Passing The Baton: HMOs' Influence On Referrals To Specialty Care

Self-referral is still a common route to specialty care, despite the invention of the physician gatekeeper.

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PRIMARY CARE CLINICIANS are the point of first contact for most new health problems for most persons entering the U.S. medical system. Referrals to specialists are sought for advice for uncertain diagnostic and therapeutic situations and for cognitive and technical assistance with less common health problems. However, entry into specialty care also may expose patients to a cascade of potentially unnecessary tests ordered in the pursuit of diagnostic certainty.[1]

Referrals to specialty care disproportionately increase health care costs. For each dollar spent on primary care, an estimated two dollars are spent on specialist care and four dollars on care in hospitals.[2] John Glenn and colleagues estimated the average cost of a referral in one U.S. academic medical center in the late 1980s to be about $3,000 for adult patients.[3] Recent studies using sophisticated methods to adjust for differences in patients' health status have found that specialists provide more costly health care than generalists provide for comparable health problems.[4]

In recognition of the cost implications of referrals, managed care organizations have developed techniques to restrict patients' access to specialty care. In general, a patient can follow one of three pathways to obtain services from a specialist: the primary care physician makes the referral, the patient goes directly to the specialist (self-referral), or one specialist refers to another specialist (cross-referral).

The purpose of this paper is to contrast the routes of referral to specialty care for patients in the United States in health maintenance organizations (HMOs) and those in indemnity plans who are privately insured. Our analyses use data from six consecutive years (1989–1994) of the National Ambulatory Medical Care Survey (NAMCS), a nationally representative survey of the medical practice of office-based physicians.

METHODS

For the NAMCS, a multistage probability sample of nonfederally funded U.S. physicians who are engaged in patient care activities (excluding radiologists, anesthesiologists, and pathologists) is selected from the master files of the American Medical Association (AMA) and the American Osteopathic Association (AOA). For one week each physician completes a questionnaire for a 20–100 percent systematic sample of patient visits. Details of the survey methodology are presented elsewhere.[5]

To increase the sample size of referrals, we pooled data from the 1989–1994 surveys. The majority of the provider questionnaire items

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used in this study remained unchanged throughout the surveys. During the six-year period the number of physician specialty categories was expanded from sixty-three to ninety-five, and a variety of new subspecialties (such as pediatric pulmonary medicine, undersea medicine, and addiction medicine) were added. The specialty designation of physicians was determined using the self-reported primary specialty reported to the AMA and the AOA.

■ DEFINITIONS. We examined three types of referral pathways to specialty care in this study. Primary care physician referrals are visits to generalist physicians in which the disposition of the patient is recorded as "referred to other physician." For self-referrals, we first identified all office visits to specialists by new patients. Physicians recorded whether the patient was referred to them by another physician. If the answer to this question was "no," the new patient was categorized as a self-referral. For cross-referrals (patients referred by another specialist), we first identified visits in which another physician had referred the patient to the specialist. These visits were assumed to be for consultative, rather than primary care, services. If the visit to the specialist resulted in a "referral to another physician," it was categorized as a cross-referral. Finally, each new referral to a specialist was categorized as either a single-visit consultation (no return visit specified), a multiple-visit referral (return visit specified), or a hospitalization.

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The NAMCS surveys include the following categories to reflect whether payment was expected for each visit: commercial insurance, HMO/other prepaid, Medicare, Medicaid, self-pay, no charge, and other. These response categories remained consistent over the survey years. For our purposes, a patient visit was categorized as "HMO" if a physician recorded that "HMO/other prepaid" was the patient's only payer source. This excluded from the data set the 1 percent of patients with both Medicaid or Medicare and an HMO. Indemnity patient visits comprised patients with commercial insurance only.

■ DISTRIBUTION OF PATIENTS AND PHYSICIANS. The distribution of patients' age and sex remained consistent over time, with the mean age ranging from 42.0 to 45.2 years and the proportion of female patients ranging from 0.58 to 0.59. We defined generalists as physicians whose primary specialty designation was family/general practice, pediatrics, or general internal medicine. Generalists made up 28.8 percent of all of the physicians in the data set. Pediatric subspecialists were categorized with their nonpediatric counterparts.

