Reasons for Outpatient Referrals from Generalists to Specialists

Martin T. Donohoe, MD, Richard L. Kravitz, MD, David B. Wheeler, PhD, Ravi Chandra, MD, Alice Chen, MD, Natasha Humphries, BS

OBJECTIVE: **To determine the relative importance of medical and nonmedical factors influencing generalists' decisions to refer, and of the factors that might avert unnecessary referrals.**

DESIGN: **Prospective survey of all referrals from generalists to subspecialists over a 5-month period.**

SETTING: **University hospital outpatient clinics.**

PARTICIPANTS: **Fifty-seven staff physicians in general internal medicine, family medicine, dermatology, orthopedics, gastroenterology, and rheumatology.**

MEASUREMENTS AND MAIN RESULTS: **For each referral, the generalist rated a number of medical and nonmedical reasons for referral, as well as factors that may have helped avert the referral; the specialist seeing the patient then rated the appropriateness, timeliness, and complexity of the referral. Both physicians rated the potential avoidability of the referral by telephone consultation. Generalists were influenced by a combination of both medical and nonmedical reasons for 76% of the referrals, by only medical reasons in 20%, and by only nonmedical reasons in 3%. In 33% of all referrals, generalists felt that training in simple procedures or communication with a generalist or specialist colleague would have allowed them to avoid referral. Specialists felt that the vast majority of referrals were timely (as opposed to premature or delayed) and of average complexity. Although specialists rated most referrals as appropriate, 30% were rated as possibly appropriate or inappropriate. Generalists and specialists failed to agree on the avoidability of 34% of referrals.**

CONCLUSIONS: **Generalists made most referrals for a combination of medical and nonmedical reasons, and many referrals were considered avoidable. Increasing procedural training for generalists and enhancing informal channels of communication between generalists and subspecialists might result in more appropriate referrals at lower cost.**

KEY WORDS: **generalist; specialist; referral; outpatients.**
J GEN INTERN MED 1999;14:281–286.

Received from the Robert Wood Johnson Clinical Scholars Program (MTD), Stanford University School of Medicine (DBW, RC, AC), Stanford, Calif; Division of General Internal Medicine, University of California at Davis School of Medicine, Davis, Calif (RLK); and Stanford University, Stanford, Calif (NH).

Dr. Chen is now with the Department of Medicine, Brigham and Women's Hospital, Boston, Mass.

Dr. Chandra is now with the Department of Family Practice, Hennepin County Medical Center, Minneapolis, Minn.

Address correspondence and reprint requests to Dr. Donohoe at his current address: Oregon Health Sciences University, Division of General Internal Medicine, Mail Code L-475, 3181 S.W. Sam Jackson Park Rd., Portland, OR 97201.

On average, fewer than 5% of office visits to primary care physicians result in referral.[1–7] However, referrals generate significant economic costs for both physician fees and diagnostic tests.[3,8–10] Moreover, referral rates for individual generalists vary widely, suggesting a high level of uncertainty about appropriate referral practices.[1–3,6,11–17] Both underreferral and overreferral can affect quality of care. Underreferral can lead to inappropriate, cost-ineffective, or even dangerous treatment, and may result in costly litigation.[18] Overreferral can lead to fragmented care "by committee"; overtesting and repetitive testing; dangerous polypharmacy; patient confusion and isolation; and complacency on the part of generalists who lose their motivation to continually acquire new knowledge.[19–23]

When appropriate, referrals from generalists to specialists can lead to improved patient outcomes, as well as decreased costs through optimal use of physician, hospital, and laboratory services. Studies have suggested benefit for certain patients with severe depression,[24] somatization disorder,[25] AIDS,[26,27] diabetes,[28] rheumatoid arthritis,[29,30] and Parkinson's disease,[31] among others. Other referrals may be avoidable, poorly timed, or of limited value in guiding diagnosis or treatment and, thus, potentially inappropriate.[32,33]

Subspecialty societies, residency programs, and HMOs have paid increasing attention to referrals.[33–36] Although it is unclear how referral rates for HMO patients compare with those for patients in fee-for-service plans,[37] many HMOs and insurance companies have established referral review committees, some of which employ industry-created guidelines for appropriate referrals.[38–40] However, both referral guidelines and referral review committees were created based on a small fund of public knowledge regarding referrals. Thus, it is important to learn more about the referral process so that we can improve its quality and efficiency.

