

Utilization of Specialty and Primary Care: The Impact of HMO Insurance and Patient-Related Factors

Carolyn M. Clancy, MD, and Peter Franks, MD
Rockville, Maryland, and Rochester, New York

BACKGROUND. Appropriate utilization of primary and specialty care has stimulated substantial debate, but the portion of the discussion focused on policies that restrict or discourage direct access to specialists has been largely uninformed by empirical analysis. Using data from the National Ambulatory Care Survey (1985 to 1992 surveys), we examined the associations of patient and physician demographics and health maintenance organization (HMO) insurance status with the utilization of primary compared with specialty care.

METHODS. Office visits for adult patients seen by primary care physicians and specialists were analyzed for: (1) patient-initiated utilization of specialists (patient self-referral) compared with that of primary care physicians; and (2) utilization of specialists compared with that of primary care physicians, stratified by HMO insurance status.

RESULTS. After multivariate adjustment, patient self-referral was less likely among black patients (adjusted odds ratio [AOR] = 0.67; 95% confidence interval [CI] = 0.59 to 0.76), self-pay (AOR = 0.81; 95% CI = 0.74 to 0.88), or patients with Medicaid (AOR = 0.51; 95% CI = 0.43 to 0.61). The proportion of non-HMO patients seeing specialists remained stable (44.9%). For HMO patients, the proportion of total visits made to specialists increased from 27.6% in 1985 to 41.3% in 1991, then dropped to 33.2% in 1992. Disparities in utilization of specialists by women, blacks, and patients with Medicaid observed among non-HMO patients were not found in the HMO population. Specialists were more likely to see HMO patients for follow-up of a known problem, whereas non-HMO patients were more likely to have specialist follow-up visits for new problems.

CONCLUSIONS. The results suggest greater utilization of specialists by male, white, and privately insured patients. The findings may partially account for disparities in specialty procedure use, and suggest that HMO insurance may reduce some of these disparities. The less frequent and more selective use of specialists among HMO patients suggests an evolving role for specialists in managed care.

KEY WORDS. Primary health care; specialties, medical; insurance health; managed care programs; sex; race.
(*J Fam Pract* 1997; 45:500-508)

Health expenditure containment efforts have provided an expanded role for primary care physicians and have been responsible for a more selective use of specialists.^{1,2} Limits on the utilization of specialty care are achieved largely through incentives associated with managed care (eg, gatekeeping and higher coinsurance for direct access to specialists). The effects of these policies were high-

lighted in Weiner's projection of physician supply in the year 2000, in which he predicted that if 40% of Americans were enrolled in HMOs, the United States would have approximately 165,000 "excess" specialists.³ For these and other reasons, some policymakers have proposed restrictions on the number of specialists trained. Concerns have been expressed that current efforts to reduce the number of specialists have already gone too far and may impair the quality of care available to health care consumers.⁴ Analyses of patients' utilization of specialty care, however, are not being prominently featured in current discussions.⁵

In a previous paper, we examined referrals of adult patients by primary care physicians using data from the National Ambulatory Medical Care Survey (NAMCS).⁶ Patient visits to specialists may represent patient-initiated visits (self-referral) in addition

Submitted, revised, June 16, 1997.

The views expressed herein do not necessarily represent those of the Agency for Health Care Policy and Research or the Public Health Service. From the Centers for Primary Care Research and Outcomes and Effectiveness Research, Agency for Health Care Policy and Research, Rockville, MD (C.M.C.), and the Primary Care Institute, Highland Hospital, and the Department of Family Medicine, University of Rochester, Rochester, NY (P.F.). Requests for reprints should be addressed to Peter Franks, MD, Primary Care Institute, Family Medicine Center, 885 South Ave, Rochester, NY 14620.

to those resulting from referral by a primary care physician. The purpose of this study is to complement our referral analysis of NAMCS data by comparing physician and patient characteristics associated with utilization of primary and specialty care. The NAMCS, conducted by the National Center for Health Statistics, is the only nationally representative source of data on physicians' ambulatory patient encounters.

