Background: Most patients using alternative practitioners also receive care from physicians. It is unclear, however, how well alternative practitioners and physicians communicate and coordinate the care of shared patients.

Objective: To describe the communication and coordination of care for shared patients between chiropractors and family physicians as well as potential barriers to effectively sharing care.

Design, Setting, and Participants: A cross-sectional national random sample survey of 400 chiropractors and 400 family physicians.

Main Outcome Measures: Reports on shared patients including information on adverse events, treatment, and health status. Attitudes toward perceived expertise as well as perceived liability and economic competition involved in sharing care were also assessed.

Results: Surveys were completed by 360 (49%) of the 736 eligible practitioners, including 227 chiropractors and 133 family physicians. Although a high degree of interaction occurs between the practitioners, family physicians received information from chiropractors on 26.5% of referred patients while chiropractors received information from family physicians in 25.0% of cases ($P = .73$). Both groups believed that they did not receive enough information on adverse health outcomes or treatment plans for shared patients. Although neither group was particularly oriented toward wanting to share care, family physicians were much less likely than chiropractors to feel comfortable sharing care ($P < .001$).

Conclusions: These findings indicate that care is fragmented between chiropractors and the general medical sector, with little information communicated between health care providers on issues with critical importance to quality of care. Further study is needed to identify ways to improve communication and coordination of care.

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HE FRAGMENTATION of a patient’s health care across providers may lead to a greater chance of missed information about the patient’s history, treatments, and comorbid conditions. Decreased fragmentation exists in cases with high continuity of care between a patient and a provider. Although higher continuity has many advantages, in some cases patients will see or will need to see a variety of providers, thereby making discontinuity unavoidable. In those cases, communication between providers and coordination of care is necessary to limit the effect of fragmentation of care. Because problems in communication between specialist and generalist physicians are common, a variety of health care delivery models are used to coordinate and share care between specialist and primary care providers.

Many Americans receive medical care from practitioners of alternative medicine. The United States has seen a significant rise in the number of visits to alternative practitioners, from 427 million visits in 1990 to 629 million visits in 1997. This use of alternative practitioners can be compared with the 386 million visits to primary care physicians in 1997. Although the use of alternative practitioners increased substantially, most patients use alternative practitioners in addition to rather than in lieu of medical doctors. In fact, 96% of patients who saw an alternative practitioner also saw a medical doctor during the same year. Moreover, less than 5% of adults using alternative forms of health care can be categorized as relying primarily on this type of care. Unfortunately, little coordination of care seems to be taking place between alternative practitioners and medi-
MATERIALS AND METHODS

DESIGN

Data for this study were gathered in a mail survey of a national random sample of family physicians and chiropractors conducted in June through August 1999. Samples of both chiropractors and family physicians were surveyed to provide a more complete picture of the communication and coordination of care between the practitioners than would be gathered by surveying only one group of providers. Matching questions were asked of both groups to compare behavior and perceptions.

A random sample of 400 family physicians was selected from the American Board of Family Practice Membership and Resource Directory, 1997-1998. Similarly, a random sample of 400 chiropractors was selected from the computerized database of the current membership of the American Chiropractic Association.

The mail survey was conducted using the following design: a preliminary survey announcing the forthcoming questionnaire with an initial mailing of the questionnaire, and a second mailing for individuals who did not respond after the initial query. Each packet included a self-addressed stamped envelope.21 The study was approved by the institutional review board of the Medical University of South Carolina, Charleston.

VARIABLES

The providers were surveyed about their adult patients. Information was gathered about adult patients because adults are independent decision makers about health care. For comparison purposes both groups of practitioners were asked comparable questions about interactions and attitudes regarding the other discipline. The only difference between the questions was that family physicians were asked about chiropractors and chiropractors were asked about family physicians.

Both samples were asked about referring patients as well as the level of communication in comanaging patients (referred patient or self-referred patient). Following from Hawk and Dusio,22 we included questions about sending and receiving reports on patients. Further, the respondents were asked about the sharing of information on adverse health outcomes, as well as health status and outside treatments in their patients who are currently using the other kind of practitioner.

We also measured a variety of attitudes on a 5-point Likert-type scale (1 = strongly agree; 5 = strongly disagree). These included a perception of liability with shared-care patients, agreement with wanting to share care, economic competition involved in sharing care, and assessment of chiropractors as primary care practitioners. The item regarding consideration of chiropractors as primary care practitioners is taken from a previous survey of chiropractors.22

Family physicians were asked several items not asked of the chiropractors, including items from a previous study of family physician attitudes toward chiropractors.20 Family physicians were asked about their knowledge of chiropractors and their perception of expertise of chiropractors in providing care for musculoskeletal conditions as well as nonmusculoskeletal conditions. Family physicians were also queried if they ask their patients if they use chiropractors.

