

The Characteristics of Internists in Three Prepaid Group Practices

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IN 1963, Kroeger and co-workers examined the office practice of internists in private practice in New York State (1). The authors studied the characteristics of internists who were members of the New York State Society of Internal Medicine. Their series of papers described the diagnoses and presenting complaints of the internists' patients seen in the office, time spent in patient care in office, home, and hospital, and average numbers of patients seen.

Because of the frequently heard comment that internists in private practice were different and practiced differently from internists in prepaid group practice (ppgp), we undertook this study in 1970 to analyze the demographic and practice characteristics of 61 internists in three ppgp programs and to compare, whenever possible, the characteristics and practice patterns of the ppgp internists with the 505 New York internists described by Kroeger and co-workers. The interval between the two studies was 7 years, the methods

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employed differed (mailed questionnaire and analysis of records), and neither study used a random sample of internists. Any comparisons of the two groups must be interpreted in the light of these differences.

Demographic characteristics of internists in the East Nassau Medical Group-Health Insurance Plan of Greater New York (East Nassau); the Medical Group of the Cleveland Community Health Foundation, now the Ohio Permanente Medical Group (Cleveland); and the Kaiser Permanente Clinic in Portland, Oreg., (Portland) were determined. The characteristics of office practice were determined for the East Nassau and the Cleveland programs only.

Review of the Literature

Very little is known of the office practice of internists, regardless of practice arrangements or methods of compensation. Available information concerns only their hospital practice and is a part of the literature on medical audit and quality of care (2).

Considerably more information is available about the office practice of general practitioners. Peterson and co-workers in the United States (3), Clute in Canada (4), and Jungfer and Last in Australia (5) have used the technique of direct observation of the general practitioner. Their studies were mainly concerned with quality of care and raised some serious questions as to quality. They were, however, process studies which did not consider patient outcomes in those instances where quality was judged less than satisfactory.

A number of studies of general practice in England have been concerned with the cataloging of patients by diagnostic categories. Some English general practitioners have attempted to keep a running tally of patients seen in their practices (6). This technique was used in the United States in a study of eight general practitioners carried out by Last and White (7).

Brody and Stokes (8) reported a time-motion study of a small random sample of internists and general practitioners in San Diego, Calif., and determined that only 61 percent of the time spent by the 20 physicians they studied was in direct patient care. In time-motion studies of four pediatricians, Bergman and co-workers (9) found that only 49.4 percent of their time was spent in direct patient care, with another 12.5 percent spent answering telephone calls—a total

of 61.9 percent in direct patient contact. They also found that approximately 50 percent of the pediatrician's time in the office was spent in well-baby care and 25 percent in treating respiratory diseases. The authors raised the question of the relevance of pediatric training to pediatric practice.

Sellers analyzed the practices of eight Canadian general practitioners in private practice, four in multispecialty groups and four in solo practice. The average number of office patients seen daily was 20, but both groups of general practitioners averaged 18 hospital visits per day (10). These data are compatible with the proportionally larger number of beds for acute care in general hospitals and greater hospital utilization reported in Canada (11). In another study by Vayda and Kopplin, three internists in a ppgp program in Canada each averaged seven hospital visits per day (12).

The Setting

The practice settings in East Nassau and Cleveland were analyzed in detail by direct observation and by an analysis of questionnaires that were completed by the physicians and administrators in each program. In the Portland program, a detailed analysis was not carried out, since only the demographic characteristics of the

Table 1. Weekly work schedule (in half-day sessions) for an internist in two prepaid group practice programs

Work schedule	East Nassau	Cleveland
Total hours in office (theoretical)	27	33¼
Average length of session (hours)	3	3¼
Total sessions	¹ 12	12
Regularly scheduled day sessions	7	9½
Regularly scheduled evening sessions	1	² 0
Sessions for teaching or fulfilling hospital commitments	2	2
Time off (sessions)	2	³ 1½

¹ No regularly scheduled appointments on Saturday afternoon, but each internist works 1 evening session.