Two issues complicate consideration of appropriate utilization of specialist care. First, prior studies suggest a significant overlap in the care provided by primary care physicians and specialists.^{7,8} Patients may choose to seek care directly from specialists (ie, self-referral) or they may be referred by a primary care physician. The growing importance of HMOs adds another wrinkle to this investigation, since many HMOs require primary care physicians to authorize visits to specialists.⁹ Additionally, some educational leaders have speculated that, by serving as consultants and teachers for primary care physicians, specialists function differently in HMOs than in traditional practice settings, although there has been little study to either support or refute this premise.

Second, discussions in the popular press and recent innovations in managed care arrangements that permit patients to seek care directly from specialists imply that a substantial proportion of patients are dissatisfied with primary care providers serving as gatekeepers to specialist care.¹⁰ There is no published information available on the patient factors associated with an increased propensity to seek care directly from specialists. Our prior referral analysis suggests that male patients are more likely to be referred by primary care physicians, and that HMO insurance may increase referral rates for patients who also are covered by either Medicaid or Medicare.⁶ The current analysis also focuses on the possible role of patient sex, race, and insurance status in the differential utilization of primary and specialty care and the mediating effect that HMO insurance may have on these utilization practices.

METHODS

PATIENT SAMPLE

The data were derived from the National Ambulatory Medical Care Survey (NAMCS) for 1985 and for the years 1989 to 1992 (there were no

surveys from 1986 to 1988).¹¹ All nonfederal physicians in office-based practice, including physicians whose offices were within hospitals and those who were employed full-time by HMOs, were eligible for inclusion in the survey.

NAMCS has a multistage probability sample design. The first stage involves primary sampling units, made up of either a single county or a group of adjacent counties. The second stage consists of a probability sample of office-based physicians selected from the master files maintained by the American Medical Association and American Osteopathic Association. Within each primary sampling unit, eligible physicians are stratified by specialty groups and randomly selected within each stratum. The final selection stage is the selection of a systematic random sample of about 20 patient visits to sample physicians. The basic sampling unit for the NAMCS, thus, is the physician-patient encounter.

After the encounter, the physician completes a patient record that includes the following information: physician-identified sociodemographic information; up to three diagnoses; up to five medications prescribed; whether the patient has been seen before for the presenting problem or other problems; whether the patient was referred for the visit by another physician; and visit length. The National Center for Health Statistics also provided additional physician information, including age and sex.

The subset of encounters selected were visits by patients 25 years of age and older to primary care physicians (internists, family physicians, and general practitioners), medical specialists, and selected surgical subspecialists. Visits with primary sex-specific diagnoses (pregnancy and diagnoses involving sex organs) were excluded to simplify examination of the effect of gender on utilization. Visits to surgical subspecialists in ophthalmology, otolaryngology, orthopedics, and urology were included because these specialists provide a significant portion of specialized ambulatory care.

In addition to family physicians, general practitioners, and internists, the specialties included were allergy and immunology, cardiology, dermatology, endocrinology, gastroenterology, hematology, infectious disease, neurology, nephrology, oncology, ophthalmology, orthopedics, otolaryngology, psychiatry, pulmonology, rheumatology,

and urology. Visits to obstetrician-gynecologists and general surgeons were excluded because these physicians provide significant amounts of both general primary care and specialty care¹²⁻¹⁴ and distinguishing the type of visit is impossible in this data set. Patients whose race was neither black nor white were also excluded because their number was too small to allow for reliable analysis.

ANALYSIS

Two main sets of analyses were conducted to investigate (1) patient-initiated use of specialists (patient self-referral analysis), and (2) overall use of specialist and primary care, stratified by HMO insurance status (HMO analysis). In the logistic regression analyses, the dependent variable was whether the visit was with a primary care physician or a specialist. For the self-referral analysis, a visit was included if the patient was visiting for the first time for the presenting problem and was not referred by another physician. The HMO analyses included all visits to both primary care physicians and specialists, stratified by HMO insurance status.