ANALYSIS PLAN

Initially descriptive statistics were computed. Inferential bivariate statistics (eg, χ² test, t test) were computed comparing the 2 groups of practitioners on the same questions. In an effort to determine potential barriers or factors that may relate to sharing care, we conducted 2 multivariate linear regressions that included all practitioners. The first regression analysis was computed with the dependent variable of the proportion of referrals in the past 3 months in which the provider sent a report to the referring provider of the other discipline. The second regression analysis was computed with the dependent variable of being comfortable sharing care with the other discipline’s providers. Both regressions were forced inclusion models with the independent variables of attitudes regarding liability, chiropractors as primary care practitioners, economic competition, ratings of the previous experience of receiving adequate information about adverse health outcomes in shared patients, ratings of the previous experience of receiving adequate information about treatment and patient health status in shared patients, and the demographic variables of practitioner type (chiropractor/family physician), sex, years in practice, and a dummy variable for region of the country. In the regression of proportion of referrals in which a report was sent, the attitude of being comfortable sharing care was included as an independent variable.

Chiropractors provide a good model of communication issues between alternative medicine practitioners and family physicians. Chiropractors are the third largest group of independent health care providers in the United States, behind physicians and dentists.20 However, chiropractors have been on the fringe of mainstream health care. In fact, as recently as 1980, the American Medical Association’s Principles of Medical Ethics proscribed any associations between physicians and chiropractors or other “unscientific practitioners.” Chiropractors play a major role in the care of persons with back and neck problems. Some chiropractors consider themselves to be primary care physicians and commonly treat a variety of non-neuromusculoskeletal conditions (eg, respiratory conditions, ear infections, menstrual problems) as well.21,22 In fact, in one...
Of the 400 chiropractors targeted for participation, 9 were unable to participate (undeliverable address, retired, disabled) and 227 provided usable surveys. The response rate for the chiropractor sample was 58%. Of the 400 family physicians targeted for participation, 55 were unable to participate (undeliverable address, retired, disabled) and 133 provided usable surveys. The response rate for the family physician sample was 39%. Thus, 360 practitioners participated with a total response rate of 49%.

The demographics of the samples are given in Table 1. Chiropractors were more likely to be in solo or small-group practices than family physicians. The family physicians felt generally informed regarding chiropractic medicine, with 64.8% indicating that they were either “moderately” or “very” informed. Further, 66% of the family physicians ask their patients if they use chiropractors.

A high degree of superficial interaction occurs between the practitioners; 98% of the chiropractor respondents report that they refer patients to family physicians, while 63% of the family physicians refer patients to chiropractors (P < .001). Among family physicians, 65.1% of the respondents report 20% or less of their patients also use chiropractors, while 94.1% of the chiropractors reported that more than 20% of their patients also use family physicians. Similarly, 78% of chiropractors receive referred patients from family physicians and 56% of family physicians receive referred patients from chiropractors. The mean proportion of referrals within the last 3 months for which family physicians received information from chiropractors was 26.5%, while chiropractors received information from family physicians in 25.0% of cases (P = .73). Regarding sending reports back to the other discipline’s practitioner, the mean proportion of cases for which a chiropractor sent a report was 48.2%, while family physicians sent a report in 24.9% of the cases (P = .001). The attitudes among both groups of practitioners toward sharing care for patients with chiropractors/family physicians is presented in Table 3.

**RESULTS**

The attitudes among both groups of practitioners toward sharing care are presented in Table 3. Family physicians are much less likely than chiropractors to feel that chiropractors are primary care practitioners. Moreover, although family physicians are significantly less likely than chiropractors to feel comfortable sharing care, neither group is particularly oriented toward wanting to share care. Regarding family physicians’ perceptions of chiropractors, on a 5-point scale (1 = strongly agree; 5 = strongly disagree) the mean response to the item that chiropractors are an excellent...
source of care for some musculoskeletal problems was 2.50. In contrast, the mean response of the family physician respondents to the item that chiropractors are an excellent source of care for some nonmusculoskeletal problems was 4.25.

The results of the linear regression on sending reports to the other discipline’s practitioners after receiving a referral indicated that none of the entered variables were significant predictors. No predictors were significant even when the model was computed in a stepwise fashion. The second regression on comfort sharing care with the other discipline’s practitioners yielded several significant variables with a model $R^2$ of 0.43. The standardized coefficients for the predictors that were significant at $P<.05$ were practitioner type ($β = .25, P = .001$), feeling an increased liability by sharing patients ($β = −.25, P = .001$), feeling in competition for patients ($β = −.21, P = .001$), previous receipt of adequate information about treatment plan and patient health status for shared patients ($β = −.19, P = .008$), and feeling that chiropractors are primary care physicians ($β = .17, P = .01$).

**COMMENT**

The results of this study indicate that although there is a great deal of referring of patients and sharing of care between chiropractors and family physicians, the coordination of care for shared patients between these 2 groups of practitioners is very poor. Both groups acknowledge poor communication of important information about shared patients. Chiropractors, perhaps by virtue of their status as a relative outsider to the mainstream medical establishment, are more positive toward working together and sharing care than are family physicians.

