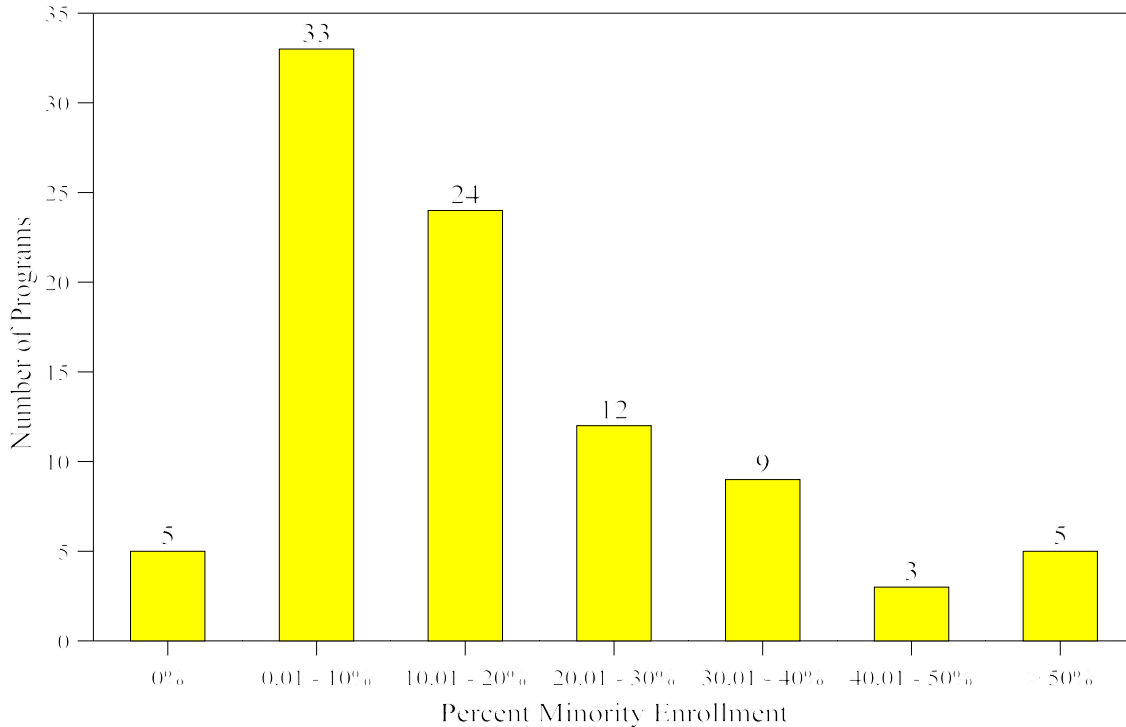
Table 60. Number of Programs with No Minority Enrollment by Geographic Region

<u>Geographic Region</u>	<u>N</u>	<u># of Programs</u>	<u>(%)</u>
Northeastern	19	1	5.3%
Eastern	14	2	14.3%
Southeastern	16	0	0.0%
Midwestern	20	2	10.0%
Heartland	8	0	0.0%
Western	<u>14</u>	<u>0</u>	<u>0.0%</u>
Total	91	5	5.5%

Number of Programs versus Percent Minority Student Enrollment

Figure 17 represents the number of programs with certain percentages of minority enrollment. There are 28 programs who have a larger percentage of minority enrollment than the mean of 20.8%; 63 programs have less. The average minority enrollment for programs with greater than 20% is 38.3%; for programs with less than 20% minority enrollment, 9.5%.

Figure 17. Number of Programs vs. Percentage of Minority Enrollment



Trends in Minority Student Enrollment, 1983 Through 1997

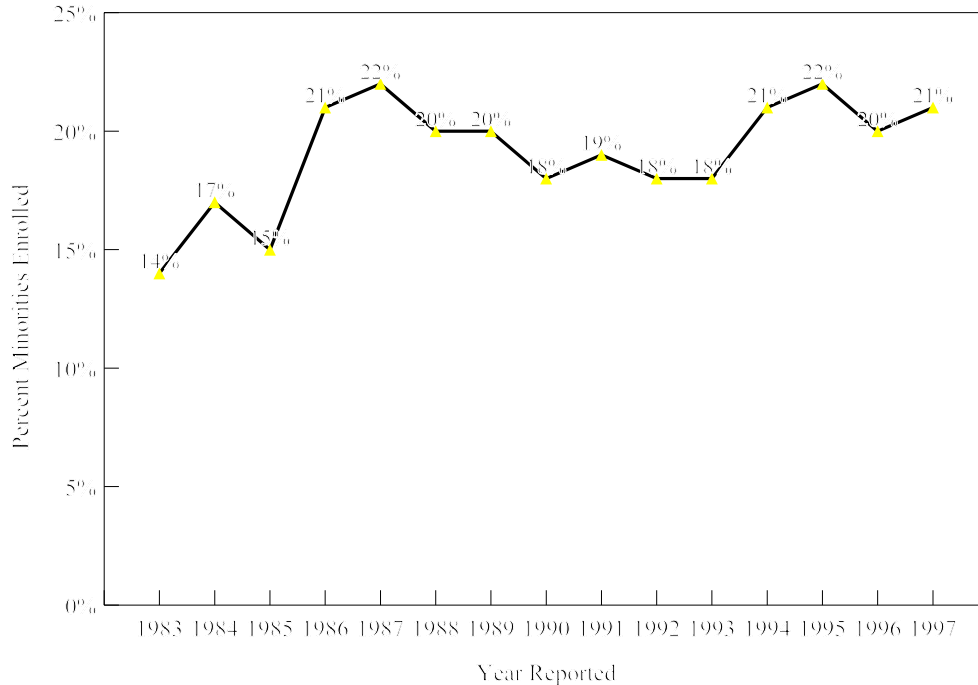
The proportion of minority and non-minority students enrolled in P.A. programs over a fifteen-year period (1983-84 through 1997-98) is shown in Table 61 (next page) and Figure 18 (next page). The proportion of non-white students in the first-year class increased from 14% in 1983 to a peak of 22.3% in 1987-88 and 1995-96. Expressed differently, the number of minority students has doubled from a mean of 4.0/program in 1983 to 8.5/program in 1997. For the 1997-98 academic year, non-white enrollment increased slightly to 20.8%.

Table 61. Ethnicity of P.A. Students Enrolled from 1983 Through 1997

Academic Year	N	White		Non-white		First Yr. Enrollment
		Mean	%	Mean	%	
1983-84	39	20.7	86.2%	4.0	13.8%	24.0
1984-85	39	20.3	83.4%	4.1	16.6%	24.5
1985-86	41	20.9	85.3%	3.6	14.7%	24.6
1986-87	47	19.6	78.8%	5.3	21.1%	24.9
1987-88	47	19.7	77.7%	5.9	22.3%	25.6
1988-89	46	20.8	79.7%	5.3	20.3%	25.9
1989-90	46	20.9	80.1%	5.2	19.9%	26.1
1990-91	48	24.6	82.3%	5.3	17.7%	29.9
1991-92	47	26.0	81.0%	6.1	19.0%	32.1
1992-93	56	26.9	82.5%	5.7	17.5%	32.6
1993-94	55	29.3	82.3%	6.3	17.7%	35.6
1994-95	58	33.2	77.5%	8.8	20.9%	42.0
1995-96	69	32.4	77.7%	9.3	22.3%	41.5
1996-97	76	31.3	79.6%	8.0	20.4%	39.6
<u>1997-98</u>	<u>91</u>	<u>32.4</u>	<u>79.2%</u>	<u>8.5</u>	<u>20.8%</u>	<u>40.6</u>
15-yr. Mean	54	25.3	80.9%	6.2	19.0%	31.3

Minority student enrollment over fifteen years has averaged 19% per year (mean of 6.2 students/program). It should be noted that values for the 1992-93 and 1993-94 period may be under represented because some programs with large minority enrollments were non-respondents in both years.

Figure 18. Trends in Minority Student Enrollment: 1983 Through 1997



Academic Characteristics of P.A. Students

The academic profile and health care experience (H.C.E.) of students at the time of enrollment are shown in Table 62. The academic characteristics evaluated include degree earned and grade point average (GPA) prior to admission. Over one-half (69%) of the students enrolled in 1997 had earned at least a baccalaureate degree (62% as their highest

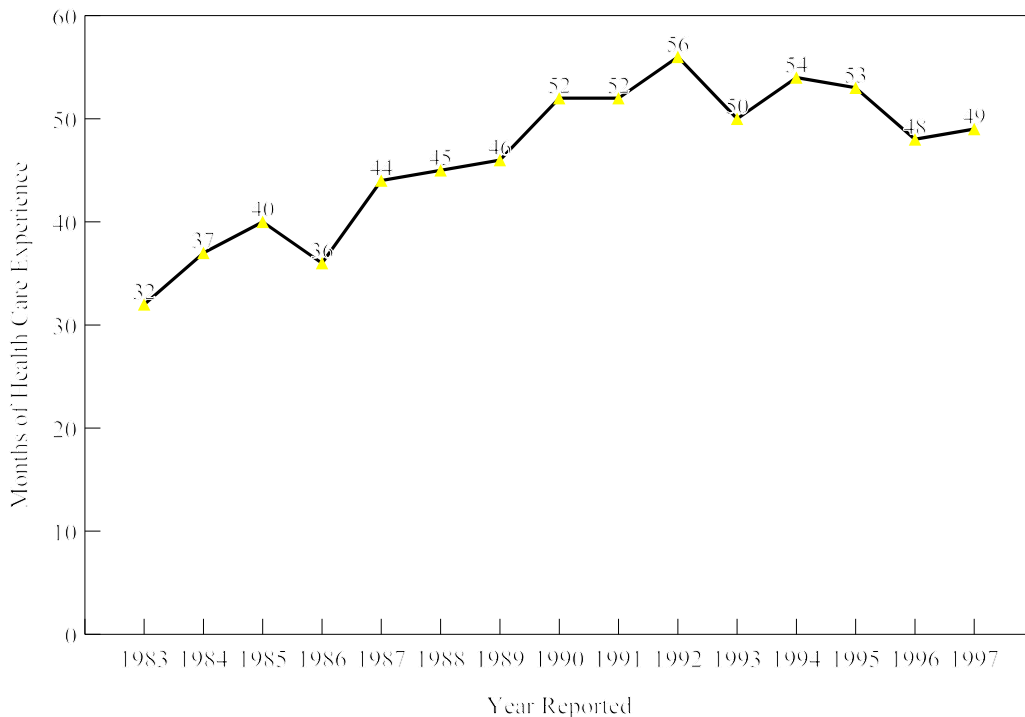
Table 62. Academic Characteristics of P.A. Students Enrolled in 1997

Highest Academic Credential Earned	Full-Time		Part-Time		Total	
	Mean	%	Mean	%	Mean	%
No Academic Degree	7.8	19.9%	0.1	14.3%	7.9	19.8%
Associate Degree	4.3	11.0%	0.1	14.3%	4.4	11.1%
Baccalaureate Degree	24.2	61.9%	0.4	57.1%	24.6	61.8%
Masters Degree	2.3	5.9%	0.1	14.3%	2.4	6.0%
Doctoral Degree	<u>0.5</u>	<u>1.3%</u>	<u>0.0</u>	<u>0.0%</u>	<u>0.5</u>	<u>1.3%</u>
Total	39.1	100.0%	0.7	100.0%	39.8	100.0%

degree) while less than one-fourth (19.8%) entered with no academic degree. Only 11.1% of the enrollees had earned an associate level degree prior to entry. While 7.2% of the full-time students were admitted with a graduate-level degree, predominantly a masters degree (6%), a substantially larger proportion (14.3%) of part-time students were enrolled with a graduate degree.

As shown in Figure 19, the months of health care experience has systematically increased from 1983 through 1995, with a slight fluctuation in 1996 and 1997. Since 1990, the mean months of health care experience has remained within a narrow range, i.e., 48-56 months.

Figure 19. Trends in Health Care Experience of Enrollees: 1983 Through 1997



Academic Characteristics of Enrolled P.A. Students by Geographic Region

A comparison of the academic degrees earned by entering students across regions is shown in Table 63. The data are expressed as the percentage of students per program in each degree category. Each of the regions had more than 50% of students entering with a baccalaureate degree. The Northeastern region had the largest number of enrollees with no degree (31%). The Southeastern region had 2% of its enrollees with a doctoral degree.