Independent variables included patient, physician, and practice factors. *Patient factors* were age, sex, race (black or white), insurance status (any one or more of the following: self-pay, including copayments; HMO, ie, any plans involving patient prepayment; private insurance, including all payments made either directly to the physician or reimbursed to the patient by nongovernmental insurance companies; Medicaid; and Medicare); as a measure of illness burden, the number of medications prescribed and the number of chronic disease diagnoses (made from the following categories: malignancies, diabetes, cardiovascular, cerebrovascular, or chronic pulmonary disease); principal diagnostic category (infectious disease, cancer, endocrine, psychiatric, neurologic, cardiovascular, respiratory, gastroenterologic, urologic, dermatologic, musculoskeletal, symptom, injury, or other); new or old problem; new or old patient; and, visit length. *Physician factors* included: age, sex, and physician specialty. *Practice factors* included rural or urban location (based on standard metropolitan statistical areas); geographic region (Northeast, West, South, and Midwest); and year of visit.

Because of the complex survey design of NAMCS, which involves the clustering of visits

within individual physicians' practices, the analyses were conducted with the statistical package SUDAAN.¹⁵ SUDAAN uses Taylor series linearization to produce appropriate standard errors in surveys involving cluster sampling. Each physician was treated as the primary unit of analysis, stratified within the 15 main physician specialty groups, with visits to the physician clustered within the physician's practice. Observations were weighted, based on the weights provided on the audio tapes available for public use. The weights on the public-use tapes adjust each physician-patient encounter according to its sampling probability and the probability of physician nonresponse to yield unbiased national estimates of annual total visits.

RESULTS

Study Sample. The sample included 122,124 visits, 56% of which were to primary care physicians and 44% to specialists. Table 1 shows how each patient and physician characteristic is associated with seeing a primary care physician or a specialist.

Patient Self-referrals to Specialists. Among the 31,676 first visits for the presenting problem not referred by another physician (self-referred), 74% were to primary care physicians and 26% were to specialists (Table 2). A higher proportion of visits to dermatologists, ophthalmologists, orthopedists, and otolaryngologists were self-referred, ie, they were not associated with a referral from another physician (data not shown). The multiple logistic regression analysis of patients presenting for the first time for the presenting problem (Table 2), along with a comparison of patients self-referring to specialists with those seeing primary care physicians, revealed that self-referring patients were older, more likely to be white, and more likely to have private insurance, but less likely to be self-pay, to be covered by Medicaid, or to be enrolled in an HMO. Patients self-referring to specialists were prescribed fewer medications, given fewer chronic disease diagnoses, and were less likely to have been seen previously by the reporting physician.

Self-referral for Cardiovascular Problems. The debate on disparities in the utilization of specialty care has been best studied for cardiovascular procedures. We therefore conducted a self-

TABLE 1

Patient, Physician, and Practice Characteristics, by Number of Visits and Type of Physician Seeing Patient

Characteristic	No. of Visits	Patient Seen by	
		Specialist (% or means)	Primary Care Physician (% or means)
All	122,124	43.6	56.4
Patient factors			
Mean age, y (SD)		55.5 (17.4)	54.6 (17.5)
Sex			
Male	51,776	45.7	54.3
Female	70,348	42.1	57.9
Race			
White	112,902	44.5	55.5
Black	9,222	33.4	66.6
Insurance status			
Self-pay	39,732	39.6	60.4
Private	35,941	52.5	47.5
HMO	12,680	33.7	66.3
Medicaid	6,864	31.2	68.8
Medicare	36,569	45.6	54.4
No. of medications, mean (SD)		0.99 (1.26)	1.43 (1.31)
No. of chronic diseases, mean (SD)		0.26 (0.56)	0.54 (0.72)
Previously seen	101,155	41.6	58.4
Old problem	82,229	47.8	52.2
Principal diagnostic category			
Infection	2,917	33.4	66.6
Cancer	6,145	68.6	31.4
Endocrine	5,161	18.1	81.9
Psychiatric	8,992	68.8	31.2
Neurologic	19,658	79.5	20.5
Cardiovascular	14,000	21.7	78.3
Respiratory	11,488	24.4	75.6
Gastroenterologic	4,000	22.4	77.6
Urologic	3,907	44.3	55.7
Dermatologic	8,050	63.4	36.6
Musculoskeletal	12,002	42.5	57.5
Symptom	5,365	27.5	72.5
Injury	9,520	45.1	54.9
Other	10,919	44.5	55.5
Physician factors			
Sex			
Male	114,776	44.6	55.4
Female	7,348	30.9	69.1
Mean age, y (SD)		52.2 (10.5)	52.3 (13.0)
Practice factors			
Location			
Rural	28,346	34.3	65.7
Urban	93,778	46.9	53.1
Region			
Northeast	26,040	49.5	50.5
South	38,733	41.2	58.8
West	26,174	49.6	50.4
Midwest	31,177	36.9	63.1
Year of visit			
1985	41,030	42.7	57.3
1989	20,933	43.5	56.5
1990	24,183	42.7	57.3
1991	18,042	45.9	54.1
1992	17,936	44.2	55.8

