Interprofessional Referral Patterns in an Integrated Medical System

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Abstract

Objective: To determine the interreferral patterns among physicians and complementary and alternative medicine (CAM) providers in an independent practice association integrated medical system.

Method: Data from a 1-year period were collected on referral patterns, diagnosis, number of visits, cost, and qualitative aspects of patient care. The independent practice association provided care for approximately 12 000 patients.

Results: In the selected integrative network, there are those primary care physicians (PCPs) who refer and those who do not. Among those PCPs that refer to CAM, a preference is shown for a limited number of providers to whom they refer. Although doctors of chiropractic get more referrals, they are also more concentrated among selected providers than are doctors of oriental medicine.

Conclusion: This study shows the interreferral patterns among the PCP and CAM providers working within an integrated medical system. One effect of being in the network for doctors of chiropractic and doctors of oriental medicine might be the possible interreferrals between each other. (J Manipulative Physiol Ther 2005;28:170-174)

Key Indexing Terms: *Integrated Medical Systems; Referral Patterns; Chiropractic*

In the United States, by 1998, 65 of 125 accredited medical schools had programs in complementary and alternative medicine (CAM),[1] and this is increasing annually (it was 32 in 1995,[2] 42 in 1997).[3] Although this growth in interest may be greater in the United States, a 1998 survey in the United Kingdom found that 26% of medical schools were teaching CAM, but this had doubled in a single year.[4]

It is clear that a major paradigm shift, as defined in Kuhn's seminal work, is occurring. Within a very short period, medicine has moved from simply acknowledging the existence of CAM, to cooperating with CAM, to embracing CAM. Increasingly, medicine is incorporating CAM into medical education and practice. It should not be assumed, however, that acceptance of courses in medical schools necessarily means acceptance by the entire medical faculty. The response to these courses has been mixed.[5] Surveys of medical providers indicate that physicians perceive some CAM therapies as moderately effective,[6] and 50% of family physicians thought CAM represents legitimate medical practices.[7] With 40% of their patients having used CAM,[8] it is increasingly necessary for medical physicians to be at least conversant with the more common CAM practices, even more so when they involve herbs or natural substances and supplements. This paradigm is increasingly being identified as integrative medicine.

In the United States, integrative medicine is being developed in a highly individualistic manner, and there is an increasing body of literature on individual experiments in creating integrative centers.[9] By 1998, at least a dozen major medical schools had created programs in integrative medicine. Most of these have occurred within schools of medicine, although some, such as that at Stony Brook, brought together several schools such as nursing, medicine, social welfare, dentistry, and health technology and management.[10]

Organizational Challenges

Given this background, the practice of integrating CAM into mainstream medicine may be a challenging task. There is the professional historical animosity to consider, the elements of economic competition, and the lack of a clearly agreed upon principle on which to base the integration. It is

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Paper submitted August 6, 2003; in revised form December 9, 2003.
0161-4754/$30.00

doi:10.1016/j.jmpt.2005.02.016

clear that to be successful, there must be a considerable change in both professional attitudes and behavior.

For CAM to be integrated into a hospital setting requires not only a change in the attitudes of resident medical staff but also in the relationship between the CAM providers and the hospital. There must also be an acceptance by the patients, and potential patients, with regard to the use of CAM. Looked at sociologically, for CAM to be integrated, it must become a seamless part of a social nexus uniting these numerous stakeholders. Kailin,[11] in examining the organizational challenges for integrative medicine, notes that it involves the synthesis of information from 3 domains of knowledge: technical, organizational, and personal. Shortell et al[12] have argued that an integrated delivery system requires administrative integration, practitioner-system integration, and clinical integration. However, to date, the evidence suggests that most of the integration is done by the patients.[13]

Integrated Medicine Networks

There is general acceptance that to be meaningful and effective, CAM must be integrated at the clinical level.[11] One of the primary organizational structures that have emerged for integrative medicine is the professional network. The level of integration in a network can be judged by the extent to which the CAM providers have access to other care services in the clinic and the extent to which their services are used.

Integrative medicine networks bring together distinct stakeholders. At the most fundamental level, it brings together those who offer a service (CAM providers), those who are in a position to refer patients to a service (medical physicians), those who seek a service (CAM patients), and those who regulate integration (administrators). However, each of these is locked into systems with other stakeholders. For the CAM provider, this may be a broader CAM community. This may be a particular profession, as in the case of chiropractors or acupuncturists, or it could be the community CAM providers as a whole. Where the CAM provider is an allopathic physician, this could also include the medical community or a hospital community. Each will have a distinct stake in integrative medicine and many of these may be in conflict.