² No regularly scheduled evening sessions.

³ 2 half-day sessions off 1 week, 1 half-day session off alternate week.

NOTE: East Nassau—East Nassau Medical Group-Health Insurance Plan of Greater New York; Cleveland—Medical Group of the Cleveland Community Health Foundation, now the Ohio Permanente Medical Group.

internists in this plan were studied. An historical analysis of the Portland plan has been reported by Saward and co-workers (13), and the membership growth and ratios of physicians to members at different membership sizes computed. A 1968 study of utilization of services by a 5 percent random sample of members of the Portland program provides some evidence of the comparability of that program to the two studied in detail (14).

Both Cleveland and East Nassau are direct service ppgp programs. The Cleveland program has been described in several reports (15-18). Cleveland and East Nassau differ from the Portland program in that neither operated hospitals and both used community hospitals at the time of this study. Now, however, both operate their own hospitals.

The basic components of a prepaid group practice program have been summarized (19):

1. A nonprofit health plan operated by a community board of directors.
2. All potential health plan members to have a choice between ppgp and alternative insurance carriers. Health plan membership to be voluntary, with periodic opportunities for new members to join and previously enrolled members to leave the program (dual choice).
3. A broadly based health plan membership as representative of the entire community as possible.
4. Medical care rendered on a strictly professional basis—not controlled, directed, or interfered with by the health plan.
5. Physicians organized as a partnership contractually related to the health plan with payment to the medical group on a per capita, not a fee for service, basis.
6. Comprehensive benefits for health plan members covering all preventive, diagnostic, and therapeutic services in office, hospital, and home.

The characteristics of the East Nassau and Cleveland plans are summarized in the box.

Table 2. Minutes per scheduled appointment in two prepaid programs

Visit	East Nassau	Cleveland
Complete physical examination of new patient	30	¹ 30-45
Repeat physical	30	30
Return visit:		
Center A	15	15
Center B	10-20	15

¹ 30 minutes for patients 39 years old or younger and up to 45 minutes for those aged 40 or older; new patient, complete physical examination only.

Scheduling rules for internists are shown in tables 1 and 2. The similarities between the two programs are apparent.

Methods

The personnel records and the curricula vitae of the internists in East Nassau, Cleveland, and Portland were examined and abstracted in March 1970. Descriptive questionnaires for the East Nassau and Cleveland programs were completed at that time, and the scheduling rules for internists in these two programs were abstracted.

Patient visits carried out by each internist in the East Nassau and Cleveland programs were tallied by examining their completed appointment ledgers for 1 week in March 1970. Charts of patients seen were then examined, selecting 1 full day for each internist during the week under scrutiny. The investigators reviewed the charts and completed an abstracting form for each visit. The abstracting form provided information about age, sex, diagnosis, and disposition. Additional information was abstracted from the charts of all new patients who appeared for a

Comparison of two prepaid group practice programs

Characteristic	East Nassau	Cleveland
Sponsorship of entire program	Consumer-community	Consumer-community
Relationship between health plan and medical group	Contractual	Contractual
Organization of the medical group	Partnership which elects management committee	Partnership which elects management committee
Year program began	1956	1964
Hospital operated by plan?	No	No
Number of ambulatory facilities	2	2
Principal subscriber groups	New York City employees, New York State employees, boards of education (teachers), Federal employees	Auto workers, meat cutters, boards of education (teachers), Cleveland city employees, retail clerks

complete physical examination during the week in question. Hospital registers were examined for the week, and house calls were tallied for a month because there were so few.

The plans in this study were selected arbitrarily and generalization to all internists in ppgp is neither possible nor intended. The internists in the three programs were approximately 6 percent of all internists in ppgp in the United States, and the internists in East Nassau and Cleveland were approximately 3 percent of all internists in ppgp in March 1970.