Table 63. Academic Characteristics of Enrollees by Region, Class of 1997-98

Geographic Region	N	Degree Characteristics					Total Mean
		No Degree	Associate Degree	Bacc. Degree	Masters Degree	Doctoral Degree	
Northeastern	19	25.3%	10.5%	58.9%	5.0%	0.3%	39.9
Eastern	15	30.5%	6.7%	56.6%	4.7%	1.6%	38.7
Southeastern	16	14.0%	7.1%	68.9%	8.1%	2.0%	40.8
Midwestern	20	10.9%	12.1%	69.5%	6.0%	1.4%	34.8
Heartland	8	26.1%	13.5%	54.6%	5.6%	0.2%	44.5
Western	13	17.9%	15.0%	59.6%	5.7%	1.8%	43.6
Total	91	19.8%	11.1%	61.8%	6.0%	1.3%	39.1

An analysis of grade point average (GPA) and mean number of months of health care experience by geographic region is shown in Table 64. The cumulative GPA of entering students ranged from 3.32 to 3.56 with a mean of 3.37.

Table 64. Grade Point Average and Mean Number of Months of Health Care Experience by Region, Class of 1997-98

Geographic Region	Grade Point Average			Months of H.C.E.		
	N	Mean	S.D.	N	Mean	S.D.
Northeastern	20	3.37	0.2	15	32.8	21.0
Eastern	15	3.32	0.2	13	34.2	16.5
Southeastern	16	3.37	0.1	16	42.5	11.6
Midwestern	19	3.39	0.1	17	75.2	36.2
Heartland	7	3.56	0.1	5	39.8	12.8
Western	12	3.32	0.2	12	62.9	33.3
Total	89	3.37	0.2	78	49.3	32.6

Programs in the Heartland regions reported the highest GPA for entering students (3.56). The average number of months of health related experience prior to admission varied extensively across regions. For example, students in programs located in the Northeastern region had completed an average of 32.8 months of health-related experience while those entering programs in the Midwestern regions had 75.2 months of health care experience. The average for all programs was over four years (49.3 months).

Unlicensed Medical Graduates: Applicants and Students Enrolled

The total number, mean number/program and proportion of unlicensed medical graduates (designated as UMG's) who applied to, and enrolled in, P.A. programs for the 1997-98 class is shown in Table 65 (next page). The total number of UMG applications to P.A. programs decreased from 217 in 1996 to 204 in 1997, however, the number per program increased from 3.3/program in 1996 to 3.5/program in 1997. There were 36 programs that received applications from UMG's in 1997. Thirty-seven percent of the applicants were alien UMG's.

Table 65. Admission of Unlicensed Medical Graduates
Class Entering in 1997-98

Citizenship Status	Applied			Enrolled		
	N(N)*	Mean**	%	N(N)*	Mean	%
U.S. Citizen	169(22)	2.2	62.9%	24(19)	0.26	65.0%
Alien	95(23)	1.3	37.1%	13(9)	0.14	35.0%
Total**	204(36)	3.5	100.0%	37(25)	0.40	100.0%

* N = Number of UMG applicants or enrollees; (N) = Number of programs with at least one UMG applicant or enrollee.

** Mean based on the total number of programs responding, including those with no UMG applicants or enrollees

Thirty-seven UMG's were enrolled in 1997, an increase from 20 enrollees in 1996. Eighteen percent of the UMG applicants were enrolled in a P.A. program in 1997, where only 9% were enrolled in 1996. For the seventh year, preference (however slight this year) was given to U.S.-citizen UMG's during the admissions process, for example, 14.2% (24/169) of U.S.-citizen UMG applicants were enrolled, while only 13.6% (13/95) of alien UMG applicants were admitted. Prior to 1991, alien UMG's comprised a majority of the UMG's enrolled.

Unlicensed Medical Graduates: Regional Analysis

The mean number of UMG applicants and enrollees by geographic region is shown in Table 66. Programs located in the Northeastern region received the largest number of UMG applications (mean of 7.8/program) while programs

Table 66. Unlicensed Medical Graduate Applicants and Enrollees by Region, 1997-98

Geographic Region	Applied		Enrolled	
	Mean	N	Mean	N
Northeastern	7.8	14	0.2	20
Eastern	2.7	12	0.7	15
Southeastern	2.1	16	0.4	16
Midwestern	1.3	16	0.3	21
Heartland	0.3	6	0.0	7
Western	5.2	13	0.7	14
Total	3.5	77	0.4	93

in the Heartland region had the lowest number of UMG applicants, 0.3/program. Programs in the Western and Eastern regions enrolled the largest proportion of UMG's (0.7/program/region) and those in the Heartland region had no UMG's enrolled. With respect to the total applicant pool/program, UMG's accounted for only 1.0% (3.5/338) of all applicants and 1.0% (0.4/40.5) of all first-year enrollees in 1997.

The number and location of programs, by region, reporting no UMG applicants and/or enrollees for the most recently enrolled class are shown in Table 67 (next page). In total, there was a majority of programs that did not receive an application from an UMG (54/76; 71%) and a majority did not enroll an UMG (68/89; 76.4%) in the 1997-1998 class.

Table 67. Number of Programs Reporting No Applications and/or Enrollment of Unlicensed Medical Graduates by Region, 1997-98

Geographic Region	Applied		Enrolled	
	N/N*	%	N/N*	%
Northeastern	10/14	71.4%	13/20	65.0%
Eastern	7/12	58.3%	8/12	66.7%
Southeastern	12/16	75.0%	14/16	87.5%
Midwestern	12/16	75.0%	18/21	85.7%
Heartland	5/ 6	83.3%	6/ 6	100.0%
Western	<u>8/12</u>	<u>66.7%</u>	<u>9/14</u>	<u>64.3%</u>
Total	54/76	71.1%	68/89	76.4%

* N/N = number of programs with no UMG's/total number of programs reporting.

Trends in UMG Applications and Enrollment, 1987 Through 1997

Data concerning UMG applicants and UMG students enrolled from 1987 through 1997 is shown in Table 68. The total number and mean number per program of UMG applicants and UMG students enrolled, as well as the proportion of UMG's relative to the total pool of UMG applicants and enrollees is presented for each year examined. In addition, the proportion of UMG applicants that were enrolled is also included. These data are also illustrated in Figures 20

Table 68. Unlicensed Medical Graduates: Applicants and Enrollees, 1987 Through 1997

Academic Year	UMG Applications			UMG's Enrolled			% of UMG Applicants Enrolled
	Total N	Mean/ Program	%*	Total N	Mean/ Program	%*	
1987-88	55	1.4	1.3%	17	0.40	1.4%	30.9%
1988-89	142	3.6	3.4%	23	0.51	1.9%	16.2%
1989-90	121	3.1	3.4%	18	0.39	1.5%	14.9%
1990-91	73	1.6	1.5%	26	0.51	1.7%	35.6%
1991-92	167	4.1	3.1%	18	0.40	1.2%	10.7%
1992-93	161	2.9	1.4%	13	0.20	0.6%	8.1%
1993-94	109	2.0	1.2%	12	0.20	1.5%	11.0%
1994-95	143	3.0	0.8%	22	0.39	1.0%	15.4%
1995-96	123	2.1	0.7%	24	0.33	0.9%	19.5%
1996-97	217	3.3	1.0%	20	0.29	0.7%	9.2%
1997-98	<u>169</u>	<u>2.2</u>	<u>0.8%</u>	<u>24</u>	<u>0.27</u>	<u>0.5%</u>	<u>14.2%</u>
11-Yr. Mean	135	2.7	1.7%	20	0.35	1.1%	16.8%

* Proportion of UMG's to total applicants and enrollees, respectively.

and 21 (next page). Overall there has been a total of 1,480 UMG applicants (averaging 135/year) over the eleven-year period examined. UMG applicants accounted for an average of 1.7% of the total applicant pool. Over the same period of time, there were 217 UMG's enrolled (20/year) which accounted for 1.1% of the total number of students enrolled. On average, only 17% of the UMG applicants were enrolled. Although there has been considerable variation in the number of UMG applicants (55-217) over the past eleven years, the number of UMG's enrolled has remained within fairly narrow limits (12-26).

Figure 20 shows the mean number of UMG applicants and enrollees per program since 1987. Although the mean number of applicants has varied substantially over time, the mean number of UMG's enrolled per program has not fluctuated to the same extent. As shown in Figure 21, after a sharp decrease in the percent of UMG applicants enrolled in 1996, the percent of UMG applicants enrolled increased to 14.2% in 1997.

Figure 20. Trends in U.M.G. Applicants and Enrollees: 1987 Through 1997

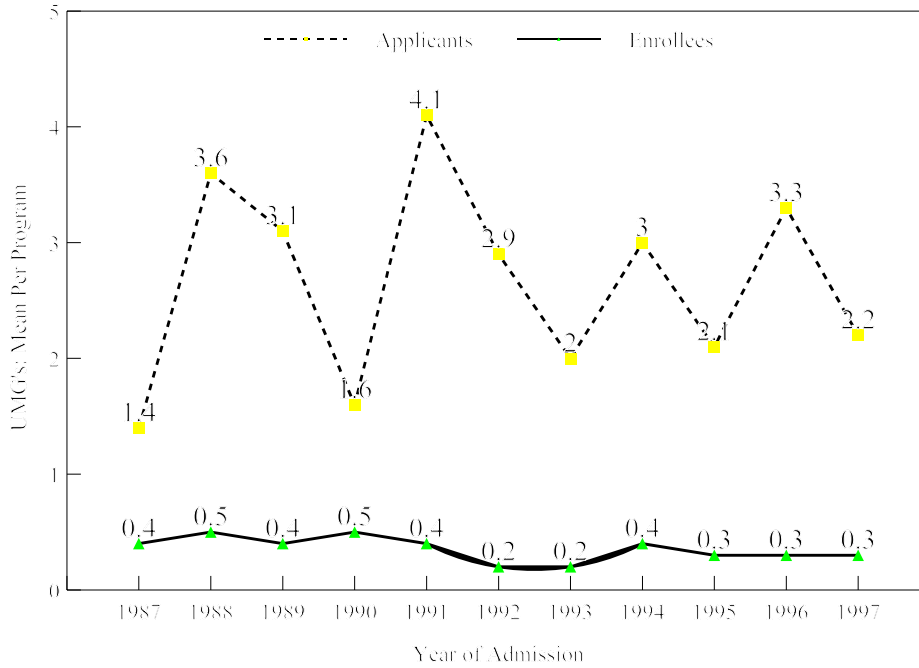


Figure 21. Percent of U.M.G. Applicants Enrolled: 1987 Through 1997



Disabled Students Enrolled in P.A. Programs

The number and proportion of students with a disability that were enrolled in the 1997-98 class is presented in Table 69. The number and proportion of enrollees who were classified as disabled was very small for the entering class (approximately 1% of the total number of students enrolled). There were approximately 6% more disabled male

Table 69. Enrollment of Disabled Students by Gender, 1997-98

<u>Gender</u>	<u>1st Year Enrolled</u>		<u>Disabled</u>		<u>Number of Programs</u>
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	
Male	1454	37.8%	18	52.9%	95
Female	<u>2389</u>	<u>62.2%</u>	<u>16</u>	<u>47.1%</u>	<u>95</u>
Total	3843	100.0%	34	100.0%	95

students than disabled female students. It should be noted that some students may have had an undetectable disability, thus, the figures reported herein may under-represent the actual number of disabled individuals.

SECTION IV. GRADUATE INFORMATION

Number and Attrition of Students by Gender

The number and gender of students graduating during the 1997-98 academic year, and those withdrawing and decelerating prior to graduation, are shown in Table 70. The mean number of 1997 graduates was 36.3/program and represented 92% of the students originally enrolled in this class. We estimate that there were a total of 2,686 P.A.'s

Table 70. Number of Graduates and Students Withdrawn or Decelerated in 1997-98 by Gender

<u>Gender</u>	<u>Number Graduated</u>		<u>Attrition of Students</u>		<u>Students Decelerated</u>	
	<u>Mean</u>	<u>%</u>	<u>Mean</u>	<u>%</u>	<u>Mean</u>	<u>%</u>
Female	21.5	93.1%	1.0	4.3%	0.6	2.6%
Male	<u>14.8</u>	<u>91.4%</u>	<u>1.0</u>	<u>6.2%</u>	<u>0.4</u>	<u>2.5%</u>
Total/Program	36.3	92.4%	2.0	5.1%	1.0	2.5%

* Proportion withdrawing or decelerating was calculated as:

$$\frac{\sum_{p=1}^N W_p \text{ or } D_p}{\sum_{p=1}^N G_p + W_p + D_p}$$

where: G_p = number graduated from program "p".
 W_p = number withdrew from program "p".
 D_p = number decelerated from program "p".

graduated from all programs graduating class in 1997 (74 programs x 36.3/program). It should be noted that twenty-one of the new programs did not graduate students in 1997. Our estimated value for 1997 graduates was similar to the number reported as first takers on the 1997 National Certifying Examination (i.e., N=2,493). As in previous years, the majority (59%) of 1997 graduates were women.

The mean number of students withdrawing prior to graduation was 2.0 students/program for an overall attrition rate of 5.1%. Males had a higher rate (6.2%) than did females (4.3%) and the attrition rate was slightly lower than in 1996 (5.3%) and considerably lower than the average of 9.2% over the previous twelve years.