We chose to study the referral process from the perspectives of both generalists and specialists. Our objectives were the following: (1) to determine the perceived importance of a number of medical and nonmedical factors influencing generalist physicians' decisions to refer; (2) to ascertain generalists' and specialists' views regarding the avoidability of referrals and factors that might avert unnecessary referrals; and (3) to determine specialists' views regarding the appropriateness, timeliness, and complexity of the referrals they receive from generalists.

METHODS

Study Site

Our study was conducted at two academic internal medicine clinics and one academic family practice clinic

between October 1995 and March 1996. The study protocol was granted a Notice of Exempt Review by the Panel on Non-Medical Human Subjects of Stanford University. Physician subjects were informed prior to their enrollment that all individual data were confidential, and would not be shared with colleagues, patients, or administrators. Patients were covered by an array of financial arrangements (capitation, fee-for-service, Medicare, Medicaid, and self-pay). Generalists and specialists were paid an annual salary with a small productivity bonus. All patients were evaluated solely by attending physicians. Referrals were made either to the subspecialty clinic or to a specific subspecialist. Allotted generalist visit length was 40 minutes for new patients and 20 minutes for return appointments. Actual visit length was not determined.

Study Participants

All 21 attending generalists at the study clinic were enrolled; we evaluated each of their referrals to 36 attending subspecialists in dermatology, orthopedics, rheumatology, and gastroenterology over a 5-month period. Dermatology and orthopedics were chosen because they historically received the greatest number of referrals. A more cognitive internal medicine subspecialty, rheumatology, and a more procedurally-oriented subspecialty, gastroenterology, were also selected.

Questionnaires

Within 24 hours of referral to any of these four subspecialties, generalists completed the self-administered Generalist Post-Referral Questionnaire, in which they were asked to rate, on a 5-point Likert scale, the influence of a number of medical and nonmedical reasons why they referred that particular patient. These reasons were derived from previous qualitative work by Ludke,[4] and from discussions with practicing generalists of varying levels of clinical experience working in a number of settings. Enrolled generalists were also asked to rate whether or not the availability of certain resources, including telephone consultation with the specialist, would have averted referral at that time. Potential responses on a 5-point Likert scale ranged from 1 = definitely would have averted to 5 = definitely would not have averted.

Following the referral visit, specialists completed the Specialist Post-Referral Questionnaire, in which they were asked to rate the complexity, appropriateness, and timeliness of the referral on 9-point scales. These terms were defined as follows:

Timing—"The optimal timing of referrals from generalists to specialists has not been established for most conditions. Nevertheless, some referrals are premature and some are delayed. A clearly premature referral is one in which the patient's condition is stable and either: (1) basic clinical data (such as historical information, physical findings, or simple test results) have not yet been obtained or (2) standard empirical therapies have not been tried. A clearly delayed referral is one that should have been made earlier, based upon the patient's severe or worsening clinical condition, or on potentially serious historical, physical, or laboratory findings" (1 = clearly premature, 9 = clearly delayed).

Complexity—"Some referrals are relatively simple and others are more complex. Simple referrals usually take a short time and involve straightforward medical decision making. Complex referrals take a longer time and involve more difficult decisions" (1 = extremely simple, 9 = extremely complex).

Appropriateness—"Referrals from generalists to specialists can vary in their appropriateness. A highly appropriate referral is one in which the patient's problem definitely requires the skills and knowledge of a specialist. Failure to refer a patient under such circumstances might be construed as malpractice. A highly inappropriate referral is one in which the patient's problem could usually be handled equally well or better by the average generalist physician. This type of referral could be construed as a waste of health care resources" (1 = highly inappropriate, 9 = highly appropriate).

Finally, the specialists rated the value of hypothetical telephone consultation in averting referral at that time using the same 5-point scale as the generalists.

Statistical Analysis

Generalists' reasons for referral are reported as item means (± SDs) and as the percentage of generalists who "agreed" or "strongly agreed" with each Likert-type item. Because the focus of this study is on the *encounter*, we used the patient visit (rather than the physician) as the unit of analysis. If particular physicians favored certain reasons for referral (across patients), this analytic strategy could give undue weight to encounters derived from the physicians contributing the greatest number of patients. Intraclass (within physician) correlation coefficients for the 21 "reason for referral" items ranged from 0.193 to 0.766, providing evidence that encounter scores did differ among physicians. However, the results using the physician as the unit of analysis were very similar to those obtained using the patient as the unit of analysis; i.e., mean item scores calculated by the two methods differed by no more than 0.31 units on a 1–5 scale and by less than 0.20 units for 9 of the 21 items. We therefore report only the patient-level analyses.