■ REFERRAL ESTIMATES. For national estimates of the number of referrals, we used the visit weights supplied by the National Center for Health Statistics. For all other analyses, we used unweighted data, because of our focus on the association of variables, rather than on estimates of national parameters. The average generalist physician in the data set made 1.5 referrals for every thirty-five patient visits; and because of the low frequency of referrals, the effect of clustering visits within a physician on standard error estimates was assumed to be small. We tested this assumption by rerunning some analyses of primary care physician referral rates using a generalized estimating equations (GEE) model, which accounts for the correlation of clustered visits.[6] Results from the analyses were similar to those using standard maximum likelihood estimation techniques, and we present results from the latter for the sake of simplicity. Chi-square analysis was used in bivariate analyses of proportions. A logistic regression analysis was done to control for the effects of type of specialist when we analyzed the relationship between self-referral and the chances of hospitalization.

RESULTS

In the United States, 54 percent of the 700 million ambulatory visits made each year during the period 1989–1994 were visits to generalists. On average, primary care physicians annually make sixteen million referrals—20 percent for children, 57 percent for adults, and 23 percent for the elderly.

Primary care patient visits in HMOs were 66 percent more likely than such visits by indemnity patients to lead to a referral (Exhibit 1). Self-referrals were 37 percent less likely to occur for HMO patients. The chance of a cross-referral (from one specialist to another) was comparable in the two types of systems.

Patients referred by primary care physicians appear to have had a higher burden of illness than those patients who obtained specialty care through self-referral. The chances of hospitalization for a newly referred patient were 3.2 times greater for physician-referred patients than for those who self-referred.[7]

Overall, 41 percent of new referrals to specialists were for single-visit consultations, and 59 percent were multiple-visit referrals. Referral visits for HMO patients were slightly more likely to be for a single-visit consultation than were referral visits among indemnity patients (42.6 percent for HMOs versus 40.3 percent for indemnity plans).

From 1989 to 1994 primary care physician referrals for HMOs increased by 58 percent, while for indemnity plans they increased by 27 percent (Exhibit 2). During the same period the proportion of new referrals to specialists that were patient self-referrals decreased for HMOs from 35.4 percent to 30.0 percent, while for indemnity plans the proportion increased slightly from 49.9 percent to 51.9 percent (not shown). Cross-referrals remained constant over time in both systems.

Across all types of specialist physicians, HMO patients were less likely to self-refer, although for cardiology and pulmonary medicine the relationship was not statistically significant (Exhibit 3). For some specialties—dermatology, obstetrics/gynecology (OB/GYN), ophthalmology, and psychiatry—HMO patients have high proportions of self-referral. These four specialties also were responsible for the highest proportions of self-referral among indemnity patients.

DISCUSSION

Our study indicates that while referrals from a primary care physician are significantly more likely among HMO patients than among indemnity patients, patient self-referrals are less likely in HMOs. There were no differences between the two payment systems in cross-referrals. HMO patients were somewhat more likely to pursue referrals that resulted in a single-visit consultation rather than multiple visits. These results suggest that HMOs are having a significant impact on how patients seek specialty care, and their influence appears to have increased over the period 1989–1994.

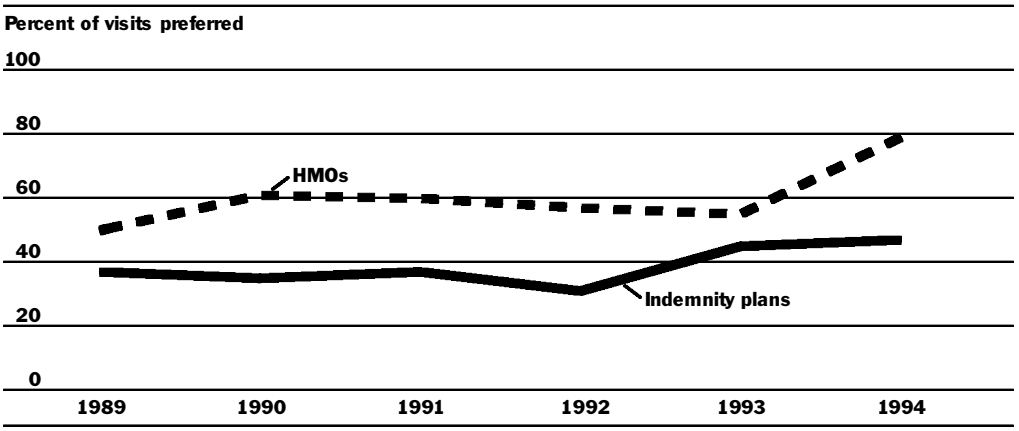
■ THE GATEKEEPER ROLE. Requiring that patients use a primary care gatekeeper as

EXHIBIT 1
Referral Pathways For Patients In HMOs Versus Indemnity Plans

Referral pathway	HMO	Indemnity	p-value
Primary care physician to a specialist[a]	6.3%	3.8%	<.001
Patient self-referral to a specialist[b]	31.3	49.5	<.001
Specialist cross-referral to another specialist[c]	2.8	2.5	.35

SOURCE: National Ambulatory Medical Care Surveys, 1989–1994.
NOTE: HMO is health maintenance organization.
[a] Defined as the percent of all office visits to generalist physicians that result in a referral being made during the visit.
[b] Defined as the percent of visits to specialists by new patients who referred themselves to the specialist.
[c] Defined as the percent of visits to specialists in which the patient was (1) referred to the specialist by another physician and (2) referred to yet another physician by the specialist.

