

Graduates of Family Practice Residency Programs in New York State

Report of a Committee of Directors of Research of New York State Family Medicine Residency Programs

The primary objective of family practice residency programs is to train physicians to give comprehensive and continuous health care to patients and their families, including management of the majority of their health care problems. The attainment of this goal cannot be assessed solely in terms of the total number of graduates from such programs. Instead, a valid assessment of the present and potential effects of family practice graduates on the health care system must also consider the geographic distribution of these graduates; their degree of involvement in direct patient care, teaching, research, and administrative activities; their demographic characteristics; and their practices.¹

The evaluation of residency programs and the eventual careers of their graduates is essential to the health care planning process because (1) it provides health care planners with information for the assessment of efforts to make health care more available; (2) it supplies legislators with a basis for decisions about funding of graduate medical education programs and other primary care projects; and (3) it facilitates efforts to coordinate medical education policies with health care policies. The current questions regarding physician manpower requirements can only be answered accurately with rigorous continuous follow-up studies of primary care residency graduates, particularly in family practice.

To date, the impact of family practice residency graduates has not been adequately measured because of the newness of the discipline and consequently the small number of graduates. Now, ten years after the initiation of the first family practice residency programs, there is a modest but sufficient number of graduates to permit preliminary analyses of residency trained family physicians and their practice characteristics. The discipline of family practice presents a unique opportunity to do a longitudinal study on the impact upon the health care system of a new kind of health care personnel.

Previous Studies

The need for reliable physician demographic and practice data has long been recognized, but it is only recently that organized efforts have been undertaken to collect this information in a systematic way. Motivated by federal government concerns about physician number and distribution (by specialty and locale), medical education programs have begun studies to demonstrate the degree of compliance with national physician manpower directives.²⁻⁴ Expectedly, the great majority of programs chose to focus upon the geographic distribution and specialty selections of their graduates. State retention rates, reasons for the choice of a practice location, frequency of selection of the several specialties, and changes in specialty certification are the main topics covered in these studies. Some studies also include information on the type of practice and basic physician demographic data. Analyses concentrate upon the relationships between population density of the practice location and that of the physician's hometown; type of practice and practice locale; physician age and practice locale; physician specialty and practice locale; and economic factors and biographical events (place of birth, place of medical school and residency) and practice locale.^{3,5-9}

These studies have produced similar findings. The desire to be near family, preference of the spouse, and the geography of the locale are the most frequently cited factors in the choice of a practice location.^{5,6,8} There has been an increasing trend for group practice and partnership, with a decline in the number of graduates establishing a solo practice.¹⁻⁵ This trend has been attributed to the desire for guaranteed time off.⁶ Studies also seem to concur on the finding that physicians originally from low population density areas (before entrance to medical school) are more likely to establish their practice in similar low population density^{5,7,10} areas. Investigations on physician ac-

tivity show that most physicians spend their time seeing patients, while few are engaged full-time in teaching, administration, or research.^{2,4,11}

There are two major problems, however, when data from the various studies are compared. First, the specific questions asked of the physicians are not given. While publication of lengthy questionnaires is not practical, investigators should make copies available. Secondly, surveys of recent graduates and those of graduates within arbitrarily designated time periods (ie, 1960-1970) yield different data,^{2,12} especially in regard to practice location, patient problems, and size of practice population. In the first instance, physicians are asked about recent decisions while the second abstracts data about decisions made in the past or reflects recent decisions about subsequent practice locations. Since priorities and conditions change over time⁸ (result of the formation of a family, development of a practice), data from the two types of studies are not comparable. While American Medical Association (AMA) publications¹³ include data on physician age, specialty designation, rural vs urban practice locale, and type of practice and activity patterns, these data are for the entire physician population and do not permit analyses of how a practice develops and changes. It was this lack of longitudinal data about primary care physicians that led to a decision to survey family practice residency graduates in New York State. These data are needed by training programs and other groups, both private and governmental, that have an interest in primary care.