On average, the rate of deceleration was 2.5%. A decelerated student was defined as one who was enrolled, experienced academic, personal, and/or financial difficulty, but remained a student in the program on a part-time basis and/or was on a temporary leave of absence. The reasons cited for withdrawal are presented in Table 71. There were a total of 140 students withdrawing from the 1997 graduating class (as reported by 71 programs). The most common reasons for withdrawal were personal (46%) and academic (45%). It should be noted that the reasons cited for

Table 71. Reasons for Student Withdrawal from the Program

<u>Reason Given</u>	<u>N</u>	<u>(%)</u>	<u>Reason Given</u>	<u>N</u>	<u>(%)</u>
Personal	65	46.4%	Career Change	1	0.7%
Academic	63	45.0%	Medical	1	0.7%
Financial	3	2.1%	Other	<u>7</u>	<u>5.0%</u>
			Total	140	100.0%

withdrawal were provided by program staff, rather than the students involved.

Attrition Rates of Students by Geographic Region

The mean number of graduates, attrition rates, and students decelerated by geographic region are shown in Table 72. Programs in the Heartland region had the largest graduating classes with a mean of 48.0 students per program, while programs in the Midwestern region had smaller graduating classes (30.8/program). The highest attrition rates occurred

Table 72. Number Graduated, Withdrawn and Decelerated by Geographic Region

<u>Geographic Region</u>	<u>N</u>	<u>Mean # Graduated</u>	<u>Mean and Rate of Attrition</u>		<u>Mean and Rate of Deceleration</u>	
Northeastern	15	34.3	2.4	6.5%	0.5	1.3%
Eastern	10	37.2	3.1	7.4%	1.7	4.0%
Southeastern	11	37.2	1.5	3.8%	1.1	2.8%
Midwestern	17	30.8	1.5	4.6%	0.5	1.5%
Heartland	7	48.0	2.9	5.5%	2.0	3.8%
Western	<u>11</u>	<u>38.7</u>	<u>1.1</u>	<u>2.7%</u>	<u>0.9</u>	<u>2.2%</u>
Total	71	36.3	2.0	5.1%	1.0	2.5%

in those programs located in the Eastern region (7.4%) while programs in the Western region had the lowest attrition rates (2.7%). In comparison to the previous year, the number graduated/program in 1997 has increased (1.7%). The rate of attrition increased in three of the six regions (Eastern, Southeastern and Western); whereas deceleration increased in only one region (Midwestern). Programs in the Eastern region reported the largest rate of deceleration (4.0%), while programs in the Northeastern region had the lowest rate of deceleration.

The reasons for withdrawal by region are shown in Table 73. Programs in the Eastern region had the highest percentage of students withdraw for academic reasons (58.1%) while programs in the Midwestern region cited academic reasons for withdrawal 28.0% of the time. In the Midwestern region, 68.0% of the programs cited personal reasons for student withdrawal as compared with 33.3% in the Western region.

Table 73. Reasons for Withdrawal by Geographic Region

<u>Geographic Region</u>	<u>Reasons for Withdrawal from Program</u>						<u>Total</u>
	<u>Academic</u>		<u>Personal</u>		<u>Other</u>		
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	
Northeastern	17	47.2%	14	38.9%	5	13.9%	36
Eastern	18	58.1%	12	38.7%	1	3.2%	31
Southeastern	6	33.3%	10	55.6%	2	11.1%	18
Midwestern	7	28.0%	17	68.0%	1	4.0%	25
Heartland	10	55.6%	8	44.4%	0	0.0%	18
Western	<u>5</u>	<u>41.7%</u>	<u>4</u>	<u>33.3%</u>	<u>3</u>	<u>25.0%</u>	<u>12</u>
Total	63	45.0%	65	46.4%	12	8.6%	140

Graduation, Attrition, and Deceleration of Students by Age

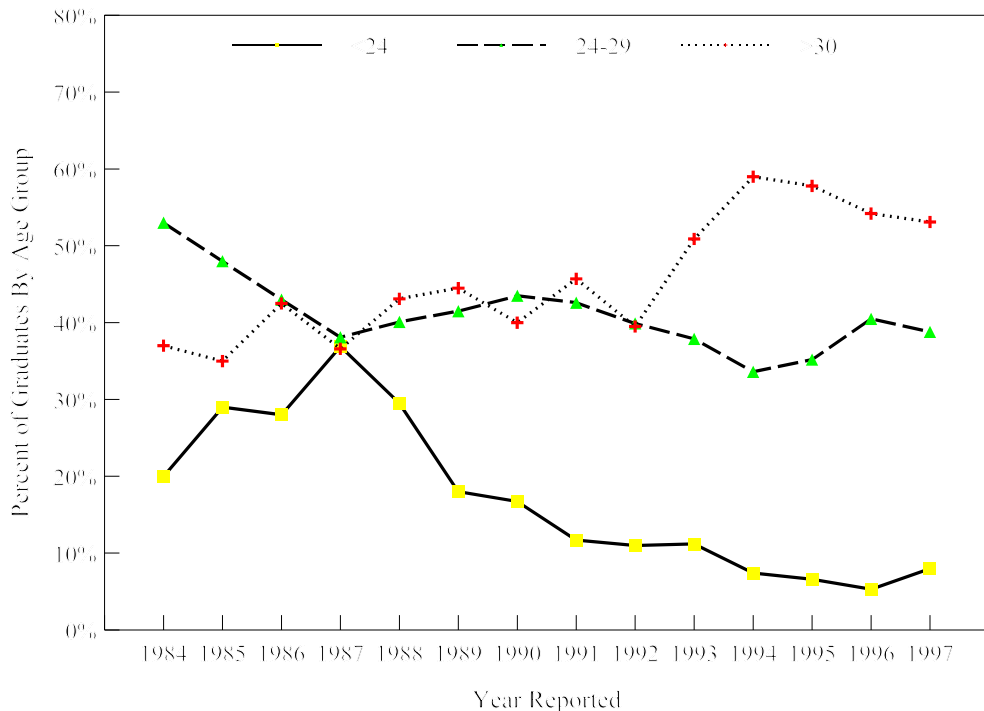
The mean number of graduates, attrition rates, and students decelerated for each age category is shown in Table 74. More than one-fourth (29.2%) of the graduates were between the ages of 20 and 26 upon graduation; 53% were 30 years of age or older and none were under the age of 20. Attrition was highest for those over 33; lowest for those between 30 and 33. Deceleration rates were highest for students between 20 and 23 years and least for those between 24 and 26 years.

Table 74. Number Graduated, Decelerated and Attrition Rates of 1997 Graduates by Age

<u>Age at Graduation</u>	<u>N</u>	<u>Number Graduated</u>		<u>Withdrew Prior to Graduation</u>		<u>Attrition Rate</u>	<u>Students Decelerated</u>	
		<u>Mean</u>	<u>%</u>	<u>Mean</u>	<u>%</u>	<u>%</u>	<u>Mean</u>	<u>Rate</u>
Under 20	71	0.0	0.0%	0.0	0.0%	0.0%	0.0	0.0%
20-23	71	2.9	8.0%	0.2	10.0%	6.3%	0.1	3.1%
24-26	71	7.7	21.2%	0.3	15.0%	3.7%	0.1	1.2%
27-29	71	6.4	17.6%	0.2	10.0%	2.9%	0.2	2.9%
30-33	71	6.8	18.7%	0.2	10.0%	2.8%	0.2	2.8%
Over 33	71	12.5	34.4%	1.1	55.0%	7.9%	0.4	2.9%
Total/Program	71	36.3	100%	2.0	100.0%	5.1%	1.0	2.5%

Figure 22 shows the trends in age from 1984 through 1997. The proportion of recent graduates in the youngest age group (<24) has generally decreased over time, with a slight increase this year. Conversely, the middle age group (24 - 29) has increased 20.5% since 1994, with a slight decrease this year. The graduates in the older age group (>30) has decreased 10% since 1994.

Figure 22. Trends in the Age of Graduates: 1984 Through 1997



The mean number of graduates, withdrawals, decelerated students and attrition rates for the 1997 graduating class by ethnicity is shown in Table 75. The majority of the recent graduates were White/Non-Hispanic (80.3%) and nearly one-fifth (19.7%) were minorities. Within the minority groups graduating, 39% were Black/African-American, 26.4%

Table 75. Number and Attrition Rates of 1997 Graduates by Ethnicity

<u>Ethnicity</u>	<u>N</u>	<u>Mean Number Graduated</u>		<u>Withdrew Prior to Graduation</u>		<u>Attrition Rate</u>	<u>Students Decelerated</u>	
		<u>Mean</u>	<u>%</u>	<u>Mean</u>	<u>%</u>	<u>%</u>	<u>Mean</u>	<u>Rate</u>
White/Non-Hispanic	71	29.4	80.3%	1.3	65.0%	4.2%	0.6	1.9%
Black/African-Amer.	71	2.8	7.7%	0.4	20.0%	11.8%	0.2	5.9%
Latino/Hispanic	71	1.9	5.2%	0.2	10.0%	9.1%	0.1	4.5%
Asian/Pac. Islander	71	1.7	4.6%	0.1	5.0%	5.4%	0.0	2.2%
Alaskan/Nat. Amer.	71	0.5	1.4%	0.0	0.0%	0.0%	0.0	0.0%
Other	<u>71</u>	<u>0.3</u>	<u>0.8%</u>	<u>0.0</u>	<u>0.0%</u>	<u>0.0%</u>	<u>0.0</u>	<u>0.0%</u>
Total/Program	71	36.3	100.0%	2.0	100.0%	5.1%	1.0	2.5%

were Latino/Hispanics, 23.6% were Asian/Pacific Islander, 6.9% were Alaskan/Native American and the remainder were classified as Other. Sixty-five percent (N=46; 65%) of the 71 programs reported at least one Black/African-American among their 1997 graduates and 44 (62%) programs graduated at least one Latino/Hispanic.

The Black/African-American students had the highest rate of attrition (12%), followed by Latino/Hispanic students (9.1%). The White/Non-Hispanics had an attrition rate of 4.2%. Proportionately, minority students were more likely to be decelerated, particularly the Black/African-American students (6%) as compared to White students (2%).

Trends in Student Attrition: 1984 Through 1997

Figure 23 (next page) shows the relative attrition rates from 1984 through 1997 for all students and for white and non-white students. Attrition rates have averaged 9.2% over the past fourteen years, ranging from a high of 14% in 1988 to a low of 4.7% in 1994. The 1997 attrition rate for white students was 4.2% and 8.5% for non-white students, the latter represents a decrease from 1996. Before 1990, decelerated students were included in the attrition rates. If decelerated students were included this year, the adjusted attrition rate would be 10.7%. Since 1984, the rate of attrition has been over twice as high for non-white students, averaging 12.3% as compared to 5.4% for white students.

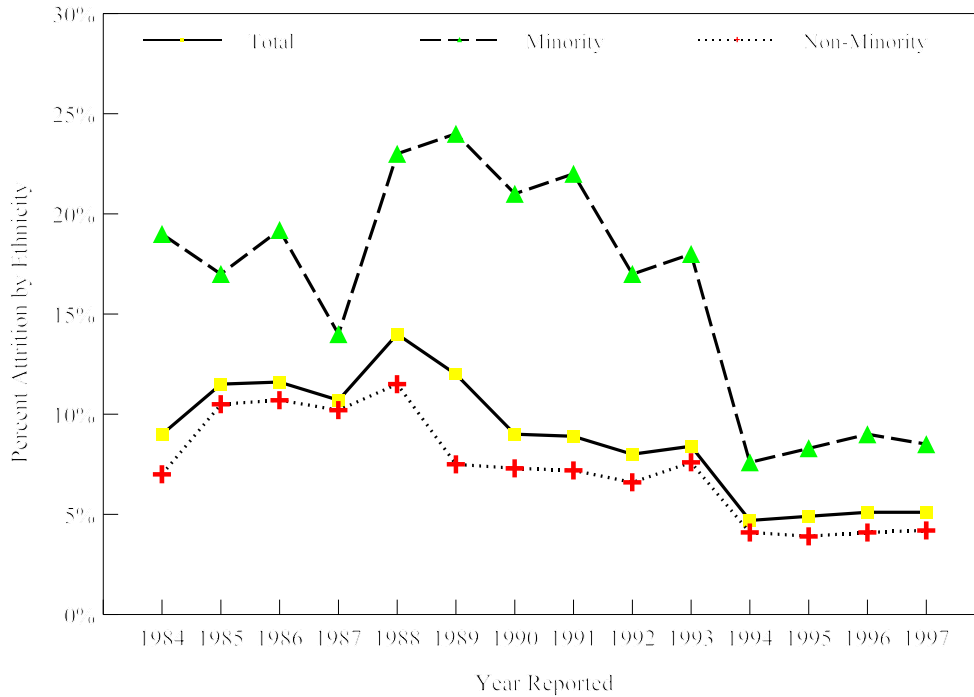
Sex and Ethnicity of 1997 P.A. Graduates by Geographic Region

The mean number and proportion of 1997 graduates by gender, ethnicity, and geographic region are shown in Table 76. Proportionately, more minority students graduated from programs in the Western region (36%) than from programs located in the Midwestern region (9.2%). The Southeastern region had the highest proportion of male graduates (44%) and the Heartland region the highest proportion of female graduates (65.4%).