RESULTS

Numbers of Referrals and Response Rates

Over a 5-month period, generalists made 222 referrals to the four selected subspecialties, and returned 212 Generalist Post-Referral Questionnaires (response rate 95%). Sixty-eight patients (29%) canceled or did not arrive

for their specialty appointment. For the 154 patients who kept their appointments, we received 95 Specialist Post-Referral Questionnaires from 36 different subspecialists (response rate 66%). The number of referrals per physician varied with number of clinic sessions per week and individual referral rates, so that the 22 generalist physicians each contributed between 0 and 25 patient encounters (median 8.5, interquartile range 5–13).

Generalists' Reasons for Referral

Table 1 shows the percentage of referrals in which generalists, using a 5-point Likert scale, strongly or somewhat agreed that certain medical and nonmedical reasons influenced their decision to refer. In most cases, the generalist did not feel that the patient's condition was too complicated for a generalist to handle, nor did he or she wish for the specialist to take over the patient's care. Rather, most referrals were motivated by the generalist's desire to obtain diagnostic or therapeutic advice or to have the specialist perform a diagnostic or therapeutic procedure. Of nonmedical reasons for referral, meeting perceived community standards of care, patient requests, and self-education were cited most commonly, followed by patient education, reassurance, and motivation. Enhancing patient trust, insufficient time, trainee education, and reducing liability risk were cited least often.

Generalists were influenced by a combination of both medical and nonmedical reasons for 76% of the referrals, by only medical reasons for 20% of the referrals, and by only nonmedical reasons for 3% of the referrals. The percentage of referrals for which each medical and nonmedical reason was judged salient was similar across the four subspecialties. General internists and family practitioners cited similar reasons for referral, except that general internists more often acknowledged using referrals to motivate patient adherence to medical advice (20% vs 0%, $p = .004$). There were no significant differences in reasons for referral between those patients who kept their specialty appointments and those who did not except that the latter were slightly more likely to have a "condition too complicated for generalist to handle" (16% vs 5%, $p = .01$) or have a physician who needed "help with understanding a radiographic or laboratory abnormality" (6% vs 1%, $p = .02$).

Table 1. Generalists' Reasons for Referral

Reasons for Referral	%*	Mean ± SD†
Medical reasons		
To get advice about therapy	63	2.6 ± 1.5
To obtain assistance with making a diagnosis	58	2.8 ± 1.6
To confirm a diagnosis	46	3.1 ± 1.4
To perform a diagnostic procedure	40	3.1 ± 1.5
To learn more about treatment options	39	3.3 ± 1.5
To perform a therapeutic procedure	38	3.2 ± 1.5
For assistance in ruling out or ruling in a potentially dangerous condition	34	3.6 ± 1.5
To confirm their current management plan	32	3.5 ± 1.4
Because the patient's condition was too complicated for a generalist to handle	19	3.8 ± 1.2
To have the specialist take over patient's care	16	4.1 ± 1.2
To obtain assistance in understanding a lab or radiographic abnormality	7	4.4 ± 0.9
Non-medical reasons		
To meet the community standard of care	34	3.3 ± 1.4
To accede to the patient's request for referral	33	3.4 ± 1.6
To learn how to deal with similar cases in the future	32	3.6 ± 1.5
To obtain assistance with patient education	23	4.0 ± 1.3
To reassure the patient or the patient's family that a serious disease is not present	22	3.9 ± 1.4
To motivate the patient to adhere to medical advice	17	4.2 ± 1.2
To enhance the patient's trust in their medical judgment	10	4.1 ± 1.1
Because they had insufficient time to evaluate the patient thoroughly	8	4.4 ± 1.0
To benefit medical trainees working with the specialist	8	4.2 ± 1.1
To reduce the risk of medical liability	7	4.3 ± 0.9

**Percentage of referrals in which generalists, using a 5-point Likert scale, strongly or somewhat agreed that the listed nonmedical reason influenced their decision to refer.*

*†Mean ± SD of Likert scale scores, where 1 = strongly agree, 2 = somewhat agree, 3 = uncertain, 4 = somewhat disagree, and 5 = strongly disagree (*n *= 212 Generalist Postreferral Questionnaires).*

Specialists' Ratings of Referrals

Table 2 displays data from the 95 returned Specialist Post-Referral Questionnaires. Specialists rated the vast majority of referrals as timely, as opposed to premature or delayed. Specialists felt that most referrals were of average complexity, although some were felt to be very simple or very complex. Although specialists rated most referrals as appropriate, 30% were rated possibly appropriate or inappropriate.