The analysis of such networks provides a rich and systematic understanding of the relationships among people, teams, departments, or even entire organizations. By making visible where key collaborations are or are not occurring, it makes it possible to assess the newly emerged networks for integrative medicine. At the professional level, to what extent in such a system do referrals occur across the variety of CAM providers? Which referral patterns are reciprocal as opposed to being unidirectional? Are such referrals based on professional or personal relationships?

Because integrative medical systems are only just being established, there is a lack of empirical data on how they are functioning. As we begin such studies, an approach can be used to characterize systems or networks of care and the degree and type of coordination and integration existing in these networks.[14] This study is seen as a preliminary attempt to start collecting data from an incipient integrative network and to begin the process of developing a model for analyzing the data within a network analysis. Ultimately, it will need to be supplemented with both qualitative and quantitative research whose purpose is to delineate whose relationships in the network get established, how they function, and what their meaning is to the participants. This should lead to studies that can determine the outcomes for such networks for the patients health and for the professional development and satisfaction for the providers involved.

Methods

The state insurance commission in New Mexico has required coverage of CAM therapies by the conventional insurance industry. Integration of CAM therapies with conventional medicine for patients with medical insurance has been difficult and limited by variation in practice standards, diverse credentialing standards, lack of standardized referral patterns from the primary care provider, unreliable cost data, and lack of accurate billing codes.

Southwest Health Options is an independent practice association (IPA) in New Mexico.[15] All members were licensed in New Mexico to practice medicine, maintained malpractice insurance, and met the credentialing standards set up by Southwest Health Options, Santa Fe Health Care, and Presbyterian Health Plan. The following therapies were included: chiropractic, acupuncture, medical acupuncture, homeopathy, osteopathy, massage therapy, and therapeutic yoga. Oncall schedules for patient triage were maintained for the services offered and monthly peer review and use management meetings were held.

Thirty-three licensed providers with the following licenses participated in this IPA: medical doctor, doctor of osteopathy, physician assistant, doctor of chiropractic (DC), and doctor of oriental medicine (DOM). All providers signed a contract directly with Southwest Health Options, which in turn signed a contract to manage alternative and complementary medicine with a local managed care organization working with Presbyterian Health Plan in Santa Fe. This IPA provided the complementary and alternative medical care for approximately 12 000 patients insured by Presbyterian Health Plan in Santa Fe from 1998 through 2000. Though the Presbyterian Health Plan may have collected data before 1998, the Southwest Health Options database is used here (1998-2000).

Fee schedules with copayments were negotiated for each specialty. Data were collected on referral patterns, diagnosis, number of visits, cost, and qualitative aspects of patient care. The most frequently used service was chiropractic,

Table 1. *Interreferral patterns between PCPs and DOMs*

No. of patients referred to DOM[a]	No. of PCP	Percentage of total PCP (%)
Zero	8	20
1-5 patients	27	66
6-10 patients	4	10
More than 10 patients	3	4
Total no. of PCP	42	100

[a] Based on 124 referrals in 1998-1999.

Table 2. *Interreferral patterns between PCPs and DCs*

No. of patients referred to DC[a]	No. of PCP	Percentage of total PCP (%)
Zero	7	17
1-5 patients	25	61
6-10 patients	6	15
More than 10 patients	3	7
Total no. of PCP	41	100

[a] Based on 136 referrals in 1998-1999.

followed by acupuncture (>1000 visits). Homeopathy, osteopathy, massage therapy, and therapeutic yoga all had distinctly fewer visits (<100 visits).

The referral patterns from primary care physicians (PCPs) to CAM specialists were primarily driven by patient request (75%). A smaller group of referrals were sent to the Southwest Health Options administrator for triage to the appropriate specialist (8%). Seventeen percent of referrals were from the PCP directly to a specific CAM specialist. Per member per month costs averaged $1.12, higher than allowed by some national plans.

The data included in this analysis are from the 1998 to 2000 entries in the Southwest Health Options tracking database. This study was conducted retrospectively and used only data from DC and DOM, because the numbers from the other CAM therapeutic types were insufficient for analysis purposes.

Results

Referral Patterns of PCP to CAM Providers

In Table 1, we show the interreferral pattern between the providers in the network. It shows that for 1998 to 1999, 20% of the PCPs did not refer any patients to the DOMs, 66% referred 1 to 5 patients, 10% referred 6 to 10 patients, and 4% referred more than 10 patients. What is also clear is that certain PCPs account for the largest number of referrals. Of the total 124 referrals in this period, 4 PCP doctors made 36.2% of the referrals. Conversely, the top 3 DOMs who received referrals account for 44% of the referrals.