Findings

Characteristics of internists. The mean age of internists in the three prepaid groups was 40.5 years. The mean age ranged from 38.6 years in the Cleveland program, which had been operating for 6 years, to 42.4 years in the Portland program, operating for 25 years (table 3). The average number of years that internists had been in the group was identical for Portland and East Nassau, despite the difference in duration of their respective programs (24 and 14 years). However, as Saward and co-workers reported (13), the major growth of membership and medical group size in the Portland program occurred in the past 15 years.

While the average age of the internists studied in 1963 (referred to subsequently as the New York internists) was not given, the age ranges indicate that 14 percent were more than 60. There were no internists above the age of 60 in the three ppgp programs, as the following comparison shows:

Age group (years)	3 prepaid plans		New York internists	
	Number	Percent	Number	Percent
Under 40.....	21	36	101	20
40 to 59.....	38	64	333	66
60 or older.....	0	..	71	14
Total.....	59	100	505	100

These data indicate that the New York internists were older than those in the three prepaid group practice plans. The age differences were statistically significant (chi-square = 14.3, $P < .001$).

Sixty-one percent of the internists in the three prepaid groups were board certified; the other 39 percent were board eligible. Seventy-two percent of the New York internists were certified. Approximately 5 percent of the New York internists were trained in foreign medical schools while 16 percent (nine) of the internists in the three prepaid groups were graduates of medical schools outside the United States or Canada.

Table 3. Demographic characteristics of internists in three prepaid group practice programs

Program	Duration of program (years)	Number of internists	Average age (years)	Average years in group	Average years of practice before joining group	Total years of practice
East Nassau.....	14	16	39.1	6.3	1.2	7.5
Cleveland.....	6	11	38.6	3.3	1.5	4.8
Portland.....	25	32	42.4	6.3	3.6	9.9
All 3 programs.....		59	40.5	5.7	2.7	8.3

Table 4. Medical school, postgraduate training, and board certification, three prepaid plans and New York internists

Program	Number of internists	Graduates U.S. schools	Graduates Canadian schools	American graduates foreign schools	Non-American graduates foreign schools	Mean months post-graduate training	Board certified	
							Number	Percent
East Nassau.....	16	13	0	2	1	51	12	75
Cleveland.....	11	8	1	1	1	50	6	55
Portland.....	32	27	1	2	2	46	18	56
3 groups combined.....	59	48	2	5	4	48	36	61
Percent:								
3 groups combined.....		84		16				
New York internists.....		95		5				72

Table 5. Time spent in patient care, per week, surveys of three groups of internists

Weekly schedule	New York internists (N=458)	AMA survey of private internists (N=438)	East Nassau and Cleveland internists (N=26)
Mean hours in office per internist	22.6	.....	29.5
Mean hours in hospital	9.9	.....	3.1
Mean hours for house calls	3.0	.....	.2
Mean hours spent in off-hours coverage in health center	.....	.....	¹ 4.4
Mean hours in practice	35.2	² 45.8	² 36.2
Mean days in office	4.7	.....	4.3
Mean minutes per patient in office	24.8	.....	18.9

¹ Cleveland only. Figures for East Nassau not available.

² $t=6.1, P<.001$.

SOURCES: New York internists, reference 1; AMA survey, reference 20.

However, five of these were Americans who had left the United States for their undergraduate medical training (table 4).

None of the internists in prepaid practice had less than 36 months of postgraduate training. Their average period of training was 48 months. On the other hand, 49 percent of the New York internists had less than 36 months of training (the average length of their postgraduate training was not given).

Following are the ratios of internists to population in the three prepaid programs.

Program	Number of internists	Membership Jan. 1, 1970	Approximate ratio internists to members
East Nassau	¹ 17	48,412	1:3,025
Cleveland	¹ 12	40,264	1:3,660
Portland	32	125,500	1:3,900
Total	61	214,176	1:3,500

¹ 1 general practitioner in urgency visit clinic.

The ratios range between 1:3,025 to 1:3,900 with an average of 1:3,500. Based on an approximate average family size of 3.5, it appears that one internist is required for each 2,000 adult health plan members, but because of unevenness of the growth of the plans and physician recruitment, this ratio is only approximated.