There were no differences in median appropriateness scores between referrals made for purely medical reasons and those made for a combination of medical and nonmedical reasons. However, those referrals rated as simple (score ≤3) were more likely than others to be rated as possibly appropriate or inappropriate (14% vs 6%, $p = .01$). Finally, there were no differences between the four subspecialties in the specialists' ratings of timeliness, complexity, and appropriateness, nor between specialists' ratings of referrals from different generalists.

Avoidability of Referrals

Table 3, using data from the 212 Generalist Post-Referral Questionnaires returned, shows the percentage of

Table 2. Specialists' Ratings of Timeliness, Complexity, and Appropriateness of Referrals

Rating	*n*
Timeliness*	
1	0
2	1
3	2
4	2
5	81
6	4
7	3
8	1
9	0
Complexity†	
1	3
2	10
3	15
4	10
5	32
6	10
7	11
8	3
9	1
Appropriateness‡	
1	3
2	1
3	3
4	1
5	10
6	11
7	24
8	18
9	24

*n = 94 (although 95 Specialist Postreferral Questionnaires were returned, one specialist failed to respond to this question.) Ratings based on a 9-point scale where 1 indicates clearly premature; 5, timely; and 9, clearly delayed.

†n = 95. Ratings base on a 9-point scale where 1 indicates extremely simple; 5, average complexity; and 9, extremely complex.

‡n = 95. Ratings based on a 9-point scale where 1 indicates highly inappropriate; 5, possibly appropriate; and 9, highly appropriate.

referrals for which generalists felt that certain factors would definitely or probably have allowed them to avoid referral at that time. Training in simple procedures such as skin biopsy or flexible sigmoidoscopy was cited most often, followed by consultation with a trusted generalist colleague and telephone consult with the specialist. In 33% of all referrals, generalists agreed that at least one of the factors listed would have allowed them to avoid referral.

There were 78 referrals for which we received both a generalist and a specialist questionnaire and in which the generalist and specialist did not consult by telephone prior to the referral visit. In 48 (62%) of these 78 cases, generalists and specialists agreed that the referral was not avoidable by phone consultation, and in 3 (4%) of the 78 cases that it was avoidable (agreement in 66% of referrals overall, $\kappa = 0.09$). In 19 cases (24% of the referrals), there was partial agreement regarding referral avoidability by telephone consultation (one or both physicians uncertain), and in 8 cases (10%) there was outright disagreement. Generalists and specialists were significantly more likely to agree that a referral was not avoidable by telephone consultation if it was made for medical reasons only, rather than for nonmedical reasons only or for a combination of medical and nonmedical reasons.

Finally, 23% of specialists had seen the patient previously. However, there were no differences in visit duration, appropriateness, timeliness, complexity, or avoidability by telephone consultation based on whether or not the specialist had prior contact with the patient.

DISCUSSION

The present investigation produced three major findings. First, most referrals to the four specialties studied were made for a combination of medical and nonmedical reasons. This is consistent with Ludke's work on referrals for possible breast cancer,[4] and with Langley et al.'s data on consultation requests by family physicians.[41] Second, specialists rated the majority of referrals they received as both timely and appropriate. Nevertheless, the appropriateness of a significant minority of referrals was questioned. Third, generalists reported that up to one third of referrals could have been averted. However, generalists and specialists frequently disagreed on which referrals could actually have been avoided.