The poor communication and coordination of care for shared patients has significant implications for quality of care. Breakdowns in communication between practitioners are not uncommon in consultations between generalist and specialist physicians and may adversely affect patient care.27 In a study of communication between primary care physicians and subspecialty consultants, the referring physicians provided patient background in 98% of the cases and made explicit the purpose of the referral in 76% of the cases.26 The consultants communicated their findings to the referring practitioners in 55% of the consultations.

In this study, both groups of practitioners reported that they rarely received adequate information on either adverse events or treatment and health status. Referral and reply letters are common means by which practitioners exchange information relevant to patient care. Previous studies of communication between physicians has indicated that referring physicians specifically want information regarding proposed treatment and expected outcomes.27 This type of information is particularly crucial to convey between practitioners. Expecting patients to be the information conduit could be problematic because patients who use complementary and alternative medicine are often reluctant to disclose this to their physician.28 Patients may feel that the complementary and alternative medicine therapies are irrelevant to the biomedical treatment course, even though the use of both therapies simultaneously may have a high risk for potential adverse events.

Several attitudinal items provide a context for the content of their care, it is unlikely that they would provide comprehensive care since they are not licensed to do so in most states. Primary care is usually considered to be provided by physicians, and in particular physicians of specific specialties (eg, family or general practice, general internal medicine, general pediatrics). Chiropractors are not alone as a specialty in their self-designation as primary care providers as a way to access patients, even though it is questionable whether comprehensive care is provided.28 The fact that chiropractors consider themselves primary care providers is somewhat disturbing from a quality of care viewpoint, since they are not able to provide most of a patient’s health care needs, including the prescribing of medication. However, this belief on the part of chiropractors might be one explanation for why they often do not communicate with their patients’ family physicians.

Family physicians in our survey did not agree that chiropractors are primary care practitioners, and therefore seem to be more in line with the majority of health care providers and policymakers. However, family physicians did agree that chiropractors have expertise in musculoskeletal problems. In that sense, family physicians seem to be viewing chiropractors more as specialists, similar to cardiologists or dermatologists. This belief also seems to be in line with mainstream thinking in health care delivery. In most managed care plans, visits to chiropractors require authorization and referral from the patient’s primary care physician, similar to visits to medical specialists. This disagreement about the role of chiropractors could be one reason for the poor communication between chiropractors and family physicians. If chiropractors are seeing themselves as primary care providers, they may not feel a need to send reports to other primary care providers (eg, family physicians); if family physicians feel that it is inappropriate for chiropractors to act as primary care providers, they are likely to be uncomfortable co-managing patients with them and may not want to refer patients or send correspondence. If, on the other hand, chiropractors practiced more like specialists, it is likely that family physicians would be more comfortable working with them and that correspondence back and forth would occur. One way to improve communication and therefore quality of care might be to develop policies that encourage chiropractors to practice as musculoskeletal specialists.
Neither group of practitioners is particularly positive about sharing care with the other. This suggests the opportunity for improvement in communication and coordination, thereby decreasing fragmentation of care. Although both groups tend to believe that they are not in competition with each other for patients, this item as well as the belief in increased liability in sharing care were significant predictors of comfort in sharing care. These attitude items might suggest possible interventions to increase coordination in shared patients.

The results of this study should be interpreted in light of several limitations. Although the respondents were randomly selected from national lists representative of the groups of family physicians and chiropractors, the response rate suggests the possibility of bias from nonresponse. The response rate, however, is similar to that of other published large-scale primary care physician surveys on related topics (eg, alternative medicine, working with nonphysician providers).31,32 In an effort to determine if significant biases were evident, a comparison of the family physician sample with demographics provided by the American Academy of Family Physicians (AAFP) about AAFP members yielded few differences.33 Acknowledging that only 86% of the AAFP members are American Board of Family Practice diplomates (the population sampled in this study), 75% of active practice AAFP members are male while 72% of our sample was male. Similarly, 52% of the AAFP members practice in a community of less than 50,000, while 54% of our sample practiced in communities of this size. A second limitation is the fact that the data are self-reports of behavior. It is possible that some recall bias could be involved; however, when asking about receiving reports on referrals we intentionally limited the question to referrals within the past 3 months to minimize the likelihood of bias.

In conclusion, care is fragmented between alternative medicine practitioners and the general medical sector, with little information communicated between health care providers on issues with critical importance to quality of care. Understanding why these groups of providers do not share care will inform strategies to increase the interface between these 2 systems of care. Potential reasons to be explored are the challenges of providing information about the philosophy of practice of different types of practitioners and the training qualifications of different specialties, as well as the appropriateness for coordination for different problems. Further study is needed to identify ways to improve communication and coordination of care between alternative medicine practitioners and the general medical sector.

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Corresponding author: Arch G. Mainous III, PhD, Department of Family Medicine, Medical University of South Carolina, PO Box 250192, 295 Calhoun St, Charleston, SC 29425 (e-mail: mainouag@musc.edu).

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