For referrals to DCs (Table 2), 17% of the PCPs made no referrals, 61% referred 1 to 5 patients, 15% referred 6 to 10 patients, and 7% referred more than 10 patients. For the chiropractors, 3 PCPs accounted for 33% of the referrals and 8 accounted for 60% of the referrals. Furthermore, the top 3 chiropractors accounted for 80% of the referrals received.

For those top 4 PCPs who refer most to DOMs, the pattern is to refer to several DOMs. The number of referrals compared to DOMs and the number of providers referred to are represented by the following: 16:7,12:7, 8:4, and 8:3. The pattern for DCs, however, is different. Focusing on the top 5 PCP referrers to DCs, the pattern is 19:2, 14:2, 14:6, 9:4, and 8:4. Here the top PCP referrers tend to use only 2 chiropractors. This suggests that either the PCPs are less sure of the DOM providers or that they feel there is less difference between them than there is between individual chiropractors.

Another way of looking at the data is to examine the relationship between those who refer to both DOMs and DCs. In only 3 instances does a PCP give no referrals to either a DOM or a DC. For the 7 who do not refer to a DC, 4 do refer to a DOM, whereas for the 8 who do not refer to a DOM, 5 refer to a DC.

Table 3. *Referral patterns between DOMs and DCs*

No. of patients	Direction of the referral
16	DOM→DC
11	DC→DOM
4	DOM→DOM or DC
9	DOM only
3	DC only
43 total	

Referral—DOMs to DCs

A second type of referral occurs between the CAM providers in the network. In Table 3, we show the referral pattern for DOMs and DCs. These results would suggest that in a network such as this, CAM providers do refer to each other and this in fact might be one of the benefits of being in such a network. Both the DOM providers and the DC have established referral patterns.

Discussion

The data resemble a good news/bad news scenario. For the good news, in this network, of the 42 PCP providers, only 3 are not linked through referrals to at least one CAM provider in the period studied. But the bad news, however, is that for most of the PCPs, the number of referrals is quite low. Any CAM provider relying solely on the referrals to generate a patient flow would not do very well

in this network. This finding might reflect either the nature of the patient population, one which does not necessitate referral, or may reflect reluctance or inexperience on the part of the PCPs with the type of CAM therapy offered by DOMs or DCs.

Looked at in the context of the broader question about the future of integrated systems, although the number of integrated delivery systems is expanding rapidly, they are encountering difficulties.[16] This is partly a result of the complexities involved. As Shortell et al[12] noted, 3 levels of integration have to be achieved: administrative integration, practitioner-system integration, clinical integration. However, there is a dearth of information about how the integration of CAM and conventional systems is progressing. In the case of chiropractic, no studies have been done on the new chiropractic role in emerging CAM clinics.[17] He reports on one survey intended to benchmark the barriers to cooperation of practitioners such as naturopathy, herbology, homeopathy, acupuncture, massage, mind-body methods, and manual and manipulative therapies in 25 clinics and 5 additional nonbenchmark CAM clinics.[18,19] The results show that the degree of integration varied considerably. Somewhat more sobering is that few integrative clinics are economically sound.[20]

In a regional survey, Berman et al[7] found that 55.9% of the PCPs surveyed thought acupuncture was a legitimate practice, 13.5% had used it, and another 22.9% to 26.8% indicated that they would refer a patient to a physician or nonphysician, respectively. The Berman regional survey[7] reported that 48.9% felt chiropractic was legitimate, 27.2 had used it, and 29% would use it in their practices. In the nationwide survey, 38.7% of the respondents thought chiropractic was legitimate, 19.2% used it in their practice, 29.1% would use it, and 6.5% to 56.2% made referrals with the range a result of differences among PCP specialties.[21]

A prediction model of physician use was built using type of degree, specialty, and years in practice. In this model, only years in practice was a significant predictor. When these variables were entered into another model using training and attitude, attitudes followed by training were significant predictors of use with degree, specialty, and years in practice, nonsignificant predictors of CAM use. It is certainly possible that the referral patterns are more a result of perceived knowledge about the CAM therapies available, their effectiveness in the diagnosis for which the referral would be made, and any training whether preliminary or complete that the potentially referring clinician may have. The findings that indicate that referrals were clustered among certain PCPs and were frequently made to the same DOM or DC may indicate that knowledge of the CAM practitioner may also be an explanatory factor for the referral patterns. Availability of services and disproportionate costs are unlikely explanations of the patterns reported here as they were all housed within the same IPA.

Conclusion

A network system, such as the one described here, may provide an administrative structure through which changes in physician attitudes can be realized in terms of actual referrals for their patients. Furthermore, it offers possibilities for the CAM providers to establish a referral network with each other.

Acknowledgments

The authors would like to thank Southern California University of Health Sciences student Matthew R. Lyon, BA, for his assistance with this project.

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