Practice characteristics of internists. The hours of practice (table 5) appear to be roughly equivalent in the prepaid practices studied and

for the New York internists. In 1967, Theodore and Sutter also carried out a study of internists, based on a random sample and a mailed questionnaire (20). They found that the average time spent by internists in direct patient care was almost 10 hours greater than the average time in this study, a difference that was significant statistically ($t = 6.1, P < .001$).

While the number of hours in practice in both this study and the study of New York internists are approximately equal, the distribution of work time differs somewhat. The internists in ppgp see about 20 percent more patients per week, mainly because of the larger number of office visits they provide. On the other hand, the New York internists spent three times as much time in the hospital as the internists in ppgp. The internists in the prepaid plans made virtually no house calls, but those in Cleveland saw approximately eight patients in the office each week during night or weekend duty. Comparable figures for East Nassau were not available. The ppgp internists saw approximately 86 patients in the office each week compared with 55 patients for the New York internists. Theodore and Sutter's finding of 77 office visits per week is more nearly in agreement with the ppgp internists, and the small differences found when their study and ours were compared were not significant statistically ($t = 1.4, P$ not significant, tables 5 and 6).

On any day of the study week approximately 10 percent of appointments in the two prepaid programs were not kept. Over a 1-month period,

Table 6. Number of patients seen per week, surveys of three groups of internists

Weekly schedule	New York internists (N=458)	AMA survey of private internists (N=432)	East Nassau and Cleveland internists (N=26)
Mean number of office visits per internist	54.6	¹ 77.2	¹ 85.8
Range of number of office visits	10-100+	13-212	39-133
Mean number of hospital visits	24.0	.....	8.5
Mean house calls	4.8	.....	.3
Mean number of patients seen evenings and weekends	.....	.....	² 8.0
Total patient visits	83.4	.....	103.4

¹ $t=1.4, P$ not significant.

² Cleveland only. Figures for East Nassau not available.

SOURCES: New York internists, reference 1; AMA survey, reference 20.

appointments not kept remained at about 10 percent. Half the appointments were cancelled and the patient failed to appear for the other half, but did not cancel his appointment. Approximately 95 percent of all patients seen in the two prepaid programs during the week studied were health plan members and only 5 percent were fee-for-service patients.

Characteristics of patients. There was a preponderance of females over males among the ppgp patients, but this sex distribution was identical for the patients seen by the New York internists, as the following table indicates:

Sex	New York internists		East Nassau and Cleveland internists	
	Number	Percent	Number	Percent
Male.....	1,900	43.3	176	42.6
Female.....	2,488	56.7	237	57.4
Total.....	4,388	100.0	413	100.0

NOTE: $X^2=0.1$, P not significant.

Differences in the age distribution of patients, however, were significant statistically. The ppgp internists saw more younger patients and fewer older ones than the New York internists, as the following table shows:

Age group (years)	New York internists		East Nassau and Cleveland internists	
	Number	Percent	Number	Percent
15-34.....	663	15.1	122	29.6
35-54.....	1,575	35.9	184	44.5
55-74.....	1,878	42.8	93	22.6
75 or older.....	272	6.2	14	3.3
Total.....	4,388	100.0	413	100.0

NOTE: $X^2=98.6$, $P < .001$.

Just over 50 percent of all patients seen for continuing care by the ppgp and New York internists were given return appointments. Approximately 18 percent of patients seen by the New York internists were returned to a referring physician (table 7). None of the patients of the internists in ppgp were in this category.

In table 8, patients receiving continuing care are classified by diagnostic categories. While cardiovascular disease was the commonest category in both types of practice, it was, proportionally, seen twice as frequently by the internists in private practice. Diseases of the respiratory system and of the bones and organs of motion were twice as frequent, proportionally, in the practice of the ppgp internists. Since these categories included minor infections of the upper respiratory system and ill-defined musculoskeletal conditions

and minor trauma, it appears that the ppgp internists saw a greater proportion of patients with minor problems. However, the differences in proportions of patients seen in the various diagnostic categories may be due to seasonal and geographic variations, as well as the younger age of patients in the ppgp programs.