Many previous studies of referrals have looked at a very small number of physicians or referrals[3,42–44]; larger investigations have tended to focus more on rates of referral and less on doctors' reasons for referral.[1,2,6,15–17,34,45,46] Those studies that did evaluate physicians' reasons for referral mention the desire for advice on diagnosis or management, performance of a procedure, or a second opinion[4,9]; generalist's workload; practice style ("aggressive" vs "watch and wait")[17]; time constraints; a need to reduce one's own anxiety over care of the patient; availability

Table 3. Referral Avoidability

Avoidable Through	%†
Training in procedures such as skin biopsy or flexible sigmoidoscopy	17
Consultation with a trusted generalist colleague	13†
Telephone consult with specialist	12†
The presence of a health educator	10
Readily available clinical practice guidelines	7
Longer visit length	6
Computerized medical expert systems	4
MEDLINE search capabilities	2†
Subspecialty texts	1†

*Percentage of referrals for which generalists, using a 5-point Likert scale, felt that the factors listed would definitely or probably have allowed them to avoid referral at that time.

†Resources already available to all generalists in the study clinics.

of consultants[35]; familiarity with the patient[47]; patient expectation of or request for referral[41,48]; and familiarity of the generalist and patient with the available specialists.[4,19,49] Previous studies have not elicited the perceptions of the consulting specialists regarding specific referrals, nor have they sought to identify the factors that may have allowed some referrals to have been safely delayed or averted.

Our findings that patient request for referral influenced one fifth of referral decisions echoes those of Armstrong et al.,[48] who showed a positive correlation between a practitioner's referral rate and the degree of pressure he or she felt from patients for referral, and Marton et al.,[50] who reported that patient expectation for an upper gastrointestinal series played a role in two thirds of ordered procedures. Studying different groups in internal medicine outpatients in managed care settings, Lin et al. found that 54% of patients felt that they either needed or possibly needed subspeciality referral[51]; the corresponding figure in Kravitz et al. was 37%.[52] Menken et al. found that in one third of general internists' referrals to neurologists in an HMO, the neurologists' advice regarding diagnosis and treatment was of minor or no importance.[32] Rather, such referrals often resulted from patient and family demands, or else were focused on a perceived need for neuroimaging, even when the likely diagnosis and required treatment were already evident. Even so, seeing a specialist can provide many patients with reassurance,[42] and can be considered beneficial and appropriate if, over the long run, specialty contact leads to fewer visits and better outcomes at lower costs.

Our findings of partial agreement or outright disagreement between generalists and specialists over the avoidability of referrals by telephone consult parallel those of Lee et al.,[9] who found differences of opinion between generalists and specialists regarding whether or not inpatient consultations were crucial for patient management, as well as those of Kuo et al.,[45] who showed disagreements between generalists and subspecialists in perceptions of the quantity and quality of information provided during curbside consultation.

This research has certain limitations, including the limited number of physicians enrolled. However, we were more interested in the referral process than in referral rates, and therefore used referrals as our units of analysis. Second, we evaluated a local, highly capitated managed care population in an academic setting, which may limit the generalizability of our results. Third, we evaluated a local population of physicians at one academic medical center and did not assess differences in referral characteristics based on patients' insurance status. Fourth, the "no-show" rate of 29% was somewhat higher than the 6% to 26% rates reported by others.[53–58] Reasons for this are not clear, but follow-up was limited to the initially scheduled specialty visit. It is not known how many of the patients who did not arrive for appointments rescheduled their specialty appointments for a later date, visited other specialists outside the university, or failed to appear because their symptoms resolved, they moved out of the area, or they died.

Dr. Donohoe was supported by a Robert Wood Johnson Clinical Scholars Grant at the Palo Alto Veterans Hospital and Stanford University and by a small Health Services Research and Development Award from the Palo Alto Veterans Hospital.