NOTE: Numbers represent sample sizes. Percentages and means are adjusted using sampling weights to produce national estimates. Means indicate mean values of characteristics, except where percentages represent row total visits.

SD denotes sample standard deviation; HMO, health maintenance organization.

referral subanalysis (n=1519) limited to patients presenting for the first time with cardiovascular problems and to those seeing cardiologists or primary care physicians. This analysis produced results similar in direction to the overall analysis: privately insured patients (adjusted odds ratio [AOR] = 2.32; 95% confidence interval [CI] = 1.56 to 3.45) and men (AOR = 1.81; 95% CI = 1.21 to 2.73) were more likely to present to cardiologists than to primary care physicians. There was a trend for black patients to be less likely to present to cardiologists (AOR = 0.55; 95% CI = 0.25 to 1.12).

HMO and Insurance Status.

Patients with HMO insurance comprised 12.0% of all visits, increasing from 8.5% in 1985 to 17.1% in 1992. For non-HMO patients, there was little change in the proportion of patients seeing specialists (averaging 44.9% of visits). For HMO patients, in contrast, the proportion of visits to specialists increased from 27.6% in 1985 to 41.3% in 1991 and then dropped to 33.2% in 1992 (Table 3). The year-by-year increase until 1991 and the decline from 1991 to 1992 are statistically significant. There were no significant time trend associations between HMO insurance status and mean patient age, number of chronic disease diagnoses, or duration of visit; there was a similar small increase in the number of medications provided for both HMO and non-HMO patients.

The adjusted odds ratios for having seen a specialist compared with a primary care physician, stratified by HMO insurance status, are shown in Table 4. In the non-HMO group, being female, black, and having Medicaid insurance were all associated with a reduced likelihood of seeing a specialist, whereas these disparities were

not statistically significant in the HMO group. Utilization of specialists was greater among the HMO compared with the non-HMO population for patients who also had Medicare insurance, who made a previous visit for the current problem, and who made a more recent year of visit. In contrast, patients who had been seen before for any problem were less likely to be seeing a specialist; this disparity was greater for patients with HMO insurance. For both HMO patients and non-HMO patients, encounters in rural areas were less likely

TABLE 2

Multiple Logistic Regression of Factors Associated with Seeing a Specialist When the Visit Is the First Encounter for the Presenting Problem Only, Without Referral by Another Physician (n=31,676)

Risk Factor*	Adjusted Odds Ratio† (95% CI)	P Value
Patient factors		
Age (/10 years)‡	1.13 (1.10-1.16)	<.001
Male	0.97 (0.91-1.04)	>.05
Black	0.67 (0.59-0.76)	<.001
Insurance status		
Self-pay	0.81 (0.74-0.88)	<.001
Private	1.27 (1.17-1.38)	<.001
HMO	0.32 (0.28-0.36)	<.001
Medicaid	0.51 (0.43-0.61)	<.001
Medicare	1.04 (0.93-1.17)	>.05
No. of medications	0.77 (0.74-0.80)	<.001
No. of chronic diagnoses	0.63 (0.57-0.70)	<.001
Previously seen	0.30 (0.28-0.32)	<.001
Physician factors		
Female	0.49 (0.44-0.56)	<.001
Age (/10 years)‡	1.01 (1.01-1.01)	<.001
Practice factors		
Rural	0.55 (0.52-0.59)	<.001
Northeast¶	1.59 (1.45-1.73)	<.001
South¶	1.32 (1.23-1.42)	<.001
West¶	1.63 (1.50-1.78)	<.001
Year of visit	1.05 (1.04-1.07)	<.001