EXHIBIT 2
Primary Care Physician Referrals To Specialty Care, By Payment System, 1989–1994



SOURCE: National Ambulatory Medical Care Surveys, 1989–1994.
NOTE: HMO is health maintenance organization.

an entry point for new health problems has been associated with reduced specialist use in both privately and publicly financed health care systems.[8] Our study suggests that lower use of specialists among patients in HMOs may be a result of less patient self-referral and, to a small degree, fewer patient visits once a referral is made. Even so, the increase in the proportion of primary care physician referrals observed here indicates that HMOs' ability to control the use of specialists could be diminishing. The higher proportion of primary care physician referrals in HMOs compared with that in indemnity plans also might be explained by financial incentives to reduce workload (such as salary or capitation

EXHIBIT 3
Self-Referrals, By Payment System And Type Of Specialist Physician, 1989–1994

Specialist	Total	HMO	Indemnity	p-value
Allergy/immunology	45.8	29.2	55.4	<.001
Cardiology	37.4	33.0	38.9	.27
Dermatology	66.3	51.1	75.7	<.001
Gastroenterology	24.2	18.2	27.3	.069
General surgery	31.5	20.7	36.3	<.001
Neurology	18.7	7.0	24.3	<.001
OB/GYN	71.5	62.5	76.4	<.001
Ophthalmology	64.9	58.4	67.7	.012
Orthopedics	47.6	27.5	54.9	<.001
Otolaryngology	44.2	26.7	52.6	<.001
Plastic surgery	43.6	20.0	49.0	<.001
Psychiatry	61.9	49.3	64.6	.016
Pulmonary medicine	41.8	39.6	43.1	.58
Urology	33.3	17.3	41.1	<.001

SOURCE: National Ambulatory Medical Care Surveys, 1989–1994.
NOTES: HMO is health maintenance organization. OB/GYN is obstetrics/gynecology.

of primary care services only) and the proximity of specialists in large multispecialty group practices.

■ **SELF-REFERRAL.** Self-referral is a common way for patients to pursue specialty care. In HMOs 31.3 percent of newly referred patients to specialists were self-referred; in indemnity plans, 49.5 percent referred themselves (Exhibit 1). Self-referral occurs with variable frequency across physician specialties in both systems of care. The finding that a large proportion of new referrals for dermatology, OB/GYN, ophthalmology, and psychiatry in HMOs were patient self-referrals may be partly explained by the tendency for some managed care organizations to permit direct patient access to these specialties. Moreover, some health plans allow women of reproductive age to select a generalist, an OB/GYN, or both as their primary care physician(s). These same four specialties have the highest self-referral ratios among indemnity plans, which have fewer barriers to specialists; this suggests that patients may have a preference for direct access to these specialties.

"Even in HMOs, patients will seek specialty care without a referral from their primary care physician."

■ **APPROPRIATENESS.** Requiring patients in HMOs to seek specialty care primarily via their primary care physician may improve the appropriateness of referrals. If hospitalization is assumed to be a proxy measure for severity of illness, then data from this study indicate that newly referred patients who are referred by physicians have greater severity of illness than self-referred patients have. A study of tonsillectomy-adenoidectomy found that patients who self-referred to a surgeon had lower severity of illness and were less likely to experience a reduction in respiratory episodes of illness following surgery.[9] Thus, primary care physicians, in their role as first-contact providers, may be appropriately retaining less-sick patients in primary care settings while sending those with more severe illnesses to specialty care.