Methods

All physicians who graduated from family practice residency programs in New York State were surveyed for demographic and practice characteristic data via postal questionnaires.* Each family practice residency program was responsible for contacting its own graduates and mailing the questionnaires since it was anticipated that each program would (1) have current addresses of and contact with its graduates; and (2) have a posi-

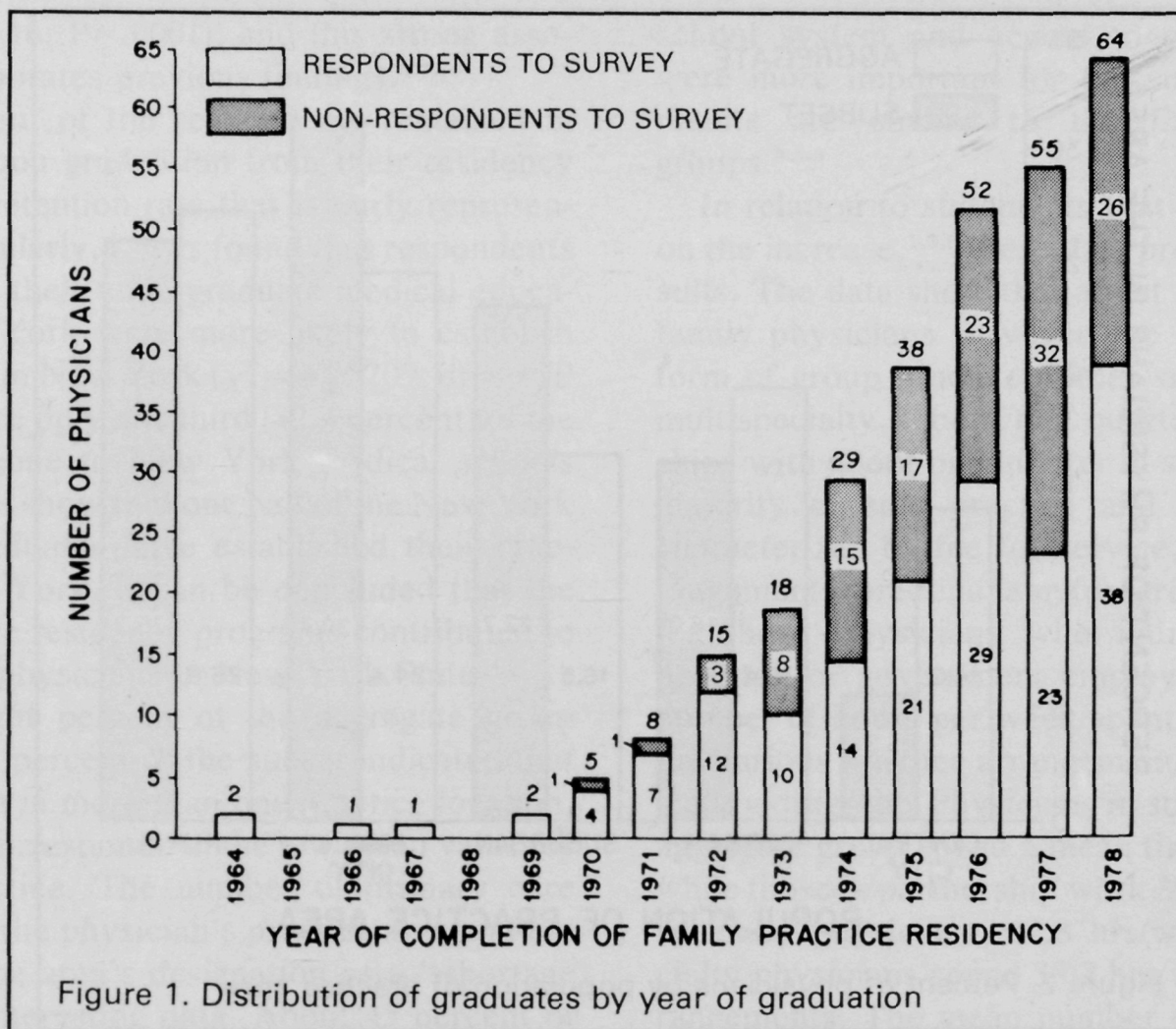
tive influence on the response rate of their own graduates. Physicians were asked to return completed questionnaires to their program. The questionnaires were forwarded to the State University of New York at Stony Brook where the data were entered into computer and analyzed. The questionnaires consisted of two parts and were designed to elicit four categories of information about the graduates: (1) demographic data, including age, sex, race, population of hometown, type of high school, years of practice, board certification, and place of undergraduate medical education; (2) practice characteristics, such as type of practice, number of hours per week spent in various professional activities, practice location, and reasons for the choice of that practice location; specifics of practice setting, ie, type and number of personnel working with the physicians, number of outpatients seen per week, size of the practice population, hospital privileges, and practice management procedures; (3) graduates' assessment of their residency training in relation to the demands of their practice; and (4) a categorical index of the most frequently encountered patient problems.