Table 76. 1997 Graduates by Sex, Ethnicity, and Geographic Region

<u>Geographic Region</u>	<u>N</u>	<u>Mean # of Graduates</u>	<u>Gender</u>		<u>Ethnicity</u>				
			<u>Male</u>	<u>Female</u>	<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian</u>	<u>Other</u>
Northeastern	15	34.3	37.3%	62.7%	78.7%	7.0%	4.4%	7.0%	2.9%
Eastern	10	37.2	37.1%	62.9%	82.7%	10.4%	2.2%	2.4%	2.3%
Southeastern	11	37.2	44.1%	55.9%	89.2%	5.4%	1.5%	2.4%	1.5%
Midwestern	17	30.8	42.7%	57.3%	90.9%	2.7%	2.5%	2.7%	1.3%
Heartland	7	45.7	34.6%	65.4%	82.3%	1.5%	7.7%	6.6%	1.8%
Western	<u>11</u>	<u>38.7</u>	<u>41.1%</u>	<u>58.9%</u>	<u>64.1%</u>	<u>8.5%</u>	<u>14.5%</u>	<u>8.8%</u>	<u>4.2%</u>
Total	71	36.3	40.8%	59.2%	81.2%	6.5%	5.3%	4.7%	2.3%

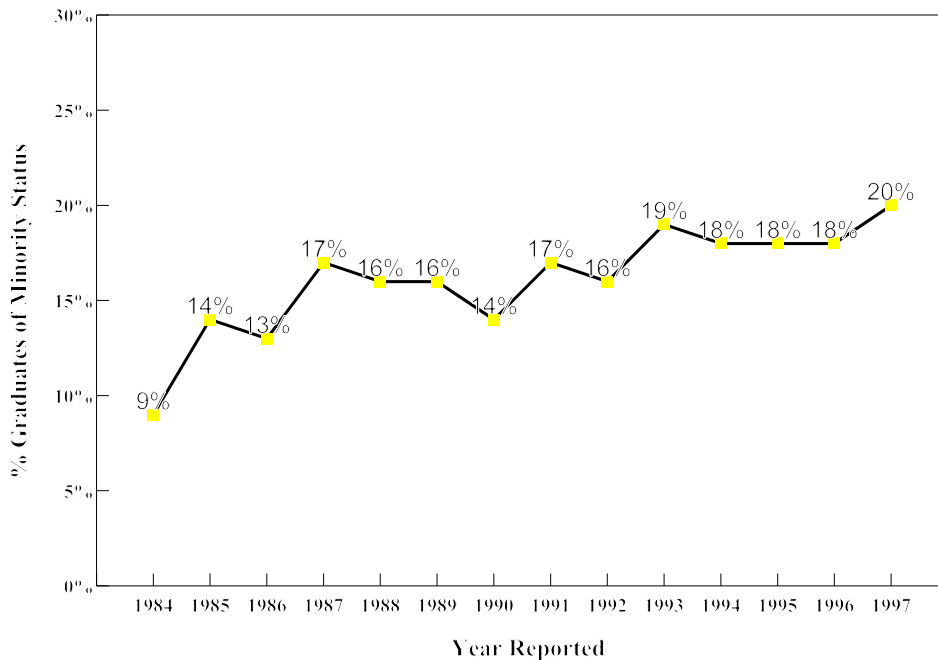
Figure 23: Trends in Student Attrition: 1984 Through 1997



Trends in the Graduation of Minorities

The graduation of minority P.A.'s has been monitored since 1984. Figure 24 shows the proportion of non-white P.A. graduates over the past fourteen years. During the fourteen-year period for which data was available, the graduation of non-white students averaged 16.1%, ranging from a high of 19.7% in 1997 to a low of 9.0% in 1984. The reader is referred to Figure 17 concerning enrollment of minority students which, over the past fifteen years, has averaged

Figure 24. Trends in Minority P.A. Graduates: 1984 Through 1997



19.3% (Table 61). The relatively high attrition rates for minority students likely accounts for the difference between

the number enrolled shown in Figure 14 and the number graduating shown in Figure 24.

Employment Status of 1997 P.A. Graduates

A summary of the employment status of the recent graduates, as reported by 68 programs, is shown in Table 77. It should be noted that the time elapsed between a program's graduation date and the date the survey was completed varied.

Table 77. Employment Characteristics of 1997 P.A. Graduates

<u>Employment Status</u>	<u>Mean Number Per Program</u>	<u>S.D.</u>	<u>Relative Frequency</u>
Employed:			
As a P.A.	31.7	12.6	83.6%
Not as a P.A.	0.3	1.1	0.8%
Unemployed	2.6	5.3	6.9%
Continued with Education	0.1	0.5	0.3%
Unknown	<u>3.2</u>	<u>7.0</u>	<u>8.4%</u>
Total (N=68)	37.9	15.6	100.0%

The majority (83.6%) of recent graduates were employed as a physician assistant. Fifteen percent of the graduates were either unemployed or their employment status was unknown. It is likely that the unemployed graduates were in the process of negotiating for a position and/or engaged in seeking a position at the time of the survey.

Number of Recent Graduates by State

The number of 1997 graduates, by state, is shown in Table 78 and includes the number of programs reporting from each state. Those states with the largest number of programs are those with the largest number of graduates, e.g., CA, NY, PA, TX. A total of 2,581 students from 71 programs completed their training in 1997. However, if we consider all programs that graduated P.A.'s in 1997 (i.e., 74 programs) we estimate that the total number of graduates would be approximately 2,686 (74 x 36.3).

Table 78. Number of 1997 Graduates by State

<u>State</u>	<u>Number Prog.</u>	<u>Number Grads</u>	<u>State</u>	<u>Number Prog.</u>	<u>Number Grads</u>	<u>State</u>	<u>Number Prog.</u>	<u>Number Grads</u>
AL	1	19	KS	1	41	OK	1	50
AZ	1	26	KY	1	42	OR	1	11
CA	5	160	MA	2	49	PA	7	259
CO	1	20	MD	1	26	SC	1	25
CT	1	20	MI	2	74	SD	1	12
DC	2	89	MN	1	22	TN	1	24
FL	1	54	NC	2	92	TX	4	256
GA	2	79	ND	1	79	UT	1	32
IA	2	51	NE	1	40	WA	1	64
ID	1	19	NJ	1	43	WI	2	40
IL	4	171	NY	11	432	WV	<u>2</u>	<u>76</u>
IN	2	33	OH	2	51			
						Total	71	2581

1997 Program Graduates: Employment Status by Geographic Region

The employment of recent graduates varied depending on the region where their program was located. Employment data are shown in Table 79. Programs located in two of the six regions reported that over 80% of their 1997 graduates had secured employment at the time the program reported. Programs in the Northeastern region had the lowest proportion of graduates employed (60.3%). The overall proportion of recent graduates who were unemployed, including the "Other" category, averaged 25% across the regions.

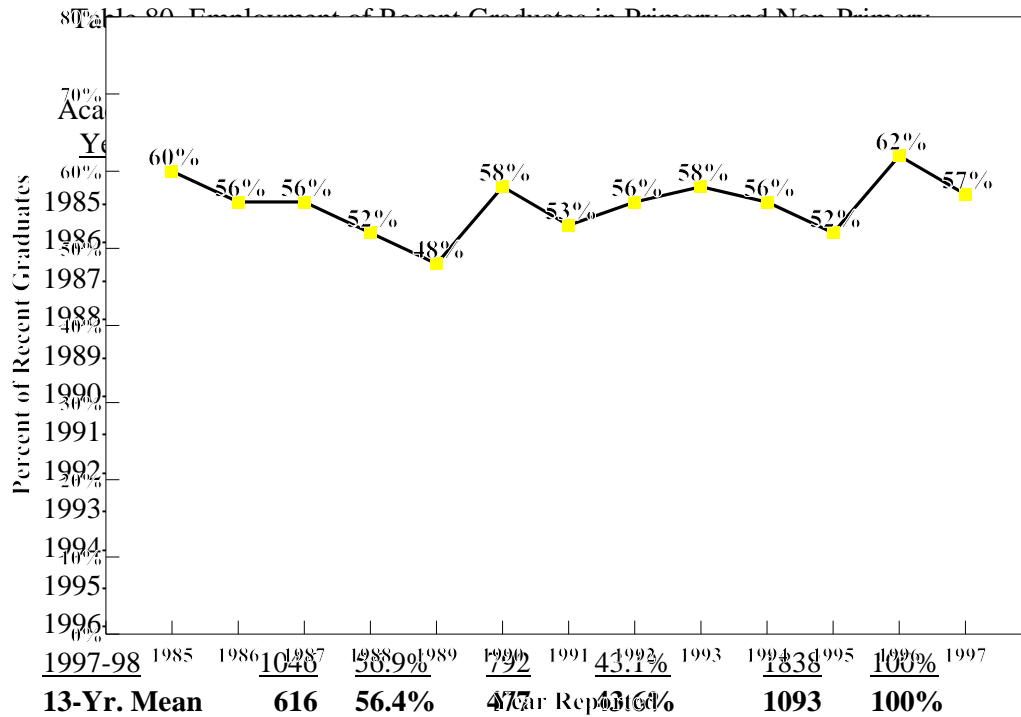
Table 79. Employment Characteristics of 1997 Graduates by Geographic Region

Geographic Region	N	Employed		Unemployed		Other		Total Mean
		Mean	%	Mean	%	Mean	%	
Northeastern	16	20.8	60.3%	2.7	7.8%	11.0	31.9%	34.5
Eastern	9	27.8	77.9%	2.9	8.1%	5.0	14.0%	35.7
Southeastern	11	31.8	85.3%	4.2	11.3%	1.3	3.5%	37.3
Midwestern	16	23.9	78.4%	3.1	10.2%	3.5	11.5%	30.5
Heartland	5	36.2	82.6%	2.2	5.0%	5.4	12.3%	43.8
Western	<u>11</u>	<u>28.6</u>	<u>74.1%</u>	<u>7.5</u>	<u>19.4%</u>	<u>2.5</u>	<u>6.5%</u>	<u>38.6</u>
Total	68	26.6	74.9%	3.8	10.7%	5.1	14.4%	35.5

Trends in Medical Specialty Selection of Recent Graduates, 1985 Through 1997

A comparison of the employment of recent graduates in primary and non-primary care medicine from 1985 through 1997 is shown in Table 80 and illustrated in Figure 25 (primary care includes F.M., G.I.M., Ob/Gyn, Peds)(next page). From 1985 through 1989 there was an overall decrease in the proportion of graduates entering primary care practice, from 60% in 1985 to a low of 48% in 1989, a decline averaging 3.8% per year. In the past eight years an average of 56.6 of the graduates have selected primary care medical specialties and the overall thirteen-year mean is 56.4%.

Figure 25. Recent Graduate Employment in Primary Care: 1985 Through 1997



Employment of Recent Graduates in Primary and Non-Primary Care by Geographic Region

The relative proportion of 1997 graduates entering primary and non-primary care medical specialties by region is shown in Table 81. Graduates from programs in the Western region had the highest level of employment in primary care medical specialties (76.6%). Graduates from the Northeastern region had the highest level of employment in non-primary care specialties (60.9%).

Table 81. Employment of 1997 Graduates in Primary and Non-Primary Care Medicine by Geographic Region

<u>Geographic Region</u>	<u>N</u>	<u>Primary Care</u>		<u>Non-Primary Care</u>	
		<u>Mean</u>	<u>%</u>	<u>Mean</u>	<u>%</u>
Northeastern	16	8.1	39.1%	12.6	60.9%
Eastern	9	17.1	60.0%	11.4	40.0%
Southeastern	11	17.1	53.9%	14.6	46.1%
Midwestern	16	14.1	59.7%	9.5	40.3%
Heartland	5	22.2	61.3%	14.0	38.7%
Western	<u>11</u>	<u>21.6</u>	<u>76.6%</u>	<u>6.6</u>	<u>23.4%</u>
Total	68	15.4	57.9%	11.2	42.1%

The distribution of recent graduates selecting primary care medical specialties from 1986 through 1997 is shown in Table 82 (next page). Over the period analyzed, family medicine and general internal medicine remained the primary care specialties of choice, with family medicine increasing and general internal medicine decreasing, over time. The thirteen-year average was 67.9% for family medicine and 18.5% for general internal medicine. The selection of both obstetrics and gynecology and pediatrics also varied over time, ranging from 3.1% to 12.6% and 4.6% to 8.8%, respectively.