NOTE: Analysis also adjusted for diagnostic category.

*Risk factors indicate the value of the characteristic with associated adjusted odds ratio of seeing a specialist compared with seeing a primary care physician.

†Except where noted, the odds ratio shows the adjusted odds of seeing a primary care physician with the risk factor present compared with the risk factor absent.

‡For age and physician age, odds ratios reflect 10-year increments in age.

¶Reference region is the Midwest.

CI denotes confidence interval; HMO, health maintenance organization

to be with specialists than those occurring in non-rural areas; this disparity was less marked among HMO patients.

DISCUSSION

The results of the current analysis present an overview of utilization of primary and specialty care in the United States during the period of 1985 to 1992. These findings can be used to inform current discussions of changes in managed care arrangements with respect to access to specialty care. As

TABLE 3

Characteristics of Patients with and without Health Maintenance Organization Insurance (HMO) Seeing Specialists, by Study Characteristics

Characteristic	% or Means (SE) of Patients Seeing Specialists	
	HMO Insurance	No HMO Insurance
Patient factors		
Mean age, years	49.8 (0.2)	56.1 (0.1)
Sex		
Male	34.6 (0.7)	47.2 (0.2)
Female	33.2 (0.6)	43.3 (0.2)
Race		
White	34.1 (0.4)	45.9 (0.1)
Black	30.3 (1.3)	34.0 (0.5)
Other insurance		
Self-Pay	25.2 (2.0)	39.8 (0.2)
Private insurance	51.7 (5.0)	52.5 (0.3)
Medicaid	35.0 (9.1)	31.0 (0.6)
Medicare	52.2 (2.2)	45.4 (0.3)
No. of medications	0.97 (.02)	1.00 (.01)
No. of chronic diseases	0.25 (.01)	0.26 (.00)
Previously seen	31.4 (0.4)	42.9 (0.1)
Old problem	40.4 (0.6)	48.7 (0.1)
Practice factors		
Location		
Rural	31.2 (1.3)	34.4 (0.1)
Urban	34.0 (0.4)	49.0 (0.1)
Region		
Northeast	34.8 (1.0)	51.0 (0.1)
South	30.1 (0.7)	42.3 (0.1)
West	42.9 (0.6)	51.4 (0.1)
Midwest	34.8 (0.6)	38.6 (0.1)
Year of visit		
1985	27.6 (0.6)	44.2 (0.1)
1989	31.3 (0.8)	45.4 (0.1)
1990	36.7 (0.9)	43.4 (0.1)
1991	41.3 (0.9)	46.6 (0.2)
1992	33.2 (0.7)	46.4 (0.2)

NOTE: Percentages, means, and standard errors are adjusted to produce national estimates. SE denotes standard error.

was suggested by our previous referral analysis,⁶ male patients in the current study were more likely than female patients to have been seen by a specialist. Whereas the earlier analysis⁶ found no racial or insurance status disparities in referrals by primary care physicians, the current research found that patient self-referrals to specialists were less likely among black patients, self-pay patients, and those on Medicaid. Additionally, gender, racial, and insurance status disparities in utilization of specialists observed in non-HMO patients were less marked in the HMO population. Until 1991, there was a slight increase in the proportion of patients seeing specialists largely because of an increase in the utilization of specialists by HMO patients. This trend appears to have reversed in 1992 because of a decline in the utilization of specialists by HMO patients. Compared with non-HMO patients, HMO patients seen by specialists were more likely to have been seen previously for the same problem rather than for a different problem, suggesting that the role of specialists caring for HMO patients may have been more selective than for non-HMO patients.

