

# Physicians Want Education About Complementary and Alternative Medicine to Enhance Communication With Their Patients

Lisa Corbin Winslow, MD; Howard Shapiro, PhD

**Background:** More than one third of patients in the United States use complementary and alternative medicine (CAM); most also visit conventional physicians. There is little information about how physicians and patients discuss CAM. We hypothesized that physicians frequently fielded questions about CAM treatments but felt uncomfortable discussing them owing to a lack of education.

**Objectives:** To survey physicians to see how they discussed CAM with their patients and what factors influenced discussions and referrals.

**Methods:** A total of 751 physicians in the Denver, Colo, area were asked about their experience with CAM and communication about CAM with patients. Analyses were conducted using the SAS system (version 6, 1989; SAS Institute Inc, Cary, NC).

**Results:** Of the 705 deliverable surveys, 302 (43%) were

returned: 76% of physicians reported having patients using CAM; 59% had been asked about specific CAM treatments; 48% had recommended CAM to a patient; and 24% had personally used CAM. Physician recommendation of CAM was most strongly associated with physician self-use (odds ratio, 6.98;  $P < .001$ ). Few physicians felt comfortable discussing CAM with their patients, and the overwhelming majority (84%) thought they needed to learn more about CAM to adequately address patient concerns.

**Conclusions:** Education about CAM modalities is a significant unmet need among Denver physicians, and education may help alleviate the discomfort physicians have when answering patients' questions about CAM. Physicians who use CAM treatments themselves are much more likely to recommend CAM for their patients than physicians who do not.

*Arch Intern Med.* 2002;162:1176-1181

**C**OMPLEMENTARY and alternative medicine (CAM) is defined as any medical practice that is neither widely available nor widely taught in conventional medical schools in the United States. Surveys reveal that up to 42% of the