Discussion

The study by Kroeger and co-workers was carried out in 1963 and ours in 1970. The methodologies, while similar in some respects, were not identical. Comparisons, while interesting, are subject to the limitations of different methodologies and different time periods. Although the three prepaid programs were selected for convenience, they did appear to be typical of the generic model of ppgp in the United States. There are, however, differences between various prepaid programs, and generalization to all ppgp internists is not intended. Although differences between ppgp internists and internists in private practice are suggested, it would require further studies to describe fully any differences.

It would be possible to draw a random sample of internists, stratified by private practice (solo, partnership, and group) and prepaid group practice. Demographic comparisons between internists would then be possible and a random sample of records of patients seen by the internists would allow generalization and comparisons.

The data from East Nassau and Cleveland have been combined because the two plans were similar in many respects. Although the number of scheduled office hours per week differed slightly, the average number of office patients seen by each internist was approximately equal (East

Table 7. Disposition of patients following the study visit, in percentages, surveys of two groups of internists

Disposition	East Nassau and Cleveland (N=413)	New York internists (N=4,608)
Return visit suggested (continuing care).....	52.1	55.3
No further care needed for this problem.....	25.8	14.2
Referred to other specialist.....	15.2	11.1
No information (not specified).....	6.9	.8
Return to referring physician.....		18.5

NOTE: N = total number of visits.
SOURCE: New York internists, reference 1.

Table 8. Diagnostic categories of patients under continuing care

Category	New York internists		East Nassau and Cleveland internists	
	Rank	Percent (N=4,388)	Rank	Percent (N=413)
Cardiovascular disease.....	1	29.6	1	15.2
Diseases of digestive system.....	2	11.6	4	9.2
Diabetes mellitus.....	3	6.5	10	4.1
Diseases of bones and organs of motion.....	4	5.9	3	10.9
Diseases of respiratory system, excluding tuberculosis.....	5	5.9	2	12.6
Mental, psychoneurotic, and personality disorders.....	6	5.3	7	5.6
Allergies.....	7	4.4	.....	1.2
Checkup.....	8	3.8	5	8.5
Diseases of the central nervous system and sense organs, including strokes.....	9	2.9	.....	1.5
Diseases of thyroid.....	10	2.7	.....	1.0
Diseases of genitourinary system, excluding nephritis.....	11	2.1	9	4.6
No diagnosis specified.....		1.7	6	5.8
Diseases of the skin and cellular tissue.....		1.5	8	4.8

NOTE: N=total number of patients.

Nassau 83.4, Cleveland 88.7). There were small differences in the length of time scheduled for some new and return patients.

Internists in both programs serve mainly as primary physicians for their patients. Those with subspecialty skills serve as consultants for their colleagues in their areas of special competence. This function, however, makes up only a small part of their daily activities.

With the exception of age, the demographic characteristics of the internists in fee-for-service and prepaid practice appear to be similar. This finding is not unexpected, since none of the prepaid programs studied has been in operation longer than 25 years, and most physicians recruited into prepaid programs have either just completed their residency training or have spent a brief period in private practice. Older and well established practitioners apparently have been less likely to exchange a successful, predictable, and profitable professional way of life for membership in a group practice program, especially a prepaid program which may be unpopular with their colleagues.

The fact that the ppgp internists were, on the

average, younger than the New York internists accounts in part for their longer periods of post-graduate training and also for the fact that fewer had achieved board certification. There were more foreign-trained internists in the prepaid plans, but the differences were not great (ppgp 16 percent, New York internists 5 percent). Similarities appear to outweigh differences when the two groups are compared demographically, and any differences could be explained by the age differential of the physicians. However, attitudinal studies might reveal true differences which are not apparent from demographic data alone.

Ppgp is now more acceptable and available as a practice alternative than it was 15 to 25 years ago. Technology, the increased acceptance of group practice, and changing social values in both society and this generation of physicians may account for this increasing acceptability.