PATIENT FACTORS AND INCREASED SELF-REFERRAL RATES

The higher rates of self-referral to specialists by white and privately insured patients may represent increased demand for direct access by those patients, or they may simply reflect that self-referral to specialist care is easier. These results also may partly explain the greater use of invasive technology is among male,¹⁶ white,¹⁷ and privately insured^{18,19} patients.

Compared with patients seeing primary care physicians, those self-referring to specialists were prescribed fewer medications

and assigned fewer chronic disease diagnoses. This disparity was less evident when all patients seeing specialists and primary care physicians were compared (data not shown). The illness burden of patients self-referring to specialists was apparently lower than for patients referred by primary care physicians. While these data do not directly address illness severity, they are consistent with limited research suggesting that patients self-referring to specialists are not sicker than patients seeing primary care physicians.^{20,21} Roos²⁰ found that patients self-referring to otolaryngologists had lower appropriateness scores for tonsillectomy and adenoidectomy and worse outcomes than did referred patients. Physicians tend to recommend similar proportions of their patients for an intervention, regardless of whether those patients have been previously

determined by other physicians not to need the intervention.^{22,23} Thus, patients self-referring to specialists may have a higher risk of receiving unnecessary or inappropriate interventions.²⁴

It is ironic that the demographics of utilization of specialty care appear to be poorly matched to those who may benefit most from the higher intensity of care offered by specialists. If disparities in utilization of specialty care merely reflect the effect of market forces or patient preferences and have no implications for medical care quality or expenditures, then the study findings would be of limited interest. Several studies, however, suggest that primary care provided by specialists, compared with that provided by primary care physicians, is more expensive, with limited evidence of improved outcomes.^{5,8,25} In the Medical Outcomes

TABLE 4

Multiple Logistic Regression of Factors Associated with Seeing a Specialist Compared with Seeing a Primary Care Physician, for Patients with and without Health Maintenance Organization (HMO) Insurance

Risk Factor*	No HMO Insurance (n=109,444) AOR†(95%CI)	P Value	HMO Insurance (n=12,680) AOR†(95%CI)	P Value
Patients				
Age (/10 years)‡	1.06 (1.04-1.07)	<.001	1.06 (1.02-1.09)	<.001
Male	1.16 (1.12-1.20)	<.001	1.02 (0.92-1.13)	>.05
Black	0.74 (0.69-0.78)	<.001	1.13 (0.97-1.33)	>.05
Insurance status				
Self-pay	0.70 (0.68-0.73)	<.001	0.66 (0.50-0.87)	<.001
Private	1.53 (1.47-1.58)	<.001	2.30 (1.35-3.91)	<.001
Medicaid	0.60 (0.55-0.64)	<.001	0.89 (0.43-1.84)	>.05
Medicare	1.02 (0.96-1.07)	>.05	2.40 (1.88-3.06)	<.001
No. of medications	0.89 (0.88-0.90)	<.001	0.85 (0.81-0.89)	<.001
No. of chronic diagnoses	0.63 (0.60-0.65)	<.001	0.54 (0.47-0.61)	<.001
Previously seen	0.21 (0.20-0.23)	<.001	0.14 (0.12-0.16)	<.001
Old problem	4.38 (4.16-4.61)	<.001	8.11 (6.99-9.42)	<.001
Practices				
Rural location	0.53 (0.52-0.54)	<.001	0.71 (0.60-0.83)	<.001
Northeast¶	1.59 (1.55-1.64)	<.001	1.61 (1.41-1.83)	<.001
South¶	1.22 (1.19-1.25)	<.001	1.26 (1.13-1.41)	<.001
West¶	1.46 (1.42-1.51)	<.001	1.94 (1.75-2.15)	<.001
Year of visit	1.02 (1.01-1.02)	<.001	1.13 (1.12-1.15)	<.001

NOTE: Analysis also adjusted for diagnostic category.