The first part of the questionnaire dealt with the demographic and practice characteristic data. The second half consisted of charts listing skills in the following six specialty areas: internal medicine, preventive medicine, obstetrics-gynecology, pediatrics, psychosocial medicine, and surgery. Physicians were asked to assess their performance of professional skills according to the following criteria: (1) whether or not the skill is performed; (2) if not, why (hospital privileges, own choice, cost of malpractice insurance, offend other specialists); (3) their estimate of the relevance of that skill to family practice; and (4) how qualified they feel to perform that skill. This paper reports on the data from the first half of the questionnaire.

Efforts to conduct as comprehensive a survey as possible resulted in a lengthy questionnaire. The second section specifically demanded an extensive amount of time for completion and these factors could possibly account for a decreased response rate. In spite of the limitations imposed by the method of administration (postal), small sample size, and the detail of the questionnaire, the response rate fell well within the range of the professionals' response rates.^{1,2,4,14,15}

Of a 301-physician sample, 184 completed questionnaires were received, yielding a total re-

*Questionnaire available upon request



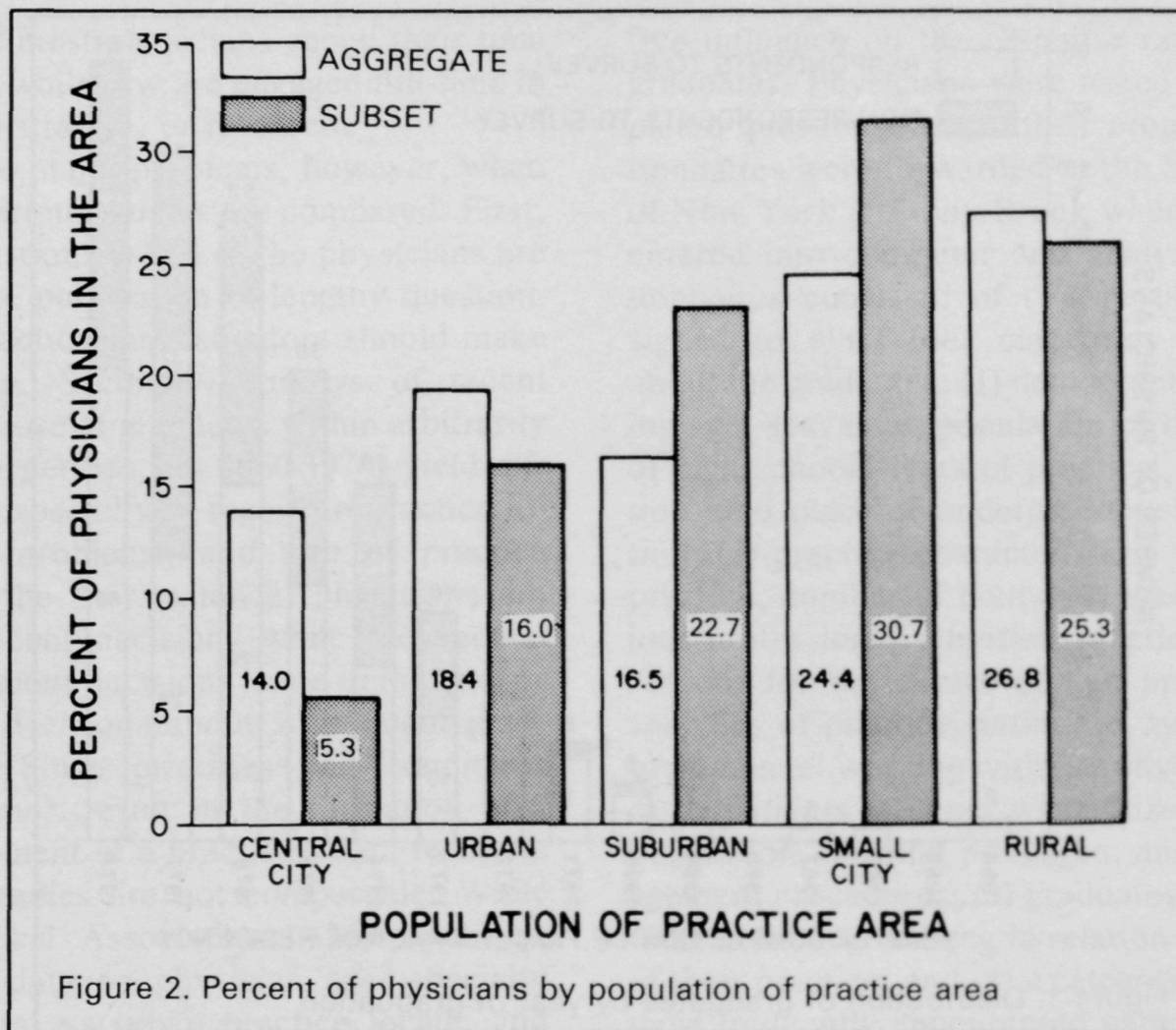
response rate of 61.1 percent. Each program was asked to conduct telephone surveys of non-respondents to determine if they differed significantly from the respondents. The telephone survey questionnaire for non-respondents contained questions pertaining to demographic characteristics, population density of the practice area, hours per week devoted to various activities, type of practice, teaching, practice location, and population density of the physician's hometown. These questions were selected from the original questionnaire to eliminate any possible effects due to different wording. Contact with 55.9 percent of all non-respondents revealed no significant differences. Non-respondents were primarily male (94.1 percent) vs 89.3 percent for the respondents, with a slightly larger number of minorities (10.6 percent) as compared to 8.4 percent for the entire sample.

