Family Practice Referral Patterns in a Health Maintenance Organization

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In one year, 3.85 percent of the 12,228 patient visits to a family practice clinic resulted in referral. The members of the health maintenance organization (HMO) had a referral rate of 4.46 percent, while fee-for-service patients had a referral rate of 3.19 percent. The fee-for-service patient population was similar to the HMO group, except for the significantly different rate of referral. Comparison of the referral patterns suggests that this difference is influenced by economic factors.

The quality of health care delivered by health maintenance organizations (HMO) has been carefully compared to traditional fee-for-service care. The rates and pattern of referral from primary care physicians to subspecialists are other areas available for comparison. Although the referral patterns of family physicians are well documented for fee-for-service medicine, they have not been delineated within health maintenance organizations.

Comparisons between health maintenance organizations and fee-for-service medicine are always suspect because of variables independent of the delivery system itself. Different populations, varying geography, economic variables, timing of the study, and a host of other factors can invalidate comparisons. The data in this paper are drawn from one year's experience at a single practice location that provides both fee-for-service and prepaid medical care to similar populations.

Methods

The St. Louis Park Medical Center is a multispecialty group practice established in 1951 in Minneapolis which provides a full spectrum of

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medical care locally and functions as a regional referral center. In 1972 the St. Louis Park Medical Center sponsored development of MedCenter Health Plan, a closed panel health maintenance organization which is the third largest in the Twin Cities area. MedCenter Health Plan's delivery system and the associated costs have been previously described and compared with other health maintenance organizations in the same area.[1]

The St. Louis Park Medical Center provides care for 60 percent of the MedCenter Health Plan enrollees on a capitation basis. The physicians are salaried, based upon productivity, with no distinction made between HMO and fee-for-service patients, either in fee structure or guidelines for health care. Actual productivity for HMO patients combines the total fees with a factor reflecting overall utilization of the health plan, similar to the collection ratio of fee-for-service charges. This system rewards the primary physician for providing the majority of care, but since this reward is diluted by the entire clinic experience and is reflected only in the salary of the following year, it does not discourage referral.

In order to provide easy access to primary care for all patients, primary care satellite clinics were established in the local suburbs. Thus the patient population at each satellite is a mixture of HMO and fee-for-service patients from essentially the same geographic and economic setting. Actually, over 40 percent of new HMO patients are previous fee-for-service patients who have merely changed to MedCenter Health Plan. Although the two groups seem comparable, this is difficult to document. Age and sex profiles do not exist for the active fee-for-service patients. Although such profiles exist for HMO enrollees, they are not subdivided by clinic. The most useful data would be a profile of the actual patients visiting the clinic, but the cost of auditing that many charts is prohibitive. The referred patients, however, can be considered a sample of that group, so that the HMO and fee-for-service patient groups can be compared through the age and sex profiles of these sample populations.

The Plymouth Clinic is one such suburban satellite of the St. Louis Park Medical Center, staffed by three full-time family physicians, a half-time pediatrician, and a quarter-time obstetrician-gynecologist. The family physicians provide a full range of primary care services to both patient groups, including inpatient care, obstetrics, and minor surgical procedures. The pediatrician and the obstetrician-gynecologist provide predominantly primary care, but they also serve as consultants. Although their use was not recorded as a referral, this reflects minimally on the overall data, since referrals are usually for services not available at the satellite.

Clinic policy encourages patients to seek referral through their primary care physician, regardless of whether they are fee-for-service or HMO patients. However, most specialty departments do accept self-referrals. It is also routine clinic policy to have the nurse scheduling a referral outside the satellite record, at the time of referral and on a separate form for each satellite physician, the patient's name and chart number as well as the name of the physician receiving the referral. Both patient groups are handled in an identical manner and are included on the same form, so any error in the data collection should distribute proportionately. This paper retrospectively reviews data from all documented referrals made by the Plymouth Clinic family physicians in 1978.

Results

Table 1 displays the distribution of fee-for-service and HMO patients for the 12,228 patient visits and 471 primary care referrals. The HMO group constituted 52.3 percent of the patient visits and 60.5 percent of referrals. The difference between the fee-for-service referral rate of 3.19 percent and the HMO referral rate of 4.46 percent is significant at the .01 level by the t test on proportion (two-sided test).