Table 82. Trends in the Primary Care Medical Specialty Selection of Recent Graduates, 1985 Through 1997

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Clinical	(40)*	(44)	(45)	(45)	(47)	(48)	(47)	(51)	(53)	(48)	(56)	(57)	(68)
<u>Specialty</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>
Fam Md	60.4	57.7	63.6	63.5	57.5	68.5	72.2	71.1	71.0	76.0	75.4	73.1	73.2
Int Med	22.3	26.7	19.1	22.2	22.4	16.6	14.3	16.3	15.1	16.0	15.4	16.9	17.7
Gen Ped	8.8	8.7	8.1	5.9	7.5	6.1	5.9	5.9	8.4	4.6	5.2	6.4	5.3
Ob/Gyn	8.5	6.9	9.1	8.4	12.6	8.9	7.6	6.7	5.5	3.4	3.1	3.6	3.8

* Number of Programs responding

Trends in the graduates' selection of non-primary care medicine over the past thirteen years shown in Table 83. Surgery (plus sub-specialties) and medicine specialties accounted for the majority of positions (64.2%) selected by recent graduates in non-primary care. Selection of psychiatry by recent graduates has declined since 1987.

Table 83. Trends in the Non-Primary Care Medical Specialty Selection of Recent Graduates, 1985 Through 1997

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Clinical	(40)	(44)	(45)	(45)	(47)	(48)	(47)	(51)	(53)	(48)	(56)	(57)	(68)
<u>Specialty</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>
Surgery	55.4	59.6	49.8	53.3	50.7	50.1	57.7	47.4	36.2	35.5	33.0	34.1	35.1
Med	23.4	15.2	24.1	23.4	23.0	25.3	20.4	22.6	35.4	25.1	29.4	30.6	29.1
Em Med	12.2	16.1	17.3	17.4	20.9	19.3	19.4	25.6	23.1	37.0	33.2	28.7	32.3
Psych.	4.3	4.7	5.3	3.0	2.4	1.9	1.2	1.6	0.9	1.1	0.8	1.0	1.5
Ind Med	4.7	4.3	3.4	2.8	3.0	3.3	1.5	2.8	4.4	1.3	3.6	5.6	2.0

A list of the specific internal medicine subspecialties selected by 1997 graduates is shown in Table 84, along with the number of graduates and programs represented. A total of 183 recent graduates from sixty programs were employed among eleven subspecialties. It should be noted that one of the armed services programs defined their graduate employment as "military medicine". Otherwise, the largest number of recent graduates selected cardiology (n=52; 26 programs), gastroenterology (n=14; 8 programs) and dermatology (n=12; 7 programs).

Table 84. Internal Medicine Subspecialties Selected by 1997 Graduates

<u>Medical Area</u>	<u># of Graduates</u>	<u># of Programs</u>	<u>Medical Area</u>	<u># of Graduates</u>	<u># of Programs</u>
Military Medicine	62	1	AIDS/Inf. Diseases	7	7
Cardiology	52	26	Chem. Dependency	5	2
Oncology	20	12	Rehabilitation	4	3
Gastroenterology	14	8	Nephrology	2	1
Dermatology	12	7	Other	<u>5</u>	<u>3</u>
			Total	183	60

A list of surgical subspecialties selected by the recent graduates is in Table 85 (next page). A total of 115 recent graduates from fifty-nine P.A. programs selected surgical sub-specialty areas as their first position. Proportionately, these graduates were employed most commonly in cardiovascular/cardiothoracic surgery (n=62; 54%), neurosurgery (n=23; 20%), ENT (n=8; 7%), and Urology (n=8; 7%).

Table 85. Surgical Subspecialties Selected by 1997 Graduates

<u>Surgical Area</u>	<u>Number of Graduates</u>	<u>Number of Programs</u>	<u>Surgical Area</u>	<u>Number of Graduates</u>	<u>Number of Programs</u>
CV/CT	62	33	Urology	8	6
Neurosurgery	23	17	Plastic	4	3
ENT	8	6	Other Surg. Spec.	<u>10</u>	<u>5</u>
			Total	115	59

Medical Specialty Selection of Recent Graduates by Geographic Region

A comparison of medical specialty selection of recent graduates by geographic region is shown in Table 86. The data are presented as the mean number of recent graduates per program employed in each area. Medical specialties in which the largest proportion of recent graduates were employed is shown and include, family medicine, internal medicine (including subspecialties), and surgery (including subspecialties). Note, the "other" category is not included in the table. Graduates from the Western region selected family medicine preferentially (85.1%) and those from the

Table 86. Medical Specialties Selected by 1997 Graduates by Geographic Region

<u>Geographic Region</u>	<u>N</u>	<u>Family Medicine</u>		<u>Internal Medicine*</u>		<u>Surgery*</u>	
		<u>Mean</u>	<u>%</u>	<u>Mean</u>	<u>%</u>	<u>Mean</u>	<u>%</u>
Northeastern	16	4.3	34.4%	4.0	32.0%	4.2	33.6%
Eastern	9	9.4	46.1%	7.0	34.3%	4.0	19.6%
Southeastern	11	12.0	55.3%	5.8	26.7%	3.9	18.0%
Midwestern	16	11.5	68.5%	3.2	19.0%	2.1	12.5%
Heartland	6	17.6	47.8%	17.0	46.2%	2.2	6.0%
Western	<u>11</u>	<u>18.8</u>	<u>85.1%</u>	<u>2.2</u>	<u>10.0%</u>	<u>1.1</u>	<u>5.0%</u>
Total	69	11.3	57.7%	5.3	27.0%	3.0	15.3%

* Includes the sub-specialties

Northeastern region had the least percentage entering family medicine (34.4%). Conversely, graduates from programs in the Northeast selected surgical subspecialties more frequently (33.6%) than did graduates from other regions. Programs located in the Heartland region selected internal medicine more frequently than other regions.

There was substantial variation across regions in the proportion of recent graduates entering family medicine. This deployment may be related to the clinical orientation, of the program, i.e., a primary versus non-primary care emphasis. Regional variation in the clinical curriculum was discussed in the 11th Annual Report.

Employment Characteristics of All Program Graduates, 1967 Through 1997

The following section presents information concerning "ALL" graduates (including recent graduates). For example, Duke University reported graduate data spanning 31 years (n=1107 graduates) while the University of Iowa reported data over 24 years (n=460). The employment characteristics of program graduates is shown in Table 87; 59 programs provided data within categories, 56 programs provided a total number of graduates. The mean number of graduates per program was reported as 449.2 (n=67 programs) with a mean of 17 classes that had graduated since inception (range of 1 to 31 classes). Thus, over this period, the average size of the graduating class has been approximately 26 students/program, a figure consistent with the graduate data presented in previous reports.

Data reported in Table 87 indicates that the majority of the graduates (71%) were employed as P.A.'s in either clinical practice (68.7%) or in administration, teaching or research positions (2.4%). Approximately 14.4 graduates/program were employed in a health field other than as a P.A., of these, 8 were physicians, 2 were nurses, and the remainder (4.4) were classified as "other". A small proportion (1.2%) were employed in a non-health related field. Approximately 0.8% of the graduates were currently enrolled as full-time students and of these, 40.6% were enrolled

Table 87. Employment Characteristics of All Program Graduates, 1967 Through 1997

<u>Employment Classification</u>	<u>Mean Number Per Program</u>	<u>Median Number Per Program</u>	<u>Relative Frequency</u>
<u>Employed as a P.A.</u>			
Clinical Practice	297.8	253.0	68.7%
Admin./Teach./Research	10.4	5.0	2.4%
<u>Not Employed as a P.A.</u>			
Health Field (not P.A.)	14.4	7.0	3.3%
Non-Health Field	5.0	0.0	1.2%
Full-Time Student	3.3	1.0	0.8%
Unemployed	16.7	2.0	3.9%
Unknown/Other	78.2	29.0	18.1%
Retired/Deceased	<u>7.4</u>	<u>1.0</u>	<u>1.7%</u>
Total	449.2	446.0	100.0%

in medical or osteopathic school, 32.0% were in graduate school, and 27.4% were in baccalaureate level or other academic study.

The P.A. profession enjoys a relatively low, 3.9%, unemployment level. The majority (51.2%) of the unemployed P.A.'s were unemployed by personal choice, with 42.5% being recent graduates in the process of seeking a position. Thus, the actual unemployment level is probably less than 1%. On average, programs reported that they were unable to provide information on 18.1% of their graduates, while 1.7% of the graduates were retired or deceased.

Correcting for the unknown

In an effort to estimate the percentage of total graduates that were employed, given the relatively large (18.1%) "unknown" category, status, we performed the following analysis. The programs were divided into two groups, A and B. Group A, reporting <9% and group B, reporting >9%, in the "Unknown" category. Table 88 shows the results from this analysis. Over one-half (59.0%) of the programs were able to account for the employment status of ninety-seven percent of their graduates, reporting a mean "Unknown" category of 3.6% (group A) and, in turn, indicating

Table 88. Proportion of P.A.'s Working Clinically After Correcting for Missing Data

<u>Group</u>	<u>Criteria</u>	<u>N</u>	<u>%</u>	<u>"Unknown"</u> <u>Mean %</u>	<u>P.A.'s Working Clinically</u>		
					<u>Mean %</u>	<u>S.D.</u>	<u>Range</u>
A	<9% Unknown	36	59.0%	3.6%	81.7%	10.1	52-100
B	>9% Unknown	25	41.0%	35.1%	40.1%	23.2	12-100

that 81.7% of their graduates were employed clinically. Conversely, group B programs, with a mean "Unknown" category of 35.1%, reported that only 40.1% of their graduates were known to be clinically employed. On the basis of this information, it seems reasonable to conclude that most of the graduates included in the "Unknown" category

were, in fact, employed clinically. Therefore, the proportion of P.A. graduates in clinical positions was probably more in the range of 80%-85%, rather than the 68.7% value reported in Table 87.

Employment Characteristics of All Graduates by Geographic Region

Table 89 shows the employment characteristics of all P.A. graduates by geographic region. The data shown includes those graduates employed or unemployed, as well as the "Other/Unknown" category (which averages 20% of all graduates). Graduates of programs in the Heartland region were more likely to be in clinical practice (79%) than were those from other regions. The highest unemployment figures were for graduates from the Heartland region (5.4%) and the lowest reported in the Midwestern region (2.3%). Programs in the Midwestern and Northeastern regions could

Table 89. Employment Characteristics of P.A. Graduates by Geographic Region, 1967 Through 1997

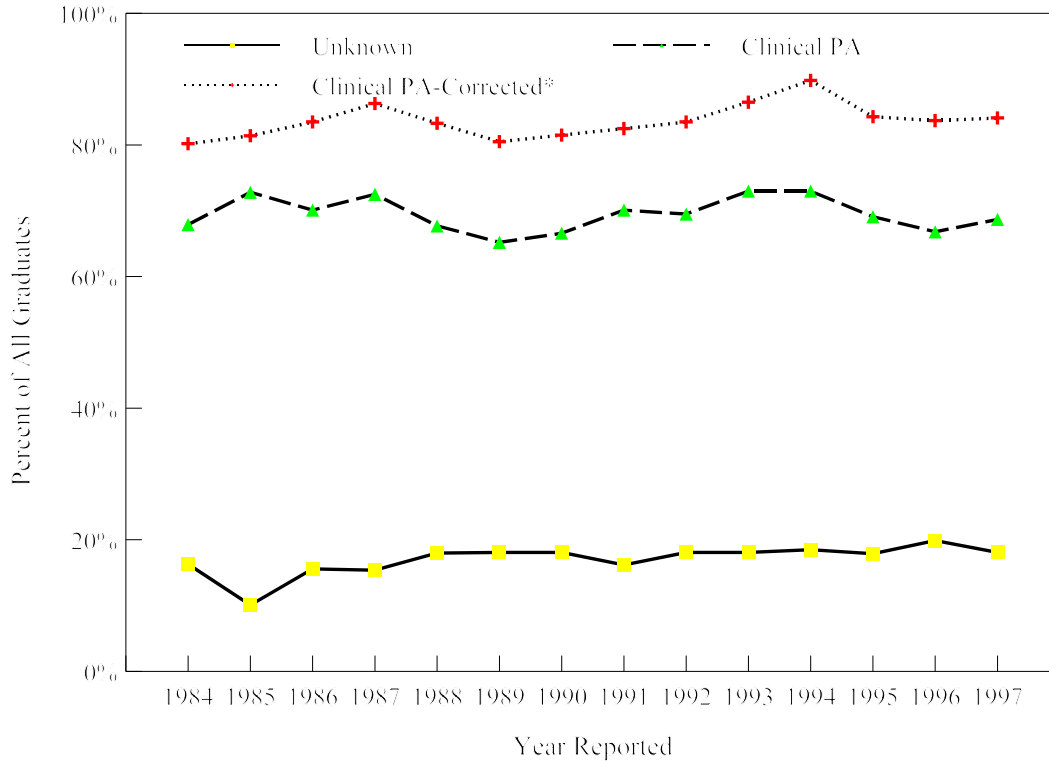
Geographic Region	N	Employed						Unemployed		Unknown/Other	
		Clinical P.A.		Admin/Res/Teaching		Not as P.A.					
N.Eastern	14	175.6	58.1%	9.3	3.1%	10.2	3.4%	7.3	2.4%	100.1	33.1%
Eastern	9	255.6	65.6%	12.1	3.1%	20.1	5.2%	9.4	2.4%	92.3	23.7%
S.Eastern	11	423.4	73.5%	13.5	2.3%	40.2	7.0%	23.5	4.1%	75.1	13.0%
Midwestern	16	212.6	63.1%	3.9	1.2%	14.6	4.3%	7.9	2.3%	98.1	29.1%
Heartland	4	478.8	79.3%	10.3	1.7%	42.3	7.0%	32.5	5.4%	40.2	6.7%
Western	<u>11</u>	<u>361.7</u>	<u>68.9%</u>	<u>17.7</u>	<u>3.4%</u>	<u>28.4</u>	<u>5.4%</u>	<u>15.3</u>	<u>2.9%</u>	<u>101.7</u>	<u>19.4%</u>
Total	65	297.8	68.7%	10.4	2.4%	22.7	5.2%	16.7	3.9%	85.6	19.8%

not account for over a fourth of their graduates while programs in the Heartland region had less than 7% of their graduates classified as "Unknown".