Results

These data and analysis are based upon a total of 170 (N=170) completed questionnaires. Since an additional 14 questionnaires arrived after the analysis, they are included as part of the overall

response rate. It is also noted that although 170 completed questionnaires were used for this data analysis, some survey questions were left blank by some respondents. The figures and tables, therefore, include only actual responses to specific questions. In addition to frequency distributions for all cases, the Committee selected a subset (herein referred to as the subset) of family physicians engaged in full-time direct patient care who have been in practice for at least two years. This group contained 75 physicians. There were 95 physicians who have been in practice for less than two years, are full-time teachers, or who practice less than 15 hours per week. For ease of discussion, values presented first refer to the aggregate, while values presented second refer to the subset.

An examination of the demographic characteristics of the 170 respondents demonstrates that family practice is a relatively new field. The number of graduates from the training programs has been steadily increasing as demonstrated in Figure 1. The mean age for the entire group is 33.2 years (standard deviation 4.5) and 35.2 years (SD 4.96) for the subset (90.7 percent). Minorities (black, Oriental, other) comprised 8.4 percent of



the total respondents and 8 percent of the subset. Approximately 84 percent of the physicians in the sample indicated that they were certified by the American Board of Family Practice, while 96 percent of the subset indicated Board certification. The mean value for the number of years in present practice for both groups was low. On the average, these family practice residency graduates have been in practice 3.03 years, with the subset exhibiting a slightly higher value of 4.05 years. The low values for the aggregate group are due to the large number (76) of respondents who have only been in practice for one year or less. The highest reported values of 11 and 14 years correspond to respondents who included practice experience prior to their family practice residency training as part of the total years in practice.

