The Influence of Primary Care Preceptorships and Other Factors on Physicians' Career Choices

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PRECEPTORSHIPS HAVE BEEN USED in the education of the physician from very early times. In fact during the Greek and Roman periods, they were the primary method of teaching the art of medicine. The oath of Hippocrates, which to this day serves as the basis for the ethical and professional code of the physician, emphasizes the pupil-teacher relationship and the obligation of each to the other. In this oath, the physician is enjoined to teach the art of medicine "by precept, lecture, and every other mode of instruction" to all who wish to have knowledge of it and who are willing to dedicate themselves unselfishly and completely to those in need of their ministrations.

The preceptorial or apprenticeship system of teaching medicine was brought to America from Britain and France during colonial times, and during the 17th and 18th centuries supplemented the more formalized education of the physician. Because a rapidly expanding country needed a large number of physicians, a cadre of proprietary medical schools came into existence in the 19th century (*1,2*). According to Flexner, 457 medical schools were established in the United States and Canada in a little over 100 years (3). Many of them, however, did not survive long, and Flexner found that those that did were inadequately equipped to teach even the fundamentals of medicine and in many instances were solely dominated by commercial motives. Training was generally limited to didactic instruction, so that students had little or no opportunity to observe patients or participate in their treatment.

The Flexner report of 1910 described the horrendous inadequacies of the medical education system and brought about the closing of most proprietary schools and affiliation of the rest with universities. Flexner urged that strict controls and standards for quality medical education be established and the responsibility for enforcing them be vested within the university system. As a result, the era of specialization began, bringing with it a decline of general medicine as a preferred area of practice.

The medical specialties continued to grow in popularity and scope during the first half of the 20th century, peaking during the 1950s and 1960s, when Federal support for specialty training and research became readily available to medical schools in the form of research grants and fellowships. The information explosion in the biological and physical sciences, as well as the introduction of new techniques and skills, further encouraged physicians to focus on a particular area of medicine. The medical education system responded by seeking to develop the "clinical gaze" in physicians during their training period, thereby narrowing their perspectives to the biological parameters with regard to the identification of problems and the treatment of disease (*4*).

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The study from which the results reported here were derived was done under contract HRA 231-76-0040 with the Division of Medicine. Mr. Leon Hunt, statistician in public health and epidemiology, contributed to the section of the paper pertaining to the analysis. *Tearsheet requests to Anna M. Barish, 13413 Dowlais Drive, Rockville, Md. 20853.*

Almost immediately following publication of the Flexner report, concerns were expressed by certain segments of the medical profession and the public about the lack of consideration and concern for the patient as a whole person and the inability of an institution-based educational system to teach the psychosocial and comprehensive aspects of patient care (*5–9*). Therefore, beginning in the 1920s, an attempt was made to reintroduce the preceptorship system in the predoctoral curriculum of several medical schools. This effort apparently was designed to counteract the overwhelming influence exerted by specialty medicine and to provide students with an experience not available at the medical center (that is, the practice of primary care medicine as it actually occurred), as well as with an opportunity to appreciate the ethical, economic, and environmental aspects of patient care (*10*).

Of the 24 schools that offered preceptorships during the academic year 1954–55, the majority used general practitioners as preceptors. The aim of most of these programs to provide a counterbalance to the prevailing trend toward specialization, however, was not realized. Preceptorship training was neither embraced by the medical education system, nor did it seem to be influential in modifying the surge toward specialty orientation (*10a,2a*).

As table 1 shows, despite substantial increases between 1931 and 1957 in the total number of all physicians, there was an overall decline in the number of physicians in the primary care specialties (general practice, internal medicine, and pediatrics) in terms of their total numbers, their proportion of total physicians, and their ratio per 100,000 population. This decline was due to decreases in general practitioners and sharp increases in physicians selecting specialties other than primary care. Data available for 1963, 1968, and 1975 (table 2) show that although the relative proportion of primary care physicians (general and family practice, internal medicine, and pediatrics) to all other physicians continued to decline, both the actual number of physicians in the primary care specialties and the primary-care-physician-to-population ratio was on the rise by 1975. The trend, however, for general and family practitioners was still one of decline.

Several reports in the 1960s, coupled with increasing public demands for improved access to health services and more personalized medical care, resulted in a renewed commitment to train physicians in primary, comprehensive, and personal care (*11–13*). In 1969, amidst much controversy and opposition, family medicine was approved as a specialty, followed by the passage of the Comprehensive Health Manpower Training Act (Public Law 92–157) in 1971. This act provided funds for the support of residency training in family medicine, as well as for a number of other activities aimed at improving the curriculum of health professions students. The act particularly focused on primary care education, interdisciplinary training, and other activities to improve the delivery and availability of health services. The shift in emphasis in the 1971 act from that in earlier legislation is worth noting. Although the primary concern of prior health manpower legislation (1963, 1965, and 1968) had been to increase the enrollment of health professions students in order to make health services more available to more people and to assure the financial viability of the schools, the thrust of the 1971 act and of subsequent legislation (Public Law 94–484, passed in 1976) was to address the geographic distribution of health providers, particularly physicians, and to reverse their continuing inclination to select secondary and tertiary specialties.

One program specifically authorized under Section 772 of the 1971 act provided funds so that medical and osteopathic students would have an opportunity to experience primary care medicine under a preceptor who was a physician specializing in family or general medicine, internal medicine, or pediatrics or who was practicing in a medically underserved area. Such an experience was considered to be one means of providing a primary care role model to predoctoral students and introducing and attracting them to primary health care and small town or rural practice. Approximately $28 million was spent under the authority of Public Law 92–157 between 1972 and 1977 to support preceptorships in about 75 medical and osteopathic schools in the United States.

Study to Evaluate Preceptorships

In June 1976, the Division of Medicine, Bureau of Health Manpower, Health Resources Administration, awarded a contract to Applied Management Sciences, a consulting firm, to evaluate preceptorship training in terms of its effectiveness in providing meaningful primary care experiences to students and its relationship to their subsequent career choices. This paper presents the methodology used in the evaluation and the selected findings that appeared to be most influential in the selection of specialties and geographic practice locations by physicians.