On the other hand, the gatekeeping function of HMOs may lead to consumers' dissatisfaction with their health plan. Our study shows that even in HMOs, patients will seek specialty care without a referral from their primary care physician. Thus, the recent growth in point-of-service (POS) plans, in which patients can seek specialty care directly without a referral from their primary care physician but at a somewhat increased cost, will have a positive consumer response in the marketplace. The recent growth in POS plans has been dramatic; the proportion of HMOs offering an "open-ended" POS product tripled between 1990 and 1993.[10]

■ **STUDY LIMITATIONS.** This study's results have several limitations. First, the study compares the frequency of patients' access to specialty care via three referral pathways in HMO and indemnity private financing systems of care. We are unable to evaluate either the appropriateness or the cost implications of high versus low estimates. Second, because the NAMCS data are based on office visits, we cannot estimate rates of self-referral or overall rates of referral per person. Health plan administrative data sets could be used to obtain these types of referral rate estimates. Third, the data do not indicate whether referred patients actually made a specialist visit. Even so, this data set is unique in that it captures primary care physicians' referral decisions at the time that they are made.

Fourth, the NAMCS physician sample excluded hospital-based generalists, whose proximity to subspecialists may lead to patterns of referral that differ from those in community settings. The new National Hospital Ambulatory Medical Care Survey will provide useful data on referral patterns of hospital-based generalists. Fifth, in indemnity plans there may be ambiguity concerning who initiated the referral—the patient or the physician. A primary care physician could instruct

the patient to see a specialist if symptoms do not abate with prescribed treatment or over time. Because there are no studies that inform us of the frequency of this type of referral, the magnitude of this potential bias is unknown.

Much more research is needed to enhance our understanding of the intricacies of the interface of primary and specialty care. As inefficiencies in the use and content of hospital care are squeezed out of the U.S. health care system, greater attention will be devoted to ways to influence generalists' use of specialists. The challenge for policymakers and practitioners who are building new ambulatory systems of care will be to ensure appropriate access to specialty care for patients without compromising quality of care or health outcomes.

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NOTES

1. J.W. Mold and H.F. Stein, "The Cascade Effect in the Clinical Care of Patients," *The New England Journal of Medicine* 314, no. 8 (1986): 512–514.
2. R. Schneeweiss et al., "The Economic Impact and Multiplier Effect of a Family Practice Clinic on an Academic Medical Center," *Journal of the American Medical Association* 262, no. 3 (1989): 370–375; and J.R. Kues et al., "The Value of a New Family Practice Patient Center to the Academic Medical Center," *Journal of Family Practice* 32, no. 6 (1991): 571–575.
3. J.K. Glenn, F.H. Lawler, and M.S. Hoerl, "Physician Referrals in a Competitive Environment: An Estimate of the Economic Impact of a Referral," *Journal of the American Medical Association* 258, no. 14 (1987): 1920–1923.
4. S. Greenfield et al., "Variations in Resource Utilization among Medical Specialties and Systems of Care: Results from the Medical Outcomes Study," *Journal of the American Medical Association* 267, no. 12 (1992): 1624–1630; and T.S. Carey et al., "The Outcomes and Costs of Care for Acute Low Back Pain among Patients Seen by Primary Care Practitioners, Chiropractors, and Orthopedic Surgeons," *The New England Journal of Medicine* 333, no. 14 (1995): 913–917.
5. J.B. Tenny, K.L. White, and J.W. Williamson, "National Ambulatory Medical Care Survey: Background and Methodology," *Vital and Health Statistics* 2, no. 61 (1974); and S.M. Schappert, "National Ambulatory Medical Care Survey, 1994 Summary," *Advance Data from Vital and Health Statistics*, no. 273 (Hyattsville, Md.: National Center for Health Statistics, 1996).
6. K.Y. Liang and S.L. Zeger, "Longitudinal Data Analysis Using Generalized Linear Models," *Biometrika* 73, no. 1 (1986): 13–22.
7. In a logistic regression analysis that controls for type of specialist, the odds of hospitalization are increased 2.7 times for physician-referred versus patient self-referred new referrals to specialists ($p < .001$).
8. D.P. Martin et al., "Effect of a Gatekeeper Plan on Health Services Use and Charges: A Randomized Trial," *American Journal of Public Health* 79, no. 12 (1989): 1628–1632; and R.E. Hurley, D.A. Freund, and B.J. Gage, "Gatekeeper Effects on Patterns of Physician Use," *Journal of Family Practice* 32, no. 2 (1991): 167–174.
9. N.P. Roos, "Who Should Do the Surgery? Tonsillectomy-Adenoidectomy in One Canadian Province," *Inquiry* 16, no. 1 (1979): 73–83.
10. J.R. Gabel et al., *HMO Industry Profile: 1994 Edition* (Washington: Group Health Association of America, 1994); and Group Health Association of America, *Patterns in HMO Enrollment* (Washington: GHAA, 1995).