In an examination of the type of high school (public vs private) attended by the physician, there was little difference between the aggregate and the subset, with public high schools dominating (78 and 81 percent, respectively).

The population densities of both the area near the physician's high school and the physician's present practice location were categorized accord-

ing to the following schema. The category central city denoted the downtown area of a city having a population of 50,000 or more; urban denoted a city of 50,000 or more; suburban denoted a residential area adjacent to a city of 50,000 or more; small city denoted an area with a population between 7,500 and 50,000; and rural denoted an area with less than 7,500 people. Data on the population density of the area of the physician's high school demonstrated a definite bias toward lower population areas. Only 25 percent of all the physicians and 22.6 percent of the subset have lived in urban areas prior to entrance to high school. The remainder of the cases were fairly evenly distributed among the other categories. The population density of the physician's practice location was similarly biased. Greater than 50 percent (51.2 percent for the aggregate, 56.0 percent for the subset) of both groups described their practice location as either small city or rural (Figure 2). A chi-square test of significance was performed to determine the degree of association between the population density of the physician's high school area and that of the physician's practice location. The association was shown to be significant ($\chi^2 =$

46.05178; $df=16$; $P=.0001$), and this strong association corroborates previous findings.^{5,7,10}

Fifty percent of the respondents remained in New York upon graduation from their residency programs, a retention rate that is fairly representative.^{2,3,7} Similarly, it was found that respondents who received their undergraduate medical education in New York were more likely to establish their practice in New York ($\chi^2 = 4.55209$; $df = 1$; $P = .0329$). Since only one third (32.4 percent) of the sample had gone to New York medical schools and the results show that one half of the New York residency graduates have established their practices in New York, it can be concluded that the family practice residency programs contributed to a net gain of physicians in New York State.

Twenty-eight percent of the aggregate group and nearly 22 percent of the subset indicated that they had been in more than one practice location, a result that corresponds to the low mean value for years in practice. The number of primary care physicians in the physician's practice area and the question of the area's designation as a "shortage area" yield interesting data. About 45 percent of the aggregate and 50 percent of the subset physicians are in physician shortage areas although one fifth did not know. The physicians in both groups indicated similar figures for the mean number of primary care physicians (29.8 and 28.2) in their practice area.

An analysis of the reasons for the choice of a particular practice location produced results that correspond to those reported by previous studies. Each physician was asked to select and rate those factors (out of a list of 14) that figured prominently in his/her decision about his/her present practice location. The 14 factors that were presented in the questionnaires were ones that had been shown to be relevant in other studies. The physicians were to assign a value from one to nine to each of their selected factors, the most important to be rated with a one. A weighted mean value for each of the 14 factors was calculated according to a formula noted in Table 1. It appears that being near home and family was very important for both the aggregate and the subset. The spouse's preferences and guaranteed income also figured prominently in the physician's decisions. Logically, the factors of National Health Service Corps and nearness to the family practice residency attended were more important for the aggregate group, while an area's

school system and access to cultural activities were more important for the subset. Again, the results are similar to the findings in other groups.^{3,5-9}