The study was based on the premise that physicians' career choices are influenced by a continuum of experiences, some of which occur before, and some after, predoctoral training. To evaluate the effect of one type of experience on career decisions, namely, a preceptorship, it was necessary to examine it in relation to other events that might influence those choices. Therefore information was collected that would permit the potential impact of preceptorship programs to be assessed within the context of the educational environment, student background and characteristics, and other external influences affecting the student, as well as institutional and curriculular direction.

During the spring of 1977, deans (or designates), chairmen of the departments in which preceptorship programs were based, and directors of preceptorship programs at 95 medical and osteopathic schools were interviewed. (In this study, a preceptorship is defined as a learning experience in which a student spends a

Table 1. Potential U.S. family physicians (MDs) in total numbers, numbers per 100,000 civilian population, and percentages of total U.S. physicians, at midyear 1931, 1940, 1949, and 1957

Type of practice	*1931*	*1940*	*1949*	*1957*
	Number of physicians			
Total physicians	156,406	175,163	201,277	226,625
Family physician potential [1]	117,079	117,386	110,236	101,973
Pediatrics [2]	1,396	2,222	3,787	5,876
Internal medicine [2]	3,567	5,892	10,923	14,654
General practice and part-time specialty	112,116	109,272	95,526	81,443
All others	39,327	57,777	91,041	124,652
	Physicians per 100,000 civilian population			
Family physician potential	94	89	75	60
Pediatrics [2]	1	2	3	3
Internal medicine [2]	3	4	7	9
General practice and part-time specialty	90	83	65	48
	Percent of total physicians			
Family physician potential	75	67	55	45
Pediatrics	1	1	2	3
Internal medicine	2	3	5	6
General practice and part-time specialty	72	63	48	36

[1] Includes only physicians in private practice.
[2] Estimated from total number of physicians limited to the specialty.
SOURCE: Based on data in table in Physicians for a Growing America. Surgeon General's Consultant Group on Medical Education. PHS Publication No. 709. U.S. Government Printing Office, Washington, D.C., 1959.

Table 2. Trends in number of active physicians (MDs), by specialty, percentage distribution, and physicians per 100,000 population, for 1963, 1968, and 1975

Specialty	1963			1968			1975		
	Number	Percent	Physicians to population	Number	Percent	Physicians to population	Number	Percent	Physicians to population
Total active MDs [1]	261,788	100.0	134.8	296,312	100.0	144.0	340,280	100.0	156.8
Primary care	110,071	42.1	56.7	116,670	39.4	56.7	113,634	38.4	60.2
General practice [2]	66,875	25.6	34.4	61,578	20.8	29.9	54,557	16.0	25.1
Internal medicine	30.434	11.6	15.7	38,532	13.0	18.7	54,331	15.9	25.0
Pediatrics	12,762	4.9	6.6	16,650	5.6	8.1	21,746	6.4	10.0
Other medical specialties	12,291	4.7	6.3	15,762	5.3	7.7	19,010	5.9	8.8
Allergy	1,414	0.5	0.7	1,661	0.6	0.8	1,716	0.5	0.8
Cardiovascular disease	3,928	1.5	2.0	5,602	1.9	2.7	6,933	2.0	3.2
Dermatology	3,156	1.2	1.6	3,775	1.3	1.8	4,661	1.4	2.1
Gastroenterology	1,198	0.5	0.6	1,748	0.6	0.8	2,381	0.7	1.1
Pediatric allergy	240	0.1	0.1	398	0.1	0.2	446	0.1	0.2
Pediatric cardiology	234	0.1	0.1	441	0.1	0.2	538	0.2	0.2
Pulmonary disease	2,121	0.8	1.1	2,137	0.7	0.1	2,335	0.9	1.1
Surgical specialties	67,745	25.8	34.9	81,820	27.6	39.8	96,015	28.1	44.2
General surgery	23,607	9.0	12.2	28,433	9.6	13.8	31,562	9.2	14.5
Neurological surgery	1,818	0.7	0.9	2,419	0.8	1.2	2,926	0.8	1.3
Obstetrics, gynecology	15,296	5.8	7.9	18,017	6.1	8.8	21,731	6.4	10.0
Ophthalmology	7,833	3.0	4.0	9,368	3.2	4.6	11,129	3.3	5.1
Orthopedic surgery	6,827	2.6	3.5	8,869	3.0	4.3	11,379	3.3	5.2
Otolaryngology	4,724	1.8	2.4	5,195	1.8	2.5	5,745	1.7	2.6
Plastic surgery	1,023	0.4	0.5	1,414	0.5	0.7	2,236	0.6	1.0
Colon and rectal surgery	740	0.3	0.4	707	0.2	0.3	661	0.2	0.3
Thoracic surgery	1,296	0.5	0.7	1,822	0.6	0.9	1,979	0.6	0.9
Urology	4,581	1.8	2.4	5,576	1.9	2.7	6,667	2.0	3.1
Other specialties	71,621	27.4	36.9	81,970	27.7	39.8	94,621	27.8	43.6
Aerospace medicine	1,554	0.6	0.8	1,456	0.5	0.7	684	0.2	0.3
Anesthesiology	7,593	2.9	3.9	10,112	3.4	4.9	12,861	3.8	5.9
Child psychiatry	751	0.3	0.4	1,702	0.6	0.8	2,581	0.8	1.2
Neurology	1,822	0.7	0.9	2,675	0.9	1.3	4,131	1.2	1.4
Occupational medicine	2,911	1.1	1.5	2,702	0.9	1.3	2,355	0.7	1.1
Pathology [3]	7,127	2.7	3.7	9,696	3.3	4.7	11,220	3.4	5.4
Physical medicine and rehabilitation	999	0.4	0.5	1,407	0.5	0.7	1,644	0.5	0.8
Psychiatry	15,551	5.9	8.0	19,907	6.7	9.7	23,922	7.0	11.0
Public health [4]	3,884	1.5	2.0	3,871	1.3	1.9	2,655	0.8	1.2
Radiology [5]	8,786	3.4	4.5	11,718	4.0	5.7	11,527	3.4	5.3
Other and unspecified	20,643	7.9	10.6	16,724	5.6	8.1	19,722	5.8	9.1

[1] Excludes physicians not classified: 358 in 1970, 3,529 in 1971, 13,356 in 1972, 13,755 in 1973, 10,121 in 1973, and 26,145 in 1975.
[2] Includes family practice 1970–74.
[3] Includes forensic pathology.
[4] Includes general preventive medicine.
[5] Includes diagnostic and therapeutic radiology.