REFERENCES

1. Mayer TR. Family practice referral patterns in a health maintenance organization. J Fam Pract. 1982;14(2):315–9.
2. Schmidt DD. Referral patterns in an individual family practice. J Fam Pract. 1977;5(3):401–3.
3. Geyman JP, Brown TC, Rivers K. Referrals in family practice: a comparative study by geographic region and practice setting. J Fam Pract. 1976;3(2):163–7.
4. Ludke RL. An examination of the factors that influence patient referral decisions. Med Care. 1982;20(8):782–96.
5. Schaffer WA, Holloman FC Jr. Consultation and referral between physicians in new medical practice environments. Ann Intern Med. 1985;103(4):600–5.
6. Tenney JB, Brown TC, Rivers K. National ambulatory medical care survey: background and methodology. Vital Health Stat 2. 1974; 61:74–1335.
7. Franks P, Clancy CM, Nutting PA. Defining Primary Care. Empirical analysis of the National Ambulatory Care Survey. Med Care. 1997;35(7):655–68.
8. Schneeweiss R, Ellsbury K, Hart LG, Geyman JP. The economic impact and multiplier effect of a family practice clinic on an academic medical center. JAMA. 1989;262(3):370–5.
9. Lee T, Pappius EM, Goldman L. Impact of inter-physician communication on the effectiveness of medical consultations. Am J Med. 1983;74(1):106–12.
10. Greenfield S, Nelson EC, Zubkoff M, et al. Variations in resource utilization among medical specialties and systems of care: results from the Medical Outcomes Study. JAMA. 1992;267(12):1624–30.
11. Brock C. Consultation and referral patterns of family physicians. J Fam Pract. 1977;4(6):1129–37.
12. Calman NS, Hyman RB, Licht W. Variability in consultation rates and practitioner level of diagnostic certainty. J Fam Pract. 1992; 35(1):31–8.
13. Gonzalez ML, Rizzo JA. Physician referrals and the medical market place. Med Care. 1991;29(10):1017–27.
14. Penchansky R, Fox D. Frequency of referral and patient characteristics in group practice. Med Care. 1970;8(5):368–85.
15. Pearson SD, Salem-Schatz S, Rucker M, Orav EJ, Pedan A. Variation in referral rates for acute low back pain in an HMO. J Gen Intern Med. 1995;10(suppl 4):76. Abstract.
16. Metcalfe DH, Sischy D. Patterns of referral from family practice. J Fam Pract. 1974;1(2):34–8.
17. Pearson SD, Salem-Schatz S, Rucker M, Orav EJ, Pedan A. HMO physician correlates of referral for acute low back pain. J Gen Intern Med. 1995;10(suppl 4):76. Abstract.
18. Strohmeyer RW Jr, Shula RJ. Physician's liability for failure to consult with and/or refer a patient to a specialist. Indiana Med. 1988;81(1):45–7.
19. Mold JW, Stein HF. The cascade effect in the clinical care of patients. N Engl J Med. 1986;314(8):512–4.
20. Braham RL, Ron A, Ruchlin HS, Hollenberg JP, Pompei P, Charlson ME. Diagnostic test restraint and the specialty consultation. J Gen Intern Med. 1990;5(2):95–103.
21. Kahn KL, Kosecoff J, Chassin MR, Solomon DH, Brook RH. The use and misuse of upper gastrointestinal endoscopy. Ann Intern Med. 1988;109(8):664–70.