In relation to statements that group practice is on the increase,^{1,5,6} these data present relevant results. The data show that about 30 percent of the family physicians surveyed are engaged in some form of group practice, either single specialty or multispecialty. About one quarter are in partnerships with about one quarter in solo practice. The majority of solo practice and partnerships are characterized by fee for service, while salary arrangements predominate for group practice and for those physicians who indicated academic, hospital, or government employment. The mean number of hours per week spent by physicians in the various practice arrangements were not significantly different. Physicians in solo practice in the aggregate group spend a mean time of 38.8 hrs/wk while those in partnership work 39.3 hrs/wk, single specialty physicians, 42.8 hrs/wk, and multispecialty physicians spend 38.2 hrs/wk in practice arrangements. The mean number of hours spent in practice arrangements for the physicians in the subset group was 38.9 hrs/wk in solo practice, 46.1 hrs/wk in partnerships, 44 hrs/wk in single specialty, and 46.8 in multispecialty practices. These figures do not represent distinct or mutually exclusive categories since physicians were asked to indicate the amount of time spent in any or all of the settings and many physicians were involved in more than one practice arrangement.

An examination of the activity patterns of the family physicians, ie, how their time is allotted during the work week, reveals that the physicians spend the greater part of their time seeing patients (mean of 27.9 hrs/wk for aggregate; 31.3 hrs/wk, subset) primarily in the office. These findings are consistent with the results of other such studies.^{2,4,15} Seeing patients in the emergency room and hospital accounted for an average of another 13.4 hrs/wk for the aggregate group and 12.3 hrs/wk for the subset, while seeing patients in nursing homes or on house calls accounted for less than 5 hrs/wk for both groups. The mean number of hours spent in administration, teaching, continuing education, and research is small when compared to time spent in direct patient care (Table 2).

Of particular interest is that 72.7 percent of the aggregate and 76.7 percent of the subset noted that

Table 1. Reasons for Choice of Present Practice Location	
Aggregate	Subset
Near Home, Family	Near Home, Family
Weather	Weather
Guaranteed Income	Preference of Spouse
Preference of Spouse	Guaranteed Income
National Health Service Corps	Guaranteed Time Off
Guaranteed Time Off	School System
Near Family Practice	Access to Cultural Activities
Residency Attended	Obligation to County
Teaching Opportunities	Near Family Practice
School System	Residency Attended
Access to Cultural Activities	Hospital Privileges
Hospital Privileges	Teaching Opportunities
Obligation to County	National Health Service Corps
Obligation to State	Obligation to State

Factors ranked in decreasing order of importance. Weighted values calculated from:

$$W = \frac{\sum \bar{X} F_i V_i}{\sum X F_i}$$

X=Total number actual responses
W=Weighted X value
F=Frequency of selection
V=Rank assigned by MD (Range=1 to 9)
F_i=Total number MDs selecting that factor

they were involved in training physicians. The data show that a majority of family physicians are not paid if they teach in their offices or in hospitals, while most family physicians are paid to teach in a model family practice unit. The majority (68.8 percent of the aggregate group and 74.3 percent of the subset) felt that their preparation for teaching was adequate to fairly adequate. Twenty-one percent of the aggregate group and 16.7 percent of the subset reported more than adequate training, with 11.2 percent of the aggregate and only 9.1 percent of the subset indicating that their program's training was less than adequate or not adequate at all.

Certain patterns emerge regarding the number and type of personnel who assist the physician in the practice setting, practice management procedures, and patient profiles. Nurses, office assistants, and secretaries were most frequently cited as the personnel who worked with the physicians. In the majority of cases, the individual

staff-to-physician ratios were one to one. When asked about practice management procedures, nearly 99 percent of both groups stated that they used appointments; nearly 90 percent of both groups used the problem oriented medical record, and nearly 28 percent of both groups reported using a diagnostic index (E-Book). About 60 percent of the physicians in both groups felt that their family practice residency program provided fairly adequate to adequate training in practice management. Of the remaining 40 percent, about 6 percent rated their practice management training as more than adequate and about 30 percent as less than adequate or not adequate at all.