SOURCE: Supply and Distribution of Physicians and Physician Extenders. A background paper prepared by Manpower Supply and Utilization Branch, Division of Medicine, Bureau of Health Manpower, Health Resources Administration, Hyattsville, Md., March 1, 1977. Figures in this background paper were taken from annual reports of the American Medical Association on distribution of physicians in the United States.

NOTES: Because of a change in 1968 in the American Medical Association's classification procedure, a discontinuity exists between the figures published by AMA for 1963–67 and 1968–75. In this table, the 1963–67 figures have been adjusted to provide a comparable series by using data from Reclassification of Physicians, 1968 by C. N. Theodore et al., Center for Health Services Research and Development, American Medical Association, Chicago, 1971.

Rates and percentages may not add to totals and subtotals because of independent rounding.

Some figures in this table differ from those in The Supply of Health Manpower: 1970 Profiles and Projections to 1990, DHEW Publication No. (HRA) 75–38, U.S. Government Printing Office, Washington, D. C., 1974.

minimum of 2 weeks, full time, under the supervision of a physician, providing direct patient care away from the medical center.) In addition, 1,147 students (class of 1977), 750 residents (class of 1974), and 334 physician preceptors were selected from the roster of schools in the sample and asked to respond to a mailed questionnaire. Sample sizes were calculated to achieve 95 percent confidence levels. A simple random sample technique was used to select respondent groups. The response rates were 96 percent for institutions, 73 percent for students, 62 percent for residents, and 81.3 percent for preceptors.

Type of respondent	*Estimated size of universe*	*Sample size*	*Completed questionnaires*	*Percent response*
Medical and osteopathic schools ...	123	95	92	96.0
Students (class of 1977)	14,500	1,147	837	73.0
Residents (class of 1974)	12,000	750	462	62.0
Physician preceptors	3,500	334	272	81.3

Of the 750 questionnaires addressed to residents, 123 were returned as undeliverable because of inappropriate mailing addresses. For questionnaires sent to residents with acceptable addresses, a response rate of 74.8 percent was achieved.

On the three institutional questionnaires, the dean, department chairman, and the preceptorship program director were requested to provide information on the characteristics and goals of the institution and the preceptorship program, as well as about the general educational environment and the degree of institutional interest in primary care education. Several questions were asked about the extent of external influences both on the recruitment of students and on the curricular structure. Students and residents were asked to provide demographic and other personal data, as well as information on their preceptorship experiences and current inclinations (or choices) as to specialty training or preference and type of practice and location. Preceptors were asked to describe themselves in terms of their education, specialty, location and type of practice, their role as preceptors, interactions with the institution sponsoring the preceptorship, and the kind of experiences provided to students under their supervision.

Analysis of Study Data

Data from each respondent group were analyzed separately and then merged with data from other groups. In other words, in addition to analyzing differences within each respondent group, individuals within groups were matched with their respective institution, depart-

Table 3. Factors most significantly related to students' (class of 1977) and residents' (class of 1974) specialy intentions

Factors	*Family medicine*	*Other primary care specialties*	*Other medical or surgical specialties*
		Students	
Location of high school attended	Rural area or small town	Urban area	Inner city or urban area
Sex	Male	Female	Male
Amount of financial support from family or savings	Below average	Above average	Above average
Location of medical or osteopathic school	North central or western regions	Northeast or South	Northeast or South
Public Health Service scholarship	Received one	Did not receive one	Did not receive one
Preceptorship program	Participated	Did not participate	Did not participate
		Residents	
Location of high school attended	Rural area or small town	Rural area or small town	Large metropolitan area
Amount of financial support from family or savings	Below average	Average	Above average
Age at graduation from medical or osteophathic school	28 years or older	27 years or younger	27 years or younger
Preceptorship program	Participated	Did not participate	Did not participate

ment, preceptorship program, and so forth, permitting an analysis of a much broader range of interactions than would have been possible for individual respondent groups.

The data collected in this study were largely categorical, that is, most of the data identified persons, programs, or institutions as belonging to one of several classes, such as urban or rural, rather than measuring a numerical attribute like income. Multivariate contingency table analysis was chosen for the study because with this method, categorical data from a sample can be reduced to an array of cells (for example, individuals can be classified according to race, sex, place of rearing, and so forth). Contingency table analysis yields a model that expresses the cell frequencies of such an array in terms of the population mean, interactions between pairs of variables (dimensions), and interactions among three variables at once. Such equations (called "log-linear models" because they are linear in the logarithm of cell frequencies) give results analogous to analysis of variance, since they break down a population's overall variability into components (that is, into the general mean and the effects due to single variables, pairs of variables, and so forth).

For any complex set of data, such as that obtained in this study, there are literally hundreds of possible models. In this study, the strategy of analysis was to find the simplest model that adequately described the observed data (adequacy being measured by a goodness-of-fit criterion similar to chi square). Various combinations of variables were therefore tested until a set was found that accounted for the differences in study results and also fit a reasonably simple hypothesis of interdependence among group characteristics.

A log linear model that fits observed data provides a precise measure of how different dimensions are interrelated. For this study, the analysis was able to show which characteristics (or dimensions) appear to influence, for example, choice of specialty, as well as their relative importance to other factors.