Trends In the Employment of All Graduates, 1984 Through 1997

Figure 26 illustrates the proportion of graduates employed in clinical practice and those reported as "Unknown". In addition, a corrected value for P.A.'s in clinical practice has been calculated by taking 85% of the value reported as "Unknown" and adding this to the reported value for P.A.'s in clinical practice. Although noted as being employed as a P.A., those in the administration/teaching and research category were not included as clinical P.A.'s. The proportion (uncorrected values) of graduates who were employed clinically ranged from 65.2% (1989) to 72.8% (1985) while the corrected values for these years were 81.4% and 80.5%, respectively. Both sets of values are plotted in Figure 26 (next page). This year, the corrected value is 84.1%; sixty-nine percent were employed clinically, with 18% categorized as "Unknown".

Figure 26. Employment Status of All Graduates: 1984 Through 1997



Employment Characteristics: Medical Specialty Selection of All Graduates

The distribution of 298 graduates/program that were employed in clinical practice is shown in Table 90 by primary care medical specialty. The mean number per program and relative frequency are reported. It should be noted that the relative frequency includes the distribution across both primary (Table 90) and non-primary care (Table 91)

Table 90. Primary Care Specialties of P.A.’s in Clinical Practice, 1967 Through 1997

<u>Clinical Specialty</u>	<u>Mean Number Per Program</u>	<u>Relative Frequency</u>
Family Medicine	110.2	39.5%
General Internal Medicine	26.2	9.4%
Obstetrics/Gynecology	8.3	3.0%
General Pediatrics	10.2	3.7%
Geriatric Medicine	<u>3.0</u>	<u>1.1%</u>
Sub-Total Primary Care	157.9	56.5%

specialties. Also, both geriatric medicine and obstetrics and gynecology were classified as primary care specialties. As indicated, the typical program has a mean of 158 graduates (56.5% of the total) employed in a primary care specialty, predominantly family medicine (39.5%) and general internal medicine (9.4%).

The distribution of clinically active graduates in the non-primary care specialties is in Table 91 (next page). In total, 43.5% of the graduates were employed in non-primary care areas predominantly in emergency medicine (10.5%) surgical subspecialties (8.7%).

Table 91. Non-Primary Care Specialties of P.A.s in Clinical Practice, 1967 through 1997

<u>Clinical Specialty</u>	<u>Mean Number Per Program</u>	<u>Relative Frequency</u>
Emergency Medicine	29.2	10.5%
Surgical Subspecialties	24.2	8.7%
Int. Med. Subspecialties	14.6	5.2%
General Surgery	14.0	5.0%
Orthopaedics	14.0	5.0%
Industrial Medicine	5.8	2.1%
Correctional Medicine	4.9	1.8%
Pediatric Subspecialties	2.7	1.0%
Psychiatry	2.5	0.9%
Neurology	1.3	0.5%
Other	<u>8.2</u>	<u>2.9%</u>
Sub-Total Non-Primary Care	121.4	43.5%
Grand Total (66 Programs)	279.3	100.0%

A comparison between the mean number and proportion of graduates per program by medical specialty and region is shown in Table 92. The largest proportion of P.A.'s entering primary care medicine were graduates of programs located in the Western (76.1%) and Heartland (66.6%) regions. The majority of graduates from programs located in

Table 92. Medical Specialty Selection of P.A.'s in Clinical Practice by Geographic Region, 1967 Through 1997

<u>Geographic Region</u>	<u>N</u>	<u>Primary Care</u>		<u>Non-Primary Care</u>	
		<u>Mean</u>	<u>%</u>	<u>Mean</u>	<u>%</u>
Northeastern	14	105.1	47.8%	114.7	52.2%
Eastern	9	132.2	48.8%	138.9	51.2%
Southeastern	11	184.0	44.9%	226.1	55.1%
Midwestern	16	126.9	58.3%	90.7	41.7%
Heartland	5	264.8	66.6%	132.5	33.4%
Western	<u>11</u>	<u>216.5</u>	<u>76.1%</u>	<u>68.0</u>	<u>23.9%</u>
Total	66	157.9	56.5%	121.4	43.5%

the Southeastern region (55.1%) were employed in non-primary care specialties. Only 47.1% of graduates from programs in the "East" (Northeast, East, Southeast regions) were employed in primary care versus 65.7% of the graduates from the "West" (Midwestern, Heartland, and Western regions).

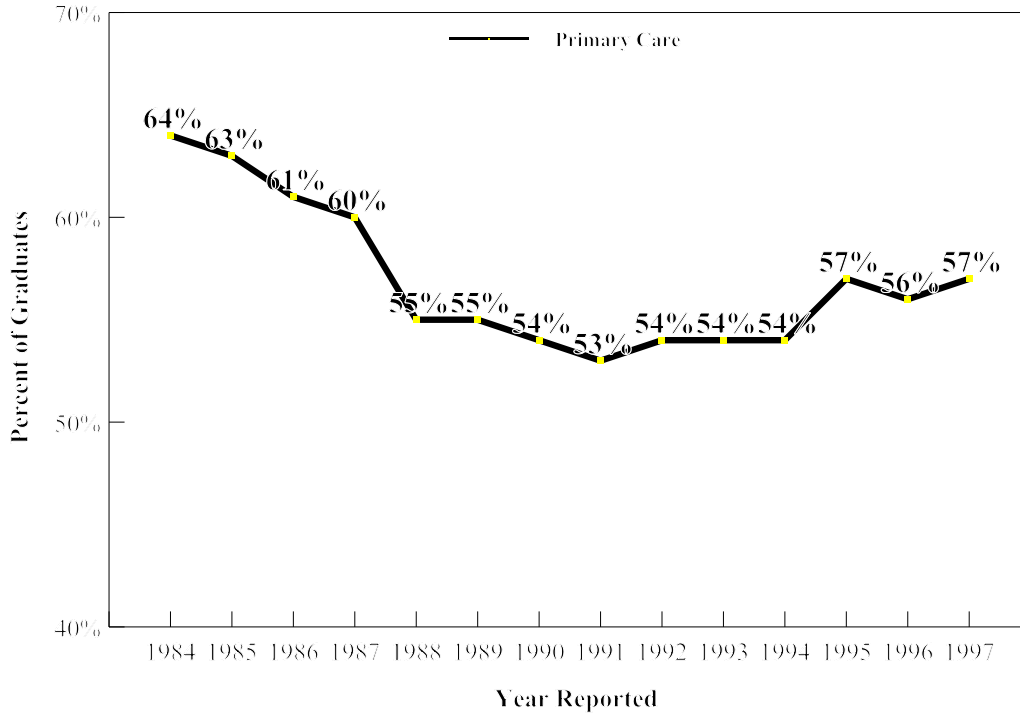
Trends in Medical Specialty Selection of Graduates, 1984 Through 1997

The employment of P.A.'s by primary care specialty, (including geriatrics), over the past fourteen years, is shown in Table 93 (next page) and illustrated in Figure 27 (next page). The proportion of P.A.'s employed in primary care medicine decreased from 63.9% (1984) plateauing around 53%-54% from 1990 to 1994, with a slight increase to 57% in 1997. At the present, over half of all P.A.'s remain practicing in primary care medicine. Between 1984 and 1988, there was a systematic decrease, averaging 2% per year, in the proportion of graduates practicing in primary care medicine. From 1988 to the present, the proportion has remained relatively unchanged, ranging from 53% to 57%.

Table 93. Trends in Primary Care Medical Specialty Selection of All P.A.'s in Clinical Practice, 1984 Through 1997

<u>Years</u>	<u>Family Medicine</u>	<u>General Int. Med.</u>	<u>Peds.</u>	<u>Ob/Gyn</u>	<u>Primary Care</u>
1967-84	40.2%	15.2%	5.0%	3.5%	63.9%
1967-85	37.5%	15.5%	5.4%	4.1%	62.5%
1967-86	37.3%	13.5%	5.8%	4.2%	60.8%
1967-87	37.8%	14.3%	3.6%	4.2%	59.9%
1967-88	35.0%	12.9%	2.8%	4.3%	55.0%
1967-89	33.7%	12.5%	4.1%	4.7%	55.0%
1967-90	31.8%	13.1%	4.3%	4.7%	53.8%
1967-91	32.2%	11.0%	4.6%	4.3%	53.2%
1967-92	34.5%	11.0%	4.3%	4.3%	53.9%
1967-93	33.9%	10.6%	4.0%	4.0%	53.9%
1967-94	36.2%	10.1%	4.0%	4.0%	54.2%
1967-95	38.5%	9.6%	4.0%	3.5%	56.9%
1967-96	38.0%	10.0%	3.6%	3.1%	55.8%
<u>1967-97</u>	<u>39.5%</u>	<u>9.4%</u>	<u>3.7%</u>	<u>3.0%</u>	<u>56.5%</u>
14-yr. Mean	36.3%	12.2%	4.3%	4.0%	57.2%

Figure 27. Proportion of P.A.s in Primary Care Medicine: 1984 Through 1997



The distribution of P.A.'s employed in non-primary care medicine for each of the past fourteen years and the average over that period is shown in Table 94 (next page). Surgical (13.7%), medical (5.2%) and emergency medicine (10.5%) specialties accounted for over one-fourth of the recent graduates' employment. The proportion of P.A.'s practicing in non-primary care specialties has changed less than 2% since 1988.

Table 94. Trends in Non-Primary Care Medical Specialty Selection of All P.A.'s in Clinical Practice, 1984 Through 1997

<u>Year</u>	<u>Surg Spec</u>	<u>Gen Surgery</u>	<u>Med Spec</u>	<u>Psych</u>	<u>Emer Med</u>	<u>Indus Med</u>	<u>Other</u>	<u>Non-Prim Care</u>
1967-84	11.6%	7.4%	5.0%	1.6%	N/A	N/A	10.4%	36.1%
1967-85	11.8%	8.2%	8.2%	1.5%	4.1%	1.5%	2.2%	37.5%
1967-86	11.5%	7.7%	5.4%	1.3%	4.3%	1.9%	7.1%	39.2%
1967-87	11.1%	9.4%	5.0%	1.5%	4.8%	1.8%	6.6%	40.2%
1967-88	11.2%	8.3%	4.6%	1.5%	5.1%	1.9%	12.4%	45.0%
1967-89	11.1%	7.6%	4.7%	1.6%	4.5%	2.0%	13.5%	45.0%
1967-90	12.8%	7.5%	5.0%	1.5%	5.3%	2.0%	12.1%	46.2%
1967-91	10.7%	7.5%	4.2%	1.4%	6.3%	1.9%	14.8%	46.8%
1967-92	10.8%	7.6%	4.8%	1.3%	6.8%	2.0%	12.8%	46.1%
1967-93	9.8%	7.2%	5.6%	1.5%	7.2%	2.1%	12.7%	46.1%
1967-94	10.9%	5.6%	5.9%	1.1%	8.2%	1.9%	12.3%	45.8%
1967-95	9.0%	5.1%	5.6%	1.2%	8.1%	1.9%	12.3%	43.1%
1967-96	9.4%	5.6%	5.4%	1.0%	8.6%	2.1%	12.3%	44.2%
1967-97	<u>8.7%</u>	<u>5.0%</u>	<u>5.2%</u>	<u>0.9%</u>	<u>10.5%</u>	<u>2.1%</u>	<u>11.2%</u>	<u>43.5%</u>
14-Year Mean	10.7%	7.2%	5.3%	1.5%	6.9%	1.9%	10.3%	43.2%

Employment Characteristics of All Graduates: Type of Practice Setting

The practice setting of P.A.'s actively involved in clinical practice is shown in Table 95, representing data from 63 programs. The classification of practice setting was based on the American Medical Association's Application for Program Accreditation for the Assistant to the Primary Care Physician. Using this system, an H.M.O., a drug and

Table 95. Practice Setting of P.A. Graduates, 1967 Through 1997

<u>Practice Setting</u>	<u>Mean Number Per Program.</u>	<u>S.D.</u>	<u>Relative Frequency</u>
Office	123.4	114.5	41.3%
Hospital/Institution	69.5	65.6	23.3%
Amb Care Clinic	65.1	79.9	21.8%
Other	<u>40.9</u>	<u>25.9</u>	<u>13.7%</u>
Total	298.9	248.4	100.0%

alcohol rehabilitation clinic or an urgent care clinic would fall under the heading of Ambulatory Care Clinic, whereas, a correctional facility or mental health institute would be classified as an Institutional setting. Almost two-thirds of the graduates were located in either an office-based (41%) or hospital-based (23%) practice and 21.8% percent were practicing in an ambulatory care clinic.