In regard to patient profiles, the aggregate reported seeing a mean of 111.8 outpatients per week, the subset, 132.7. It should be noted that the values given by the physicians were based upon their best estimates in most of the cases (85 percent, 87 percent for the subset). A high percentage

Table 2. Mean Number of Hours/Week Spent in Various Professional Activities

Activity	Aggregate		Subset	
	\bar{x} hrs per wk	Standard Deviation	\bar{x} hrs per wk	Standard Deviation
See Patient in Office	27.92	10.96	31.32	8.56
See Patient in Emergency Room	5.88	2.42	4.72	2.27
See Patient in Hospital	7.53	7.11	7.64	5.00
See Patient in Nursing Home	1.72	1.25	1.59	1.04
House Call	1.2	0.66	1.13	.336
Operating Room	2.36	2.21	2.30	2.25
Industry or School	3.32	4.58	2.85	2.48
Administration	6.62	8.57	3.55	3.86
Continuing Education	5.09	4.58	4.11	2.66
Teaching	5.73	6.38	3.15	3.89
Committees	1.95	1.54	1.89	1.20
Research	2.81	2.97	1.80	.447

of the physicians (88.5 percent, 85 percent) said they accepted medicaid patients, who comprise approximately 18 percent of the patients seen by both groups. Attempts to obtain similar information from Medicaid on the general physician population were unsuccessful. Based upon the Committee's own impressions, it was felt that the reported values are higher than those for the general physician population.

Since family physicians ideally care for all members of a family, it was interesting to note the physicians' estimates of the proportion of their practice involving more than one member of the same family. The aggregate gave a mean value of 69 percent, the subset about 72 percent. While these data may be somewhat exaggerated, they provide some idea of the type of care rendered by family physicians. Of additional interest are the figures for the proportion of outpatient to inpatient (hospital) encounters. About 90 percent of the encounters for both groups were described as the outpatient type based upon the physicians' estimates. Family physicians are trained to be ambu-

latory care providers and these data provide confirmatory evidence. Hospital privileges for family physicians is another area that drew the Committee's attention since the implications are far reaching. Nearly 90 percent of the physicians surveyed (both groups) reported admitting patients without consultation, and 81.8 percent of the aggregate group and 93.3 percent of the subset listed their hospital privileges as complete. Twenty-one percent have joint privileges, 2.9 percent of the aggregate and 1.4 percent of the subset have courtesy privileges, and 0.7 percent of the aggregate and 1.0 percent of the subset have only visiting privileges. Of great significance was the finding that a minority (23.1 percent of the aggregate and 18.3 percent of the subset) of the physicians felt the hospital privileges granted to them were less than equal to their level of competence.

Conclusion and Summary

There are insufficient data about the careers of family physicians, correlation between physician

characteristics with practice characteristics, adequacy of family practice training programs, changes in physician career patterns over time, and relationships between medical education and actual practice. More in-depth follow-up studies of residency graduates are required in order to acquire sufficient quantities of accurate data needed to implement sound medical education and primary health care policy. The study discussed in this report was conducted to partially remedy this situation.

The Committee surveyed 301 graduates of family practice residency programs in New York State and achieved an overall response rate of 61.1 percent. A total of 170 questionnaires were analyzed resulting in the data for this study. The majority of the respondents were male, white, about 33 years of age, and were in practice for an average of three years. Most came from low population density areas and also reported setting up their practice in similar low population density areas. A chi-square test of significance indicated a strong degree ($P \geq .0001$) of association between these two variables. The desire to be near one's family, spouse's preferences, and guaranteed income were the main factors listed as inducements to locate the practice in a particular place. Fifty percent of the respondents had their practice in New York. About 30 percent of the physicians were in some type of group practice, one quarter in solo practice, and another quarter in partnership. The physicians surveyed spent most of their time seeing patients, primarily in the office. Seventy percent indicated that they were involved in some way in the training of residents, medical students, or physician support personnel, but were paid most frequently when the teaching setting was the model family practice unit. Outpatient encounters far outnumbered inpatient encounters, and most of the physicians had complete hospital privileges that were compatible with their levels of competence.

Many of these findings, especially those related to type of employment, allocation of time, place of practice location, and reasons for the choice of a practice location, appear to reiterate results of previous studies on other medical graduates.

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