An internist in the three ppgp programs studied serves approximately 2,000 adults. Because population denominators are not known for individual private practices, ratios of internists to population cannot easily be calculated, and comparable medical manpower determinations cannot be made.

The ppgp internists spent approximately 10 hours per week less in direct patient care than the group studied by Theodore and Sutter, a difference which was significant statistically. The reason for this difference is difficult to assess, since the breakdown of where patients were seen was not given by Theodore and Sutter. Ppgp internists provide essentially the same number of office visits per week as those in the sample studied by Theodore and Sutter. It may well be that the additional hours spent in direct patient care in their study represent a combination of differing regional practice patterns, greater numbers of hospital visits and house calls, and different criteria for what constituted direct patient care.

The New York internists scheduled and spent more time per office visit than the ppgp internists. Since 18.5 percent of the patient visits in the 1963 study were consultations, while few if any of the ppgp internists' office visits were in this category, these differences may be readily explainable. In addition, internists in ppgp see younger patients and provide more primary care. Overall, the New York internists spent less time in the office, but the total hours in direct patient care were equal to those of the ppgp internists

since the New York group spent more time in the hospital and on house calls.

Studies of hospital utilization in ppgp, even those in which data have been age standardized, have demonstrated significantly less hospital utilization than that found in fee-for-service practice (21-24). This lower utilization is associated with fewer total admissions, fewer surgical procedures, and fewer admissions for minor respiratory problems but with a length of stay equal to that found among persons insured by private carrier or Blue Cross.

Internists in this study and in the New York and Theodore and Sutter studies spent between 35 and 45 hours in direct patient care. This period falls short of the total work week of physicians which is usually reported. Additional time spent in teaching, driving, hospital committees, paperwork, and other activities would certainly bring the total up to the expected figure of 50 or more hours per week.

The ppgp internists, on the average, made less than one house call per week while the New York internists made 4.8. Some of this difference may be related to the overall decrease in numbers of house calls between 1963 and 1970. The Cleveland data indicate that each internist saw eight patients per week in the evening or during the weekend in the office. While the ppgp internists made infrequent house calls, they provided services at off hours in the office facilities. Because of a night and weekend rotation system, the Cleveland internists provided these services during a single tour of duty rather than irregularly during the entire week.

While the diagnostic characteristics of patients under continuing care are somewhat different, the same four categories appear among the five commonest diagnostic categories in both types of practice. Diseases of the cardiovascular system, digestive system, respiratory system (excluding tuberculosis), and of the bones and organs of locomotion comprised 53 percent of all diagnoses among the patients under the continuing care of the New York internists and 47 percent of all diagnoses by internists in the two prepaid programs. As previously indicated, seasonal variations were not controlled, and they may be responsible for some differences in diagnoses. However, primary and continuing care appear to make up a substantial part of the practice of internal medicine whether in prepaid or fee-for-service practice.

The difficulty in making valid comparisons between uncontrolled nonrandom studies has been repeatedly stressed. Studies such as this one and those by Kroeger and co-workers should be supplemented by other, more rigorously designed research on practice and practitioners. An accurate inventory of the activities which make up the practice of internal medicine in different settings would facilitate comparisons and could provide a basis for reassessing both the content and the setting of postgraduate training in internal medicine.

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Demographic and practice characteristics of 61 internists in three prepaid group practice (ppgp) programs were determined in 1970 and compared with data obtained in 1963 from 505 internists in private practice who were members of the New York Society of Internal Medicine. Internists in ppgp were younger, but otherwise the two groups of in-

ternists differed little when board certification, postgraduate training, and site of undergraduate education were considered.

Internists in the ppgp programs studied had more patient contacts per week. They made more office visits, but fewer hospital visits and house calls. It appeared that internists in ppgp did more primary care and functioned less as con-

sultants than the New York internists. However, the same four diagnostic categories—diseases of the cardiovascular system, digestive system, respiratory system, and of the bones and organs of locomotion—accounted for approximately 50 percent of the patients of the internists in both prepaid and private practice.