Employment Characteristics of All Graduates by Geographic Region

The distribution of clinically active graduates by practice setting and region is shown in Table 96. There was a regional difference relative to the proportion of graduates located in office and hospital practice. That is, graduates

Table 96. Type of Practice Setting of All Graduates by Geographic Region

Geographic Region	N	Office		Hosp./Instit.		Ambul. Clinic		Other/Unknown	
		Mean	%	Mean	%	Mean	%	Mean	%
Northeastern	14	41.0	23.4%	67.7	38.6%	50.8	28.9%	16.0	9.1%
Eastern	9	97.0	38.0%	74.9	29.3%	34.9	13.7%	48.8	19.1%
Southeastern	11	189.5	44.7%	101.5	24.0%	69.5	16.4%	63.0	14.9%
Midwestern	16	92.9	43.7%	46.4	21.8%	34.0	16.0%	39.2	18.4%
Heartland	4	228.0	47.6%	92.8	19.4%	92.3	19.3%	65.8	13.7%
Western	9	113.2	31.3%	37.1	10.3%	127.4	35.2%	84.1	23.2%
Total	63	110.4	38.4%	65.5	22.8%	63.1	21.9%	48.7	16.9%

from programs located in the Northeast were more likely to practice in a hospital setting than were graduates from programs located in the other regions, while, graduates from the Heartland region were more likely to be employed in an office setting.

Trends in Practice Setting of Graduates, 1984 Through 1997

The proportion of graduates in various practice settings, between 1984 and 1997, is shown in Table 97. The percent of graduates working in a hospital/institutional setting has decreased since 1992, from 34.0% to 22.8%. The remaining categories have fluctuated over that same time. Typically, P.A.'s were employed in either an office or hospital/institutional setting.

Table 97. Practice Setting of All Graduates, 1984 Through 1997

Year	Office	Hosp/Inst	Amb Care Clinic	Other/Unknown
1967-1984	40.8%	33.0%	20.2%	6.0%
1967-1985	38.4%	36.1%	19.0%	6.5%
1967-1986	37.5%	37.9%	19.9%	4.7%
1967-1987	36.7%	36.3%	22.5%	4.6%
1967-1988	36.1%	37.0%	19.1%	7.7%
1967-1989	35.7%	35.8%	19.2%	9.3%
1967-1990	38.2%	36.5%	14.9%	10.3%
1967-1991	35.4%	33.1%	20.3%	11.2%
1967-1992	33.9%	34.0%	21.3%	11.2%
1967-1993	36.8%	32.9%	22.3%	8.0%
1967-1994	36.1%	30.5%	24.9%	8.6%
1967-1995	35.4%	27.8%	21.4%	15.4%
1967-1996	38.0%	25.0%	23.5%	13.5%
1967-1997	<u>38.4%</u>	<u>22.8%</u>	<u>21.9%</u>	<u>16.9%</u>
14-Yr. Mean	37.0%	32.7%	20.7%	9.6%

Regional Variation and Trends in New Graduate Starting Salaries

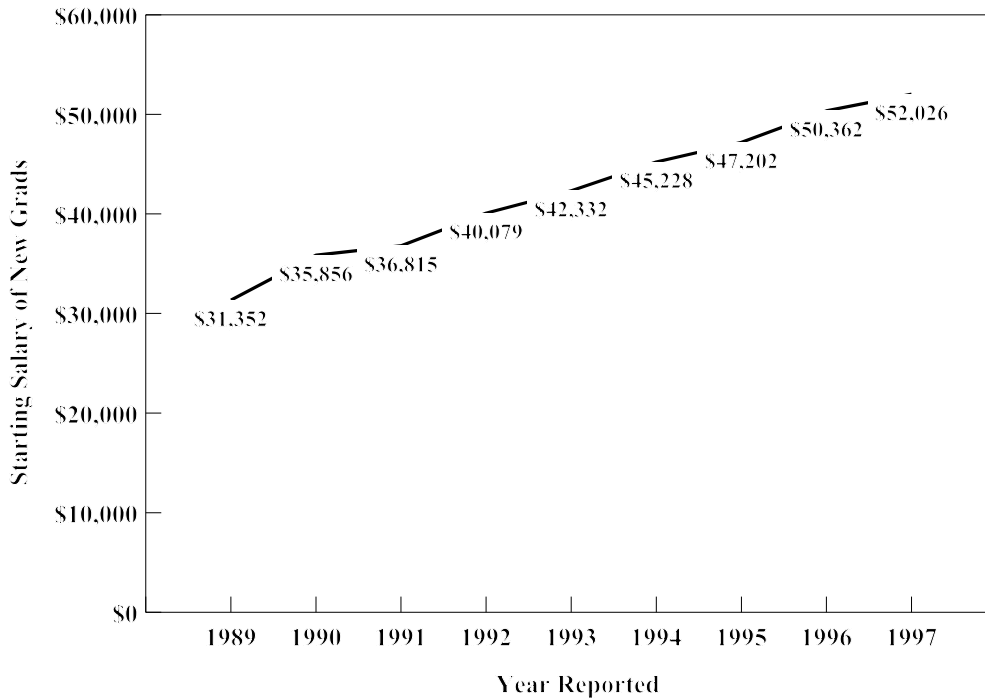
Table 98 shows the estimated starting salary of recent graduates in 1997 by region. The overall average was \$52,026, an increase of 3.3% from the 1996 average of \$50,362. Salaries were above \$52,000 for those graduates from programs located in all but the Eastern and Heartland regions. The median starting salary was highest for those graduates from programs located in the Midwest.

Table 98. Program Directors' Perceptions of Starting Salaries for P.A. Graduates by Geographic Region

<u>Geographic Region</u>	<u>N</u>	<u>Mean</u>	<u>Median</u>	<u>Change from 1996</u>
Northeastern	14	\$52,679	\$53,000	+ 3.5%
Eastern	7	\$49,800	\$49,000	+ 8.4%
Southeastern	11	\$52,198	\$50,900	+ 4.3%
Midwestern	16	\$52,671	\$53,588	+ 0.2%
Heartland	4	\$50,250	\$52,500	- 3.4%
Western	<u>9</u>	<u>\$52,222</u>	<u>\$52,000</u>	<u>+ 6.6%</u>
Total	61	\$52,026	\$52,000	+ 3.3%

Salaries of graduates from programs located in the Eastern region marked the greatest increase from 1996 (8.4%), while programs in the Heartland region reported a decrease of 3.4% from 1996. These data are also shown in Figure 28. Thus, starting salaries have increased each year by an average of 6.8% and there has been an overall increase in salaries of 65.9% since 1989.

Figure 28. Trends in Starting Salary for New Graduates: 1989 Through 1997



SECTION V. ADDITIONAL INFORMATION FOR THE 14TH ANNUAL REPORT

Needs for Physician Assistant Education

Respondents were requested to indicate which of the following statements most accurately characterizes the needs for physician assistant education in their state:

- (A) Not enough PA training slots to meet current demands
- (B) Adequate number of PA training slots to meet demands
- (C) Too many PA training slots to meet current demands

Table 99 summarizes the number of programs choosing a respective response, by region. In all regions except the Northeastern, the majority of programs indicated that there was an adequate number of PA training slots to meet current demands. The Midwestern region had the highest proportion of programs indicating that there were not enough training slots to meet current demand (43.8%). Half of the programs in the Northeastern region indicated that there were too many training slots to meet current demands.

Table 99. Needs for Physician Assistant Education in Terms of Available Training Slots

<u>Geographic Region</u>	<u>N</u>	<u>Not Enough</u>	<u>(%)</u>	<u>Adequate Numbers</u>	<u>(%)</u>	<u>Too Many</u>	<u>(%)</u>
Northeastern	14	5	35.7%	2	14.3%	7	50.0%
Eastern	10	1	10.0%	5	50.0%	4	40.0%
Southeastern	11	2	18.2%	7	63.6%	2	18.2%
Midwestern	16	7	43.8%	9	56.3%	0	0.0%
Heartland	7	2	28.6%	5	71.4%	0	0.0%
Western	<u>10</u>	<u>1</u>	<u>10.0%</u>	<u>9</u>	<u>90.0%</u>	<u>0</u>	<u>0.0%</u>
Total	68	18	26.5%	37	54.4%	13	19.1%

Current State of Clinical Training Sites

Respondents were asked to designate whether the number of clinical training sites has increased, remained the same or decreased over the last two years. Table 100 summarizes the responses by region. Three of the six regions had at least 50% of the programs in that region respond that there was an increase in the number of clinical training sites over the last two years. No region had more than half of the programs responding that there has been a decrease in the number of clinical training sites.

Table 100. State of Clinical Training Sites Over the Last Two Years

<u>Geographic Region</u>	<u>N</u>	<u>Increased</u>	<u>(%)</u>	<u>Remained the Same</u>	<u>(%)</u>	<u>Decreased</u>	<u>(%)</u>
Northeastern	15	6	40.0%	3	20.0%	6	40.0%
Eastern	10	6	60.0%	2	20.0%	2	20.0%
Southeastern	11	4	36.4%	4	36.4%	3	27.3%
Midwestern	16	7	43.8%	8	50.0%	1	6.3%
Heartland	7	5	71.4%	2	28.6%	0	0.0%
Western	<u>10</u>	<u>5</u>	<u>50.0%</u>	<u>2</u>	<u>20.0%</u>	<u>3</u>	<u>30.0%</u>
Total	69	33	47.8%	21	30.4%	15	21.7%

Respondents who indicated that the number of clinical training sites has decreased over the last two years were requested to indicate a primary reason (s) for such a decrease. Most programs listed more than one reason for the decrease. A summary of the reasons chosen are listed in Table 101, by region. Competition from medical students was the number one reason for the decrease. Competition from other PA students was the second most common reason.

Table 101. Reasons for the Decrease in the Number of Clinical Training Sites

<u>Geographic Region</u>	<u>N</u>	<u>Medical Students</u>	<u>Other PA Students</u>	<u>Loss of Preceptor</u>	<u>NP Students</u>	<u>Hospital Mergers</u>	<u>Medical Residents</u>
Northeastern	11	6	3	0	0	1	1
Eastern	3	1	0	0	1	1	0
Southeastern	5	3	0	1	1	0	0
Midwestern	6	3	1	1	0	0	1
Heartland	0	0	0	0	0	0	0
Western	<u>6</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>0</u>
Total	31	14	5	4	3	3	2

Respondents were also asked to indicate if they were currently paying clinical rotations. If yes, an amount was requested. Seven programs (10%) were paying clinical rotations an average of \$357/student (Range: \$90 - \$625). Sixty-two programs are not paying clinical rotations.

Current Market Demand for PA Employment

Based upon the observation of recent graduates and the availability of jobs in the area, respondents were asked to depict the current market demand for PA employment as increasing, stable or decreasing. Table 102 summarizes the results, by region. Over half of the programs indicated that the market demand for PA employment is stable. Less than one-third have indicated it is decreasing. By region, no programs in the West indicated that market demand is decreasing. In the remaining regions, more programs indicated a decreasing market demand than increasing.