At the time of this study, MedCenter Health Plan had not been approved by Medicare and had enrolled few patients over 65 years of age. To avoid potential skewing of the distribution, the 20 referred patients over 65 years of age (18 fee-for-service and 2 HMO) are not included in further data. The age and sex profiles of the fee-for-service and HMO patients aged 65 years and under are not significantly different by chi-square. This indirect method for comparing the fee-for-service and HMO clinic populations implies their similarity.

Table 1. Referral Rates of Fee-for-Service and HMO Patients

	Patient Visits No.	(%)	Referrals No.	(%)	Referral Rate (%)
Fee for service	5,833	(47.7)	186	(39.5)	3.19
HMO	6,395	(52.3)	285	(60.5)	4.46
Total	12,228		471		3.85

Table 2. Comparative Frequency of Referrals

	Fee for Service Plymouth			HMO Plymouth			Geyman et al[2] Fee for Service			Metcalf and Sischy[4] Fee for Service		
	No.	%	Order	No.	%	Order	No.	%	Order	No.	%	Order
General surgery	29	17.3	1	42	14.8	1	26	20.6	1	26	25.5	1
Otolaryngology	22	13.1	2	38	13.4	2	3	2.4	9	10	9.8	3.5
Orthopedics	21	12.5	3	23	8.1	5.5	20	15.9	2	10	9.8	3.5
Obstetrics/gynecology	18	10.7	4	27	9.5	4	15	11.9	3	11	10.8	2
Dermatology	15	8.9	5	30	10.6	3	0	0	—	7	6.9	7
Opthalmology	9	5.4	6	7	2.5	12.5	14	11.1	4	6	5.9	8
Cardiology	8	4.8	7.5	17	6.0	8	4	3.2	8	1	1.0	12
Neurology	8	4.8	7.5	15	5.3	9.5	8	6.3	6	8	7.8	5.5
Mental health	7	4.2	9.5	20	7.1	7	7	5.6	7	3	2.9	9
Allergy	7	4.2	9.5	15	5.3	9.5	0	0	—	2	2.0	10
Pediatrics	5	3.0	11.5	9	3.2	11	0	0	—	1	1.0	12
Gastroenterology	5	3.0	11.5	6	2.1	14	2	1.6	10	0	0	—
Urology	3	1.8	14	23	8.1	5.5	10	7.9	5	8	7.8	5.5
Rheumatology	3	1.8	14	7	2.5	12.5	0	0	—	0	0	—
Nephrology	3	1.8	14	1	0.4	16	0	0	—	0	0	—
Endocrinology	2	1.2	16	2	0.7	15	1	0.8	11	1	1.0	12
Others	3	1.8	—	1	0.4	—	16	12.7	—	8	7.8	—
Total	168			283			126			102		

Table 2 displays the frequency of referral to different specialties by the number of referrals, percentage of referrals, and order of most numerous referrals. Data for the fee-for-service and HMO groups included in this study are compared with previously published data from fee-for-service practices.[2] With the exception of ophthalmology and urology, the rank order of referrals is quite similar for both the fee-for-service and HMO patient groups.

Table 3 compares the rates of referral to different specialties between the two groups for patients aged 65 years and under. Although the total referral rate of 4.42 percent for HMO patients was 53 percent greater than the 2.89 percent referral rate for the fee-for-service patients, several specialties received more than the expected proportional increase in HMO referrals. HMO patients were referred to urology seven times as often as fee-for-service patients and to mental health about 2.5 times as often. Referrals to dermatology, cardiology, allergy, and rheumatology were twice as frequent for HMO patients as for fee-for-service patients. Only ophthalmology and nephrology received more referrals of fee-for-service patients than HMO patients.

Table 3. Comparative Referral Rates by Specialty (%)

	Fee for Service	HMO
General surgery	.50	.66
Otolaryngology	.38	.59
Orthopedics	.36	.36
Obstetrics-gynecology	.31	.42
Dermatology	.26	.47
Ophthalmology	.15	.11
Cardiology	.14	.27
Neurology	.14	.23
Mental health	.12	.31
Allergy	.12	.23
Pediatrics	.09	.14
Gastroenterology	.09	.09
Urology	.05	.36
Rheumatology	.05	.11
Nephrology	.05	.02
Endocrinology	.03	.03
Others	.05	.02
Total	2.89	4.42