22. Winslow CM, Kosecoff JB, Chassin M, Kanouse DE, Brook RH. The appropriateness of performing coronary artery bypass surgery. JAMA. 1988;260(4):505–9.
23. Berczeller PH. The malignant consultation syndrome. Hosp Pract (Off Ed). 1991;26(9):29–31.
24. Eisenberg L. Treating depression and anxiety in primary care: closing the gap between knowledge and practice. N Engl J Med. 1992;326(16):1080–4.
25. Kashner TM, Rost K, Smith GR, Lewis S. An analysis of panel data: the impact of a psychiatric consultation letter on the expenditures and outcomes of care for patients with somatization disorder. Med Care. 1992;30(9):811–21.
26. O'Dell MW. Rehabilitation medicine consultation in persons hospitalized with AIDS: an analysis of thirty cases. Am J Phys Med Rehabil. 1993;72(2):90–6.
27. Turner BJ, McKee L, Fanning T, Markson LE. AIDS specialist versus generalist ambulatory care for advanced HIV infection and impact on hospital use. Med Care. 1994;32(9):902–16.
28. Bloomfield S, Farquhar JW. Is a specialist paediatric diabetic clinic better? Arch Dis Child. 1990;65(1):139–40.
29. Ward MM, Leigh JP, Fries JF. Progression of functional disability in patients with rheumatoid arthritis: associations with rheumatology subspecialty care. Arch Intern Med. 1993;153(19):2229–37.
30. Hooker RS, Brown JB. Rheumatology referral patterns. HMO Pract. 1990;4(2):61–5.
31. Hickam DH, Smith SP, Joos SK. Natural history and management of psychologic problems in a general medicine clinic. J Gen Intern Med. 1994;9(suppl 2):56. Abstract.
32. Menken M, Behar R, Lee P. Neurology referral patterns. HMO Pract. 1990;4(2):57–60.
33. Grembowski DE, Cook K, Patrick DL, Roussel AE. Managed care and physician referral. Med Care Res Rev. 1998;55(1):3–31.
34. Chao J, Galazka S, Stange K, Fedirko T. A prospective review system of nonurgent consultation requests in a family medicine residency practice. Fam Med. 1993;25(9):570–5.
35. Roland M, Morris R. Are referrals by general practitioners influenced by the availability of consultants? BMJ. 1998;297(6648): 599–600.
36. Friedman E. Whither medical education? A sometimes inflexible system faces change. JAMA. 1993;270(12):1473–6.
37. Sick People in Managed Care Have Difficulty Getting Services and Treatment. New Survey Reports, Robert Wood Johnson Foundation, June 28, 1995.
38. Doyle RL. Section B—primary care guidelines. In: Healthcare Management Guidelines. Milliman and Robertson; 1991.
39. Hurley RE, Freund DA, Gage BJ. Gatekeeper effects on patterns of physician use. J Fam Pract. 1991;32(2):167–74.
40. Cain JM, Jonsen AR. Specialists and generalists in obstetrics and gynecology: conflicts of interest in referral and an ethical alternative. Womens Health Issues. 1992;2(3):137–45.
41. Langley GR, MacLellan AM, Sutherland HJ, Till JE. Effect of nonmedical factors on family physicians' decisions about referral for consultation. Can Med Assoc J. 1992;147(5):659–66.
42. Fitzpatrick R, Hopkins A. Referrals to neurologists for headaches not due to structural disease. J Neurol Neurosurg Psychiatry. 1981;44(12):1061–7.
43. Greenfield S, Linn LS, Purtill N, Young RT. Reverse consultations: the profiles of patients referred from subspecialists to generalists. J Chronic Dis. 1983;36(12):883–9.
44. Leonard I, Babbs C, Creed F. Psychiatric referrals within the hospital—the communication process. J R Soc Med. 1990;83(4):241–4.
45. Kuo D, Gifford DR, Stein MD. Curbside consultation practices and attitudes among primary care physicians and medical subspecialists. JAMA. 1998;280(10):905–9.
46. Keating NL, Zaslavsky AM, Ayanian JZ. Physicians' experiences and beliefs regarding informal consultation. JAMA. 1998;280(10): 900–4.
47. Hjortdahl P, Borchgrevnik CF. Continuity of care: influence of general practitioners' knowledge about their patients on use of resources in consultations. BMJ. 1991;303(6811):1181–4.
48. Armstrong D, Fry J, Armstrong P. Doctors' perceptions of pressure from patients for referral. BMJ. 1991;302(6786):1186–8.
49. Eisenberg JM. Physician utilization: the state of research about physicians' practice patterns. Med Care. 1985;23(5):461–83.
50. Marton KI, Sox HC Jr, Wasson J, Duisenberg CE. The clinical value of the upper gastrointestinal tract roentgenogram series. Arch Intern Med. 1980;140(2):191–5.
51. Lin CT, Albertson G, Swaney R, Anderson S, Anderson R. Patient expectations for subspecialty referral in an academic managed care system. J Gen Intern Med. 1998;13(suppl):65. Abstract.
52. Kravitz RL, Cope DW, Bhrany V, Leake B. Internal medicine patients' expectations for care during office visits. J Gen Intern Med. 1994;9(2):75–81.
53. Byrd JC, Moskowitz MA. Outpatient consultation: interaction between the general internist and the specialist. J Gen Intern Med. 1987;2(2):93–8.
54. McPhee SJ, Lo B, Saika GY, Meltzer R. How good is communication between primary care physicians and subspecialty consultants? Arch Intern Med. 1984;144(6):1265–8.
55. Cummins RO, Smith RW, Inui TS. Communication failure in primary care: failure of consultants to provide follow-up information. JAMA. 1980;243(16):1650–2.
56. Lloyd M, Bradford C, Webb S. Non-attendance at outpatient clinics: is it related to the referral process? Fam Pract. 1993;10(2):111–7.
57. Mantyjarvi M. No-show patients in an ophthalmological out-patient department. Acta Ophthalmol (Copenh). 1994;72(3):284–9.
58. Ross JD, McIver A, Blakely A, Dalrymple J, Peacock W, Wallis C. Why do patients default from follow-up at a genitourinary clinic?: a multivariate analysis. Genitourin Med. 1995;71(6):393–5.