Table 102. Market Demand for PA Employment

<u>Geographic Region</u>	<u>N</u>	<u>Increasing</u>	<u>(%)</u>	<u>Stable</u>	<u>(%)</u>	<u>Decreasing</u>	<u>(%)</u>
Northeastern	15	0	0.0%	7	46.7%	8	53.3%
Eastern	10	1	10.0%	5	50.0%	4	40.0%
Southeastern	11	1	9.1%	6	54.5%	4	36.4%
Midwestern	16	2	12.5%	10	62.5%	4	25.0%
Heartland	7	1	14.3%	4	57.1%	2	28.6%
Western	<u>11</u>	<u>2</u>	<u>18.2%</u>	<u>9</u>	<u>81.8%</u>	<u>0</u>	<u>0.0%</u>
Total	70	7	10.0%	41	58.6%	22	31.4%

Physical Exam Skills

A final question regarded whether programs have changed the way they test physical exam skills, now that the CSP is no longer a portion of the NCCPA Exam. Fifty programs (72.4%) indicated that they have not changed the way they test physical exam skills. Of the nineteen who responded that they have changed, some of the changes include: skills testing (N=10), CSP scenarios (N=4), increased PE hours (N=2), videotaped physical exams (N=1), a PE clerkship (N=1) and a systematic assessment of PE skills (N=1).

SUMMARY AND CONCLUSIONS

This report presents an update of physician assistant educational programs in the United States for the 1997-98 academic year. This is the fourteenth annual report to be published since 1984 and is based upon data drawn from the 1997 national survey of P.A. programs and includes APAP member programs and those enrolling students for the first time in 1997. Two surveys were administered. Survey #1 was mailed in October to 104 programs. The response rate for survey #1 was 94.2% (98 programs). The second survey was mailed in November, with a return of seventy-eight surveys. Highlights of the findings are provided in this summary and includes a description of the "typical" P.A. program. Comparisons were also made across programs by geographic region.

As we have data extending from 1984, we were able to also examine trends which have occurred over the past fourteen years for certain variables. Trends were analyzed relative to program budget and student expenses, personnel salaries and turnover, curriculum and interdisciplinary education, applicant, student and graduate characteristics, and salaries for recent graduates.

SECTION I. General Characteristics of P.A. Programs

The majority of programs (N=91; 87%) were associated with either a University or 4-year College and most (N=54; 52%) awarded graduates a baccalaureate degree; twenty-nine programs awarded a Master's degree; the remainder awarded either an associate degree or only a certificate of completion. The majority (N=53; 51%) of the current P.A. Programs were established since 1989; forty-six percent of the programs were established in the period 1969 through 1976, an average of 5.9 programs/year. From 1977 through 1988 (12 years) only three new programs were developed. The "typical" P.A. curriculum was 25.9 months in length and ranged from 12 to 48 months. The majority of programs graduated their seniors over two periods, between May-June (N=34) and August-September (N=56).

P.A. programs received the majority of their financial support from the sponsoring institution, averaging \$441,129 (65% of the budget) and federal training grants, averaging \$157,765 (23% of the budget). Thirty-four programs (38%) reported they received federal training grant support in 1997-1998. The average cost per program to educate a P.A. student was estimated to be \$8,436/student/year, a figure derived by dividing the total budget by the total number of students enrolled. This value does not include other costs, for example, clinical preceptors and other educators whose wages are not included in the program's budget; programs located in the Western region had the highest total budget (\$890,357 per program) as well as the highest level of federal training grant support (\$191,600 per program). Programs in the Midwestern region had the lowest total budget, averaging \$451,125 per program. Programs in the Eastern region had the lowest level of federal training grant support (\$107,250).

The typical resident student paid an average of \$24,057 for tuition, books, fees, and equipment for their entire professional education in a P.A. program, the non-resident student paid \$29,989. Eighty-five percent of the students received financial aid averaging \$13,890 per student per year. Students enrolled in programs located in the Eastern region had the highest resident tuition (\$26,239/student/curriculum), while programs in the Heartland region had the lowest resident tuition (\$8,200/student/curriculum).

Almost 90% of the students in programs located in the Southeastern region received financial aid, while only 79% of the students in the Eastern region received financial aid. For all students enrolled in 1997, only 3.6% (1st year students) and 4.5% (2nd year students) were awarded support from any of the several types of Public Health Service Corps Scholarships.

Trends from 1984 Through 1997

Total program budget increased an average of 11.4% annually from 1984 through 1997, a total increase of 145% over the past fourteen years. During this period, institutional support for the typical program increased an average of 8.8% per year, while federal training grant support remained relatively unchanged (14 year mean=\$135,641) and accounted for an average of 30% of the total program budget (41% in 1985 down to 22% in 1997). Since 1984, both tuition and total student expenses have increased by over 190% while the proportion of students receiving financial assistance has increased to 85%. Since 1986, the amount of financial aid provided to students has increased by almost 260%, from \$3,866/student/year to \$13,890/student/year in 1997.

SECTION II. Program Personnel

In order to conduct an analysis of P.A. program personnel, the faculty and staff were divided into three major groups as follows: (1) program directors, (2) medical directors and (3) those faculty and staff associated with the educational and/or administrative aspects of the program (referred herein as program personnel). The latter group was subdivided on the basis of whether they were P.A.'s or non-P.A.'s and organized across four categories (I, II, III, IV) based on job titles and program responsibilities.

The typical P.A. program employed one medical (0.27) and one program director (0.96) and, on average, 3.7 P.A. credentialed and 1.0 non-P.A. faculty, and 1.9 Category IV personnel. Thus, the "core" personnel for the typical program amounted to approximately 7.83 FTE's including clerical and/or other types of support personnel. General characteristics were reported for directors and program faculty and staff, including, percent time working with the program, months in position, annual salary, highest degree held, academic classification and tenure track status, gender, and ethnicity. Annual salary was shown to vary by job category, geographic region, gender, ethnicity, academic classification, and highest degree held.

In comparison to the Category I - III personnel data gathered in 1996-97, salaries for P.A. program personnel increased by 3.1% and 11.6% for non-P.A.'s. Eighty-nine percent of the P.A. and 56% of the non-P.A. personnel were classified as faculty. Twenty-seven percent were on a tenure track and 18% of the tenure track faculty were tenured. Forty-three percent of the Category I - III program personnel had earned a masters degree and 12% held a doctorate as their highest degree.

On average, 50% of the P.A. credentialed staff and faculty (including program directors) provided 11 hours per week of clinical practice in addition to their educational activities. Ninety-two percent were paid for their clinical service which averaged \$32.03 per hour. Clinical earnings accounted for 28% of their salary.

In comparison to the 1996 data, the proportion of program directors who were credentialed as P.A.'s increased from 79% to 82%, salaries increased by 0.3% and months in position decreased from 92 to 68 months. The majority of program (89%) and medical (79%) directors were classified as faculty and were on a tenure track. Less than one-fourth were tenured. While all but one of the medical directors held M.D., D.O., or Ph.D. degrees, thirty-five percent of the program directors had doctoral-level degrees (typically the Ph.D. or Ed.D.). Since 1984, there has been a 87% increase in mean salary for program directors and 63% increase for medical directors. The time in position for both medical and program directors has fluctuated extensively over the fourteen year period.

Respondents also provided data on personnel turnover over the past year. For the period September 1996 through August 1997, turnover averaged 1.0 individual per program. Turnover across all programs was highest among Category I personnel (33/year) and lowest among Category III personnel. Six program director positions were filled during this period. Departing personnel had been in their positions an average of 41 months, those filling the position were in their previous position 48 months and were typically three years younger than their predecessors.

Vacated positions were filled within 10.2 weeks and were filled by individuals with similar academic and personal characteristics as those departing. The three primary reasons cited for the departure of personnel included, in descending order, career advancement, geographic relocation and return to clinical practice. In this past year, the salary of those filling the vacated position was only 4.2% greater than the salary of the person leaving the position.

SECTION III. P.A. Applicant and Student Characteristics

In 1997, the average size of the entering P.A. class was 40.4 students, 62% of whom were women. The senior class averaged 38.8 students per program with only 11.4% of the maximum capacity of the class unfilled (due largely to attrition from the program). The typical program received 339 applications and reported a ratio of 8.4 applicants to students enrolled. Using the mean values of the responding programs, the total enrollment (all classes) across all 96 programs was estimated to be 7,621 (1,747 more students than the previous year). Similarly, the estimated first-year enrollment was 3,838 students with only 2% enrolled as part-time students. Programs located in the Heartland region had both the largest number of applicants (475/program) and the largest number of students enrolled (61/program). Programs in the Midwest region had both the smallest number of applicants (241/program) and the fewest number of students enrolled (34.1/program).

The typical entering student was described as a white/non-Hispanic female over 27 years of age, with a grade point average of 3.37 and 49 months of health care experience prior to admission.

The proportion of minority students enrolled in the first-year class has increased from 13.8% in 1983-84 to 20.8% in the current year, with the majority of these students in the African-American ethnic group. All but five programs reported that at least one minority student was enrolled in the 1997 class.

Although there was relatively little change in the number of applicants and students enrolled between 1984 and 1989, the number of applicants and students enrolled from 1989 to the present, has increased substantially, 325% and 52%, respectively, during that period. As the applicant pool has increased, the proportion of the class remaining unfilled has decreased. It is anticipated that as the applicant pool increases, the academic quality of entering students will be increased and therefore attrition rates may be expected to decrease proportionately.

Information was also obtained on the number of unlicensed medical graduates (U.S.-born and alien) applying to and enrolling in P.A. programs during 1997. The total number of UMG applicants decreased from 217 (3.3/program) in 1996 to 169 (2.2/program) in 1997. UMG enrollment has increased from 20 (0.3/program) in 1996 to 24 (0.3/program) in 1997. On average, 14.2% of the UMG applicants were admitted in 1997.

For the seventh consecutive year (however slight this year), preference appeared to be given to U.S.-born UMG's during the admissions process, that is, 14.2% of the U.S.-born UMG applicants were enrolled, while only 13.6% of the alien UMG applicants were admitted. Almost one-half (47%; 36/77) of the programs received an UMG application while 32% (25/77) of the programs enrolled an UMG in 1997. In a broader perspective and with respect to the total applicant pool, UMG's accounted for only 1.0% of the total number of applicants and 1.0% of all students enrolled in the 1997 class.

Programs located in the Northeastern region accounted for the majority of UMG applicants, averaging 7.8/program, while programs in the Heartland region only received an average of 0.3/program. Programs in the Eastern region enrolled the highest proportion (0.7/program) of UMG's, while programs in the Heartland region did not enroll any UMG's in 1997.

SECTION IV. Graduate Information

The average size of the 1997 graduating class was 36.3/program and was highest for programs located in the Heartland region (48/program) and lowest in the Midwestern region (30.8/program). The majority of recent graduates were female (59%) and non-minority (81%). The attrition rates across programs averaged 5.0% (2.0 students per program) and the reasons for withdrawal were most frequently due to academic (45%) and/or personal (46%) problems. The attrition rate reported in 1997 was lower than the previous year (5.3%) and the fourteen-year average of 9.2%. Attrition was highest among minorities and younger students. Students from programs in the Eastern region had the highest attrition rate (7.4%) and those from programs in the Western region the lowest attrition (2.7%).

On average, 1.0 students per program were decelerated for a deceleration rate of 2.5%. These students were not considered "withdrawn" and therefore not included in the attrition figures. Deceleration occurred more frequently

among minorities and older students. The highest deceleration rates were reported by programs located in the Eastern region (4.0%) and lowest for programs in the Northeastern region (1.3%).

The proportion of 1997 graduates employed in primary care specialties decreased from the previous year (57% versus 62% in 1996) and those so employed remained principally in family medicine or general internal medicine. The most common non-primary care specialties selected by recent graduates were surgery (including subspecialties) and emergency medicine. The most common medicine subspecialties were cardiology and gastroenterology, while cardiothoracic and cardiovascular surgery were the most common surgical specialties selected.

Overall, the typical program has matriculated an average of 17 classes (range=1-31) and a total of 449 students. When adjustments were made for "unreported or unknown employment status", we estimated that between 80%-85% of the graduates were employed as a P.A. with less than 3% unemployed, most by personal choice. A majority (64%) of these graduates were employed in a primary care medical specialty in either an office (41%) or hospital setting (23%). These P.A.'s were typically employed in either family medicine (39.5%), general internal medicine (9.4%), or in a surgical subspecialty (8.7%). Graduates of programs located in the "western" half of the U.S. (Midwestern, Heartland, and Western regions) were more likely to be in clinical practice in primary care medicine and were typically located in either an office or ambulatory clinic as compared to graduates from programs located in the "eastern" half of the country.

Based on responses from program directors, starting salaries continued to increase, averaging \$52,026, 3.3% above that reported for the 1996 academic year (\$50,362). Programs in the Midwestern region had the highest percent of employment (95%) while programs in the Heartland region had the lowest percent of employment of recent graduates.

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