Discussion

Previously documented practices of referral from family physicians show that the average referral rate across the country is about 3 percent.[3] In addition, there is a low referral rate for the 0- to 14-year-old age group, a high referral rate for the 15- to 44-year-old age group, and a 20 percent greater referral rate for female than for male patients.[4] Patterns of referral have a geographic flavor that reflects the availability of specialists, so that high differences in rank order may occur, as can be seen by comparing the West Coast study of Geyman with the East Coast study of Metcalfe.[2] The generalization that the four specialties most frequently receiving referrals are general surgery, otolaryngology, orthopedics, and obstetrics-gynecology, however, extends beyond national borders and has been demonstrated in British studies.[4]

The fee-for-service section of this study confirms that the family physicians involved referred those patients at rates comparable to established patterns. The rate of referral is 3.19 percent, and the majority of referrals occurred in the 15- to 44-year-old age group, with general surgery, otolaryngology, orthopedics, and obstetrics-gynecology receiving the highest percentage (53.6 percent). Although the ratio of women to men is not known in the population as a whole, 70.8 percent of the referrals were women, a skewed distribution following the lines noted nationally.

The HMO section of this study contrasts its referral patterns to the fee-for-service group without the variables of geography, time, or individual practice style, and there is little difference. The 15- to 44-year-old age group had the majority of referrals. Again, women had the higher proportion of referrals with 63.6 percent. General surgery, otolaryngology, orthopedics, and obstetrics-gynecology were four of the top five most used specialties, receiving 45.8 percent of all referrals. Although dermatology joined the usual top four specialties, it had ranked fifth among fee-for-service referrals. The most striking difference is in the rate of referral, which was 40 percent greater for HMO patients as a whole and 53 percent greater for the patient group aged 65 years and under.

The reasons for this difference are not obvious from the study, but one possibility is that individuals with greater requirements for health care may

elect to join the HMO in order to obtain that care at the least personal cost, contrary to the commonly presented argument that HMOs attract healthier populations in order to control costs. Also, although the patient populations were not matched, the fee-for-service group did not demonstrate any fewer referrals than the national averages, which would be expected if the patients needing more care had chosen to join the HMO.

Another possibility is that the patients who chose a health maintenance organization may have greater expectations for referral for certain health care. Although the physician ultimately controls the referral process, more referrals may result in order to maintain patient satisfaction. That could account for the dermatology, cardiology, allergy, rheumatology, and mental health referrals that occurred above proportional increases in the HMO group. Since these specialties overlap with the care provided by family physicians more than surgical specialties do, patients may seek the specialist's care when the burden of cost is removed.

The threshold for referral of the physician, that point at which the decision to refer is made, may be lowered when responsibility for the cost of referral has been removed from the patient. Since most referrals are for technical assistance rather than for diagnosis,[4] the physician may refer the patient for procedures earlier in the course of a disease or its evaluation when such procedures are not directly charged to the patient. Early diagnostic procedures and testing could account for some of the difference in urology referrals between the two groups, since referral for cystoscopy for fee-for-service patients may be postponed as part of the evaluation for recurrent urinary tract infection, microscopic hematuria, and benign prostatic hypertrophy when the evaluation has otherwise been benign.

Furthermore, the fee-for-service and HMO groups have unique differences which may affect the referral rate. The most obvious is patients may self-refer outside the primary care system. Although both groups could do this, the HMO patients often are encouraged to get referral from their primary physician. That the fee-for-service group was referred in a manner similar to national averages implies that self-referral did not occur to an unusual degree in the fee-for-service group. Self-referral of HMO patients may account for the lowered ophthalmology referrals, since eye examinations, glasses, and glaucoma screening are frequently mentioned benefits in the HMO marketing.

Economic variables within the structure of an HMO may affect referral rates. MedCenter Health Plan pays for all services with member physicians, so there is no direct incentive to restrict referrals as long as they are to HMO physicians. This differs from those HMOs that more closely budget the money allotted to each individual patient. HMOs that required more out-of-plan referrals because of smaller size could also have different referral patterns.

Thus, economic factors may influence which patients choose an HMO, what patients expect from an HMO, and even how physicians make referral decisions within an HMO. These economic factors exist both between the fee-for-service medical care system and the prepaid system of health maintenance organizations and within the HMOs, depending upon their size and administrative structure. In view of the rapid growth of HMOs, physicians, medical administrators, and health care planners must have more information about this influence of economic factors on health care delivery. Serving as an access point into the health care system and coordinator of cost-effective health care utilization, primary care specialists such as family physicians must also be aware of the influence of economic factors.

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