*Risk factors indicate the value of the characteristic with associated adjusted odds ratio of seeing a specialist compared with seeing a primary care physician.

†Except where noted, the odds ratio shows the adjusted odds of seeing a primary care physician with the risk factor present compared with the risk factor absent.

‡Odds ratios reflect 10-year increments in age.

¶Reference region is the Midwest.

AOR denotes adjusted odds ratio; CI, confidence interval.

Study,⁸ severity-adjusted intensity of care was higher among patients seeing specialists than among those seeing primary care physicians, although there were few differences in outcomes attributable to the increased intensity of services received by patients of specialists.²⁵ In general, since black patients, those without insurance, and those on Medicaid are at higher risk for poor health and adverse health outcomes,^{17,26,27} intervention would likely enhance the benefit-risk ratio.

UTILIZATION OF SPECIALTY CARE AND HMOs

The results stratified by HMO insurance status show that most of the increase in utilization of specialty care between 1985 and 1991 occurred among HMO-insured patients. The increasing relative utilization of specialty care observed between 1985 and 1991 for HMO patients cannot be explained using NAMCS. As an increasing number of persons enroll in HMOs, sicker patients are more likely to join HMOs, with a resulting increased need for specialty care. Some data from this study provide weak evidence refuting this explanation. There was no compensatory decline in use of specialty care by non-HMO patients; to the contrary, there was a small increase in specialty utilization. Furthermore, there was no differential time trend in the mean age, number of medications, or chronic conditions of patients enrolled in HMOs (data not shown).

There were no racial or gender disparities in the utilization of specialty care among HMO patients, in contrast to that observed among non-HMO patients. There was a significant trend for a reduced disparity for those on Medicaid. Table 3 shows a disproportionate reduction in utilization of specialists by male and white patients in the HMO environment and a slight increase in utilization of specialists by patients with HMO Medicaid insurance compared with non-HMO Medicaid insurance. The reductions in racial and Medicaid insurance disparities observed among HMO patients may reflect increased access to care for these patients. We speculate that the greater reductions in specialist care observed among white and male patients reflect a decrease in the discretionary use of specialists among HMO patients.

LIMITATIONS

In our previous paper,⁶ we provided a detailed discussion of the limitations of NAMCS for the kinds of

analyses we report here. NAMCS is a self-report survey of a relatively small number of isolated physician-patient encounters, and current methods for measuring illness burden in ambulatory patients are underdeveloped. The data also do not address appropriateness or quality of care.

THE ROLE OF SPECIALISTS IN HMOs

Despite these limitations, the data indicate an evolving role for specialists in the HMO environment. Specialists seeing HMO patients are less likely to have seen the patients previously for other problems, and the total proportion of care provided by specialists to patients with HMO insurance is lower than that in the non-HMO environment. From 1985 to 1992, the pattern of care provided by specialists in the HMO environment appears to be different from that provided in the non-HMO environment. In the HMO environment, specialist care is more selective and problem-focused but it is provided to a broader sociodemographic group.

CONCLUSIONS

Given the recent rapid changes in and proliferation of managed care arrangements, the generalizability of these results to today's health care system is limited. Given the paucity of data on utilization of primary care physicians and specialists relative to the ongoing debates, however, we believe that these analyses provide an important benchmark against which to judge future studies. During a period when the majority of HMOs used explicit incentives to restrict direct access to specialists,⁹ these results offer some assurance that HMO patients were less likely to have lower utilization of specialists solely on the basis of race or insurance status compared with non-HMO patients. As competition between health plans and apparent dissatisfaction with gatekeepers increases pressures to expand direct access to specialists,²⁸ and a greater number of Medicaid patients are required to join HMOs, increased vigilance will be needed to keep socioeconomic disparities in check. Research that clarifies appropriate and cost-effective utilization of specialists will help ensure the optimal delivery of care in the evolving health care system and guide appropriate training for specialists entering an increasingly "managed" health care world.