Study Results

This study was extremely broad, both in purpose and results. It was therefore necessary to limit the presentation to two questions. Since medical specialty choices and geographic location decisions are of major concern to health planners and policy makers, only study data related to these choices were examined. Even with this limitation, however, all results affecting these decisions cannot be presented, nor can all aspects of the relationship between influencing factors and these decisions be discussed. Many relationships have not yet been investigated or are not clear enough to warrant useful exploration at this time.

Specialty preferences. Both students and residents were asked to indicate their specialty preference and selection or current enrollment in a residency training program. Residents were also asked to list all residency programs in which they had been previously enrolled. It should be kept in mind that a specialty preference expressed during a person's training period may not remain firm. It is merely an indication of preference at a certain time. Although the specialty preference of third-year residents is likely to be considerably more stable than that of students about to graduate from medical or osteopathic school, the results for both groups are still reported as preferences and not as actual choices.

Specialties were grouped into three major categories for the analysis: (*a*) family medicine, including general practice, (*b*) other primary care specialties, which included internal medicine and pediatrics but not subspecialties, and (*c*) other medical and surgical specialties. All results are reported according to these categories. The specialty preferences reported by the students and residents were as follows:

Intended practice specialty	*Students*		*Residents*	
	Number	*Percent*	*Number*	*Percent*
Family medicine	151	19.1	60	14.5
Other primary care	300	37.9	108	25.8
Other specialties	340	43.0	251	59.9
Total	791	100.0	419	100.0

A number of different models were tested by multivariate contingency table analysis. Various combinations of characteristics of students, residents, institutions, and preceptorship programs were used to determine relationships between these characteristics and specialty selection. Table 3 shows the models that were found to be most explanatory.

In addition to the specialty profiles shown in table 3, bivariate relationships between specific characteristics (or preferences) as they relate to specialty inclinations were also analyzed. A select number of visual displays present some of the results of this analysis (figs. 1–5). These bivariate interactions are interesting and useful in clarifying the degree of the relationships between two variables but they are incomplete in that the full range of influencing factors is not considered. Because of their narrowness, the bivariate interactions may also be inconsistent with the results in the multivariate models.

Male students and residents, but particularly male students, were more inclined to prefer family medicine than female students and residents (fig. 1). However, women were more inclined to concentrate in pediatrics (not evident in figure 1 because internal medicine and pediatrics have been collapsed into the primary care category). Similar specialty preferences among women have been found in other studies (*14–16*). A difference found throughout the study between students and residents was that a greater percentage of residents preferred a non-primary-care specialty.

The data in the current study support earlier results (*17–19*) indicating that a person's place of rearing is significantly related to specialty choice. (The community in which the respondent lived while attending high school is used in this study as a proxy for place of rearing.) Both students and residents reared in a small town or rural area expressed a greater preference for family medicine than those reared in other locales (fig. 2). Among residents, a significantly greater percentage preferred "other specialties" regardless of place of rearing.

Among residents, the data showed a significant relationship between age at graduation and specialty choice. However, among students, as figure 3 shows, age was not a factor in specialty preference. Among respondents who were 28 years or older at the time of medical school graduation, residents (class of 1974) were more inclined than students (class of 1977) to select family medicine as an area of practice. The disappearance of differences between the students and residents is likely a function of time and the circumstances surrounding the development of family medicine as a specialty, as well as of the substantial Federal support of this specialty over the last several years.

The majority of students and residents who attended osteopathic schools were more inclined to select family medicine. This result is consistent with the commitment of osteopathic institutions to train generalist physicians. Among the respondents from allopathic institutions, a significant shift toward the primary care specialties can be noted among the student group (fig. 4).

Among those students who declared family medicine as a specialty (fig. 5), 77.1 percent had participated in one or more preceptorships. However, the degree to which self-selection was a factor among those who participated in one was not examined, nor was the preceptorship examined in terms of its qualitative or quantitative influence in the career decision process. Further analysis of the data is required to clarify these and other issues.

Fig. 1. Intended practice specialty of students and residents, by sex

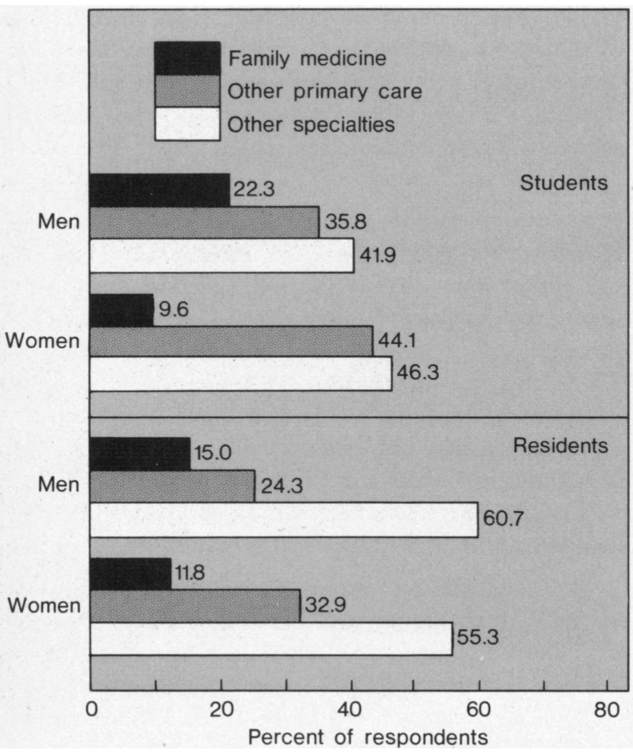
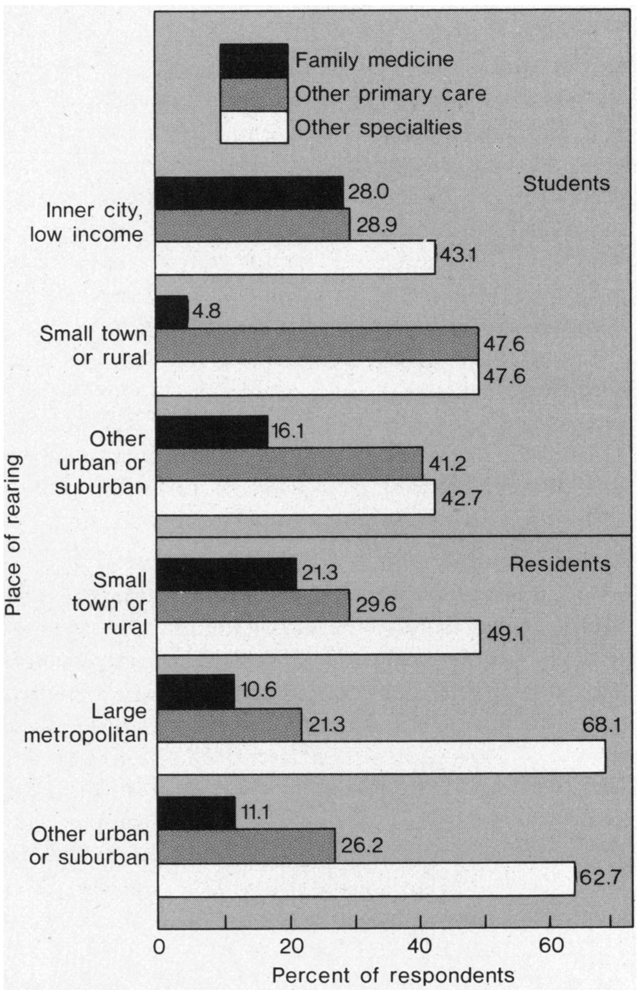


Fig. 2. Intended practice specialty of students and residents, by place of rearing



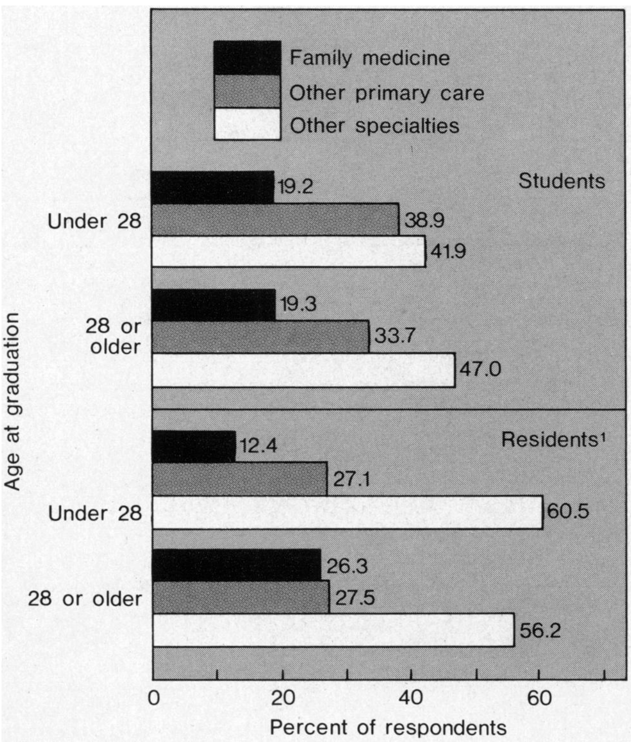
Location preferences. Students and residents were asked to state their preferred practice location. As with specialty intentions, decisions about practice locations are in most cases not stable, particularly among students. Even among residents, many of whom were about to enter practice, only 34.9 percent had decided on a specific practice location at the time of the survey.

The responses as to location preferences were collapsed into three categories: (*a*) inner city, low income area, (*b*) small town or rural area, and (*c*) other urban or suburban area. As the following table shows, a majority of both students and residents preferred practices in "other urban or suburban" areas.

Preferred practice location	*Students*		*Residents*	
	Number	*Percent*	*Number*	*Percent*
Inner city, low income area	74	9.2	25	6.2
Small town or rural area	322	40.1	138	33.4
Other urban or suburban area	408	50.7	250	60.4
Total	804	100.0	413	100.0

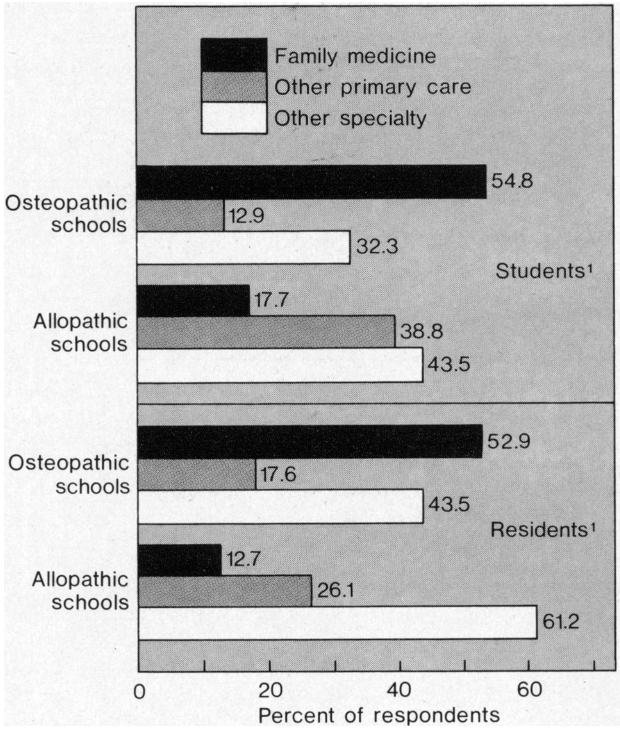
Multivariate contingency table analysis was again used to test the relationships between different variables and practice location preferences. The models shown

Fig. 3. Intended practice specialty of students and residents, by age at graduation



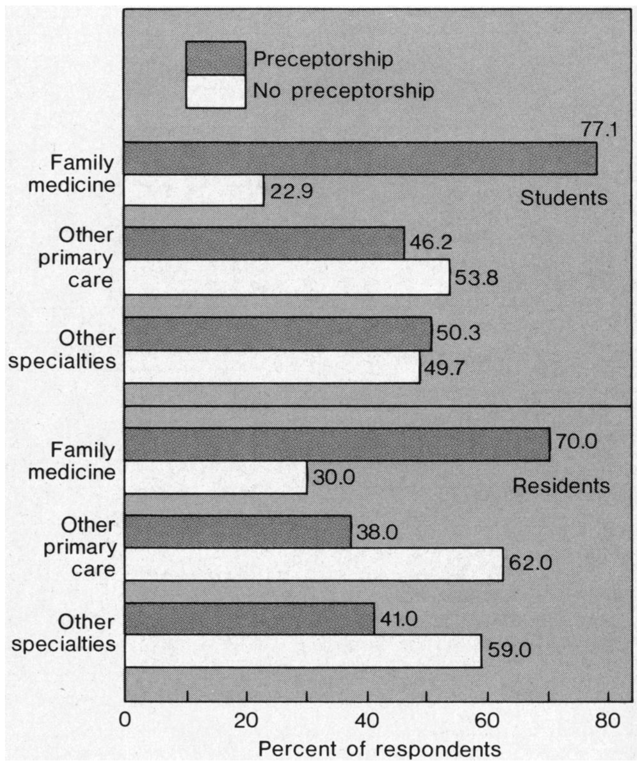
[1] Age at graduation significant at 0.05 level.

Fig. 4. Specialty intention of students and residents, by type of institution attended



[1] Type of institution attended significant at 0.05 level.

Fig. 5. Participation in one or more preceptorship programs, by intended specialty of students and residents



in table 4 were found to be most explanatory. As with specialty preferences, visual displays of bivariate relationships are presented, this time with practice location preference as the dependent variable (figs. 6–10).

The data in figure 6 show that both sex and race were related to location preferences. However, the major influence appeared to be race rather than sex. While the majority of all students and residents preferred an urban practice location, the most notable difference between whites and nonwhites was that a significantly greater percentage of nonwhites preferred, an inner city, low income practice area, regardless of sex (table 5). Because of the small number of nonwhites in the sample, particularly nonwhite women,

Table 4. Factors most significantly related to students' (class of 1977) and residents' (class of 1974) intentions to practice in particular type of area

Factors	*Inner city area*	*Rural area or small town*	*Other urban or suburban area*
		Students	
Location of high school attended	Inner city area	Rural area or small town	Urban or suburban area
Amount of financial support from family or savings	Average	Below average	Above average
White or nonwhite	Nonwhite	White	White
Preceptorship program	Did not participate	Participated	Did not participate
		Residents	
Location of high school attended	Large metropolitan area	Rural area or small town	Urban or suburban area
Amount of financial support from family or savings	Below average	Below average	Above average
Age at graduation from medical school	27 years or younger	28 years or older	27 years or younger
White or nonwhite	Nonwhite	White	White
Preceptorship program	Did not participate	Participated	Did not participate

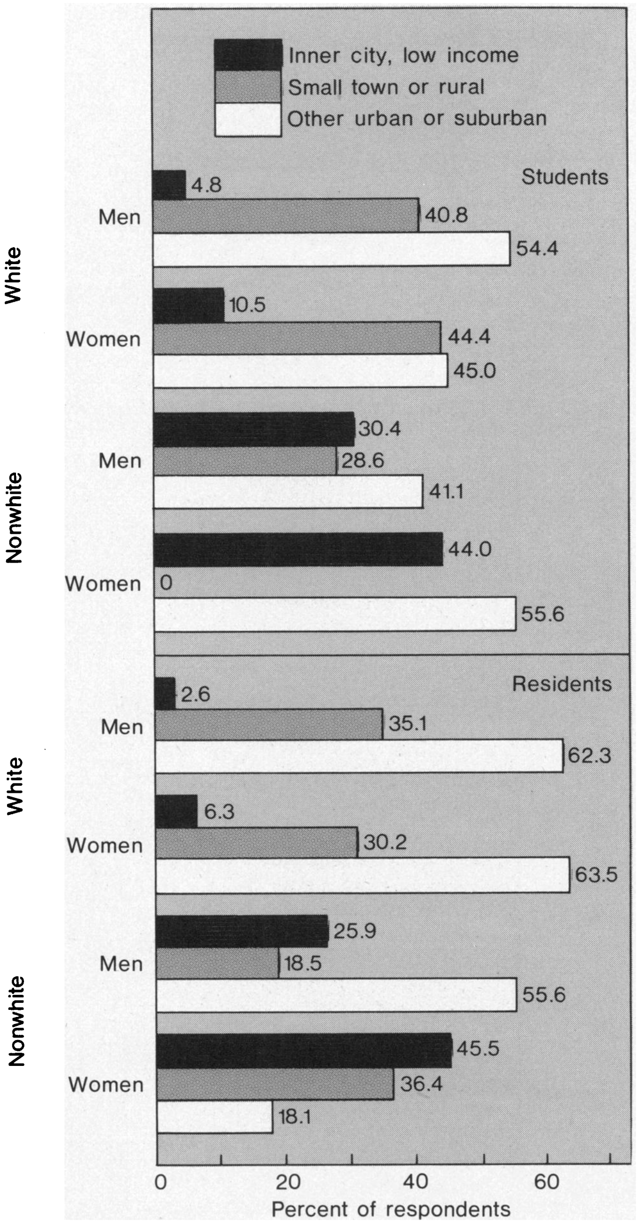
Table 5. Practice location preferences of students and residents, by sex, with race controlled

Preferred practice location	*White*				*Nonwhite*				*Total*			
	Men		*Women*		*Men*		*Women*		*Men*		*Women*	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
						Students						
Inner city, low income area	26	4.8	18	10.5	17	30.4	8	44.4	43	7.2	26	13.8
Small town, rural area	221	40.8	76	44.4	16	28.6	0	0	237	39.6	76	40.2
Other urban, suburban area	295	54.4	77	45.0	23	41.1	10	55.6	318	53.2	87	46.0
Total	542	100.0	171	100.0	56	100.0	18	100.0	598	100.0	189	100.0
						Residents						
Inner city, low income area	8	2.6	4	6.3	7	25.9	5	45.5	15	4.5	9	12.2
Small town, rural area	108	35.1	19	30.2	5	18.5	4	36.5	137	33.6	23	31.1
Other urban, suburban area	192	62.3	40	63.5	15	55.6	2	18.2	207	61.8	42	56.7
Total	308	100.0	63	100.0	27	100.0	11	100.0	335	100.0	74	100.0

it is not known whether this result accurately represents the nonwhite student and resident population as a whole.

Students and residents were asked to select from a set of community types the one most like the community in which they had lived during their high school years. Figure 7 shows that there is a strong relationship between place of rearing (for which community lived in while attending high school was a proxy) and location preference. Since the questionnaire sent the residents failed to break out "inner city, low income" from "large metropolitan" area, the grouping of responses for residents differs from that for students.

Fig. 6. Practice location preference of students and residents, by sex, with race controlled

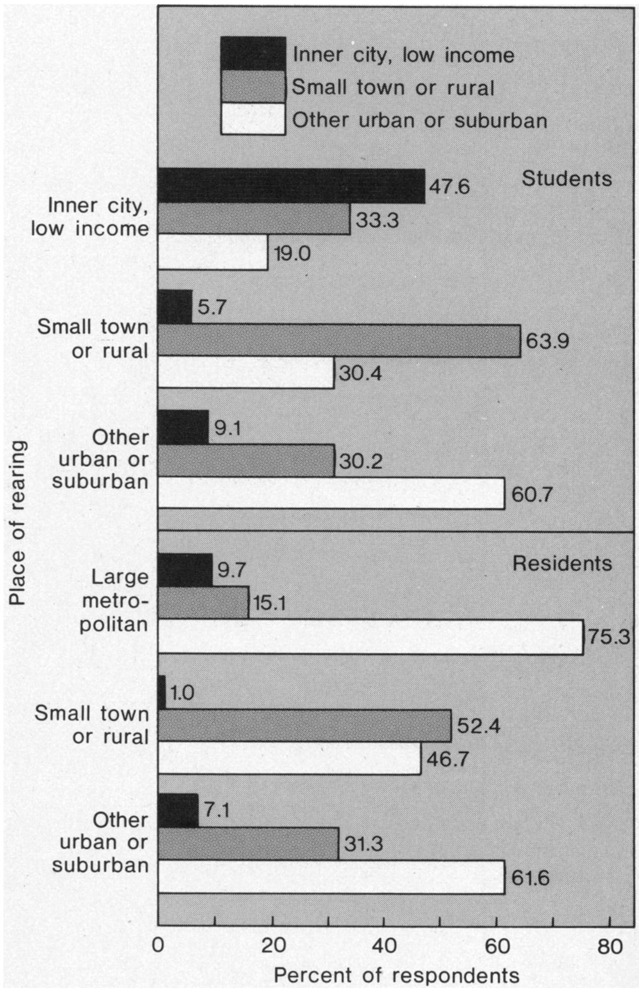


The data show that there was a close relationship between the respondents' preference as to location and specialty. Students and residents who preferred family medicine were more inclined to prefer practice in small towns or rural areas. Those with a greater inclination for an inner city or urban practice were more likely to be interested in specialties other than family medicine. Figure 8 shows the relationships.

Students and residents from osteopathic schools were more likely to be interested in practice in rural areas or small towns than graduates of allopathic schools (fig. 9). A similar difference was noted earlier with regard to specialty preference, osteopathic graduates showing a greater preference for a career in family medicine.

Students and residents who had preceptorship experience were more likely to show interest in rural or small town practice (fig. 10), and as shown in figure 5, they also expressed greater preference for family

Fig. 7. Practice location preference of students and residents, by place of rearing



medicine. However, the relationship of specialty and geographic preferences to participation in a preceptorship is not clear. Before a statement can be made as to the significance of such an experience, the study data must be subjected to further analysis to determine the degree of influence exerted by a variety of intervening variables. It is likely that multiple or predisposing factors operating simultaneously influence the career decisions of physicians.

Discussion

Since the mid-1960s, significant emphasis has been placed on increasing the number and accessibility of the physicians providing first-contact, primary care. The concerted efforts of the medical profession and Federal and State governments have resulted in a dramatic increase in the number of physicians being trained in the primary care specialties. Through congressional action, specific programs have been supported and incentives authorized to continue and strengthen this

Fig. 8. Intended practice specialty of students and residents, by practice location preference

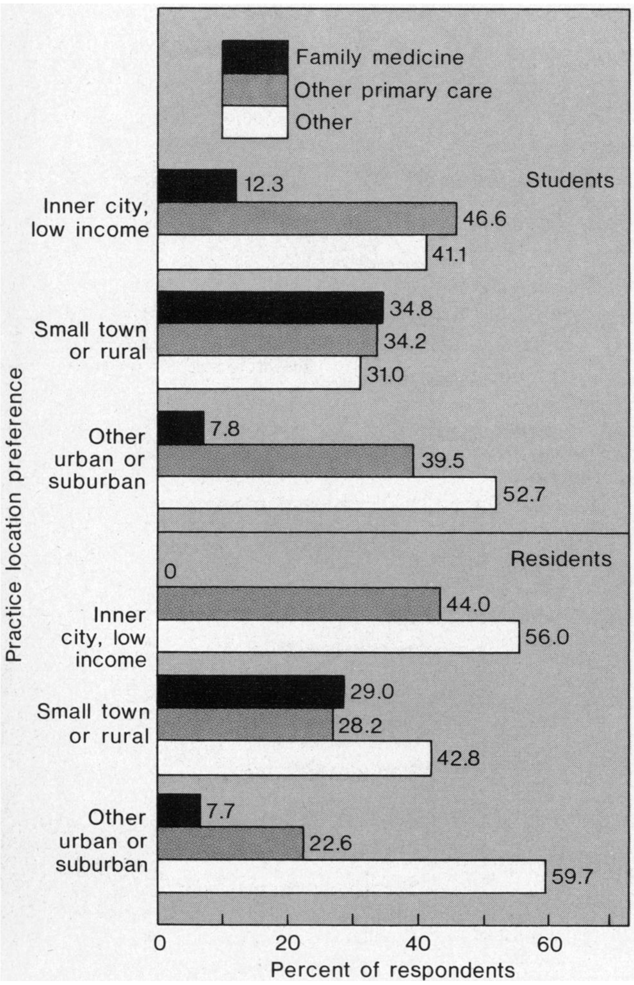


Fig. 9. Practice location preference of students and residents, by type of school attended

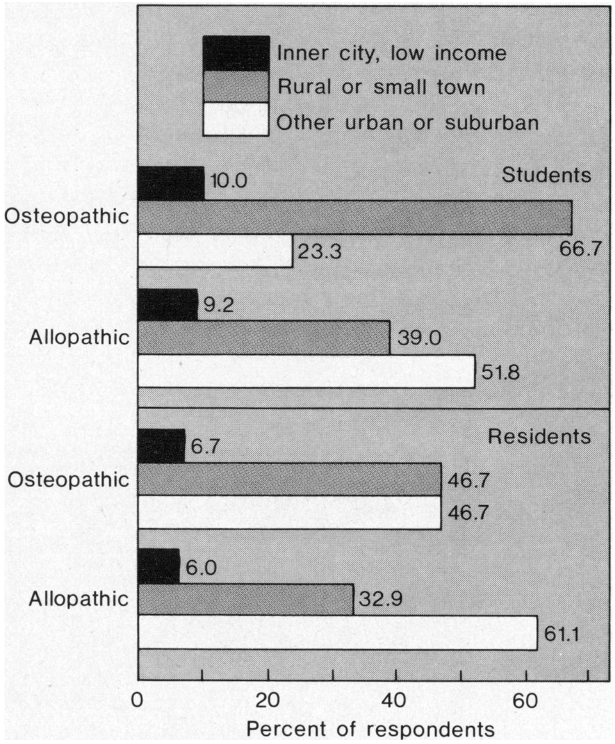
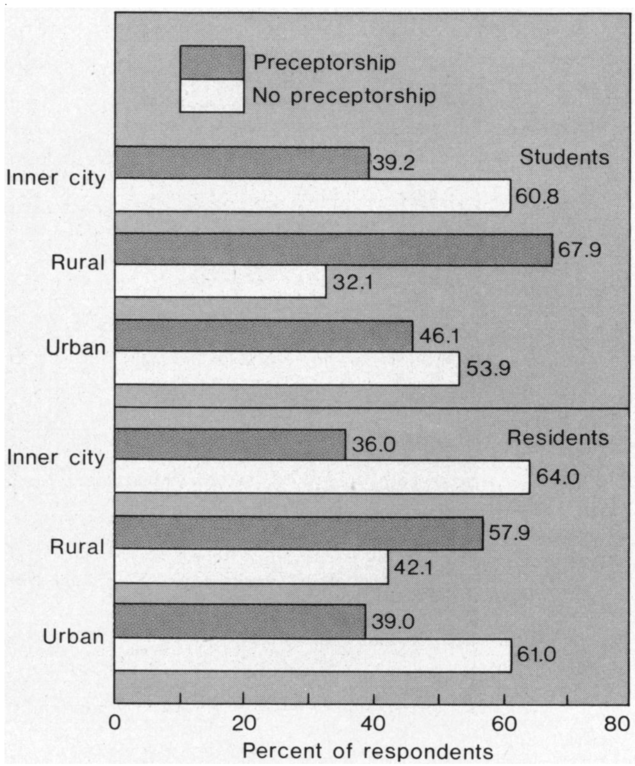


Fig. 10. Participation in one or more preceptorships, by students' and residents' practice location preference



trend. In the 1976 health manpower legislation (Public Law 94–484), the support of family medicine education and the provision of health care to underserved areas received particular attention. A number of medical schools responded by establishing new, or strengthening existing, departments or administrative units responsible for family medicine education. In addition, many institutions made curricular adjustments to permit an increase in the number and quality of primary care experiences offered to students during their predoctoral training.

At the residency level, training programs in family medicine have increased very rapidly since the late 1960s. With the passage of Public Law 94–484, Federal support also became available for the planning, development, and operation of residency training programs in general internal medicine and general pediatrics. In short, increasing the number of primary care providers has been, and continues to be, a national priority.

Preceptorships appear to be a significant component of primary care education, particularly family medicine education. More than 75 percent of the preceptorship programs surveyed in the study were sponsored by departments of family medicine (57.7 percent), internal medicine (6.6 percent), and pediatrics (12.4 percent). Furthermore, the views of the primary care proponents of the 1920s and 1930s—that observation and participation in providing patient care in the "real" world adds an important dimension to the education of the physician—appears to be firmly supported today.

In interpreting the study data, an attempt was made to analyze the relative influence of preceptorships by means of multivariate contingency tables. The models that resulted show respondents' preferences as to medical specialties and practice locations and demonstrate that significant relationships exist between specific factors and the career intentions of physicians. It should be remembered, however, that the predictive power of the models is valid only when applied to the group and not to the individual student or resident. Similarly, personality tests have been used to predict group behavior but have been less successful in explaining individual choices or actions. The value of the models, therefore, is that they shed some light on group characteristics in terms of career preferences.

Although many of the factors that are significantly related to the selection of a specialty and the geographic location of practice were the same for both students and residents, there were notable differences between them. Whether these differences were historical cannot be determined at the present level of analysis and therefore are not addressed here. For the same reasons, other differences between the students and residents cannot be construed as trends; nor considered significant. More indepth analysis of the data is expected to afford further understanding of the significant relationship of various factors and physicians' career decisions.

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