REFERENCES

- Rivo ML, Jackson DM, Clare FL. Comparing physician workforce reform recommendations. *JAMA* 1993; 270:1083-4.
- Inglehart JK. Physicians and the growth of managed care. *N Engl J Med* 1994; 331:1167-71.
- Weiner JP. Forecasting the effects of health reform on US physician workforce requirement. Evidence from HMO staffing patterns. *JAMA* 1994; 272:222-30.
- Kassirer JP. Access to specialty care. *N Engl J Med* 1994; 331:1151-3.
- Franks P, Nutting PA, Clancy CM. Health care reform, primary care, and the need for research. *JAMA* 1993; 270:1449-53.
- Franks P, Clancy CM. Referrals of adult patients from primary care: demographic disparities and their relationship to HMO insurance. *J Fam Pract* 1997; 45:47-53.
- Aiken LH, Lewis CE, Craig J, et al. The contribution of specialists to the delivery of primary care. A new perspective. *N Engl J Med* 1979; 300:1363-70.
- Greenfield S, Nelson EC, Zubkoff M, et al. Variations in resource utilization among medical specialists and systems of care: results from the Medical Outcomes Study. *JAMA* 1992; 267:1624-30.
- Langwell KM. Structure and performance of health maintenance organizations: a review. *Health Care Financ Rev* 1990; 12:71-90.
- Holoweiko M. Bypassing primary care physicians. *Med Econ* 1997; 74:208-19.
- Schappert SM. National Ambulatory Medical Care Survey, 1991 Summary. Rockville, Md:National Center for Health Statistics, Vital and Health Statistics 1994, series 13, No.116.
- Weiner JP, Starfield BH. Measurement of the primary care roles of office-based physicians. *Am J Public Health* 1983; 73:666-71.
- Horton JA, Cruess DF, Pearse WH. Primary and preventive care services provided by obstetrician-gynecologists. *Obstet Gynecol* 1993; 82:723-6.
- Rosenblatt RA, Hart LG, Gamel S, et al. Identifying primary care disciplines by analyzing the diagnostic content of ambulatory care. *J Am Board Fam Pract* 1995; 8:34-45.
- Research Triangle Institute. SUDAAN. Professional software for SURvey DATA ANALYSIS. Version 7.11. Research Triangle Park, NC: Research Triangle Institute, 1997.
- Council on Ethical and Judicial Affairs. Gender disparities in clinical decision making. *JAMA* 1991; 266:559-62.
- Council on Ethical and Judicial Affairs. Black-white disparities in health care. *JAMA* 1990; 263:2344-6.
- Wenneker MB, Weissman JS, Epstein AM. The association of payer with utilization of cardiac procedures in Massachusetts. *JAMA* 1990; 264:1255-60.
- King DE, Lahiri K. Socioeconomic factors and the odds of vaginal birth after cesarean delivery. *JAMA* 1994; 272:524-9.
- Roos NP. Who should do the surgery? Tonsillectomy-adenoidectomy in one Canadian province. *Inquiry* 1979; 16:73-83.
- Engel W, Freund DA, Stein JS, Fletcher RH. The treatment of patients with asthma by specialists and generalists. *Med Care* 1989; 27:306-14.
- Bakwin H. Pseudodoxia pediatrica. *N Engl J Med* 1945; 232:691-7.
- Ayanian JZ, Berwick DM. Do physicians have a bias toward action? A classic study revisited. *Med Decis Making* 1991; 11:154-8.
- Starfield B. Is primary care essential? *Lancet* 1994; 344:1129-33.
- Greenfield S, Rogers W, Mangotich M, et al. Outcomes of patients with hypertension and non-insulin-dependent diabetes mellitus treated by different systems and specialties. Results from the Medical Outcomes Study. *JAMA* 1995; 274:1436-44.
- Adler NE, Boyce WT, Chesney MA, et al. Socioeconomic inequalities in health. No easy solution. *JAMA* 1993; 269:3140-5.
- Franks P, Clancy CM, Gold MR. Health insurance and mortality. Evidence from a national cohort. *JAMA* 1993; 270:737-41.
- Myerson AR. Helping health insurers say no. *The New York Times* 1995 Mar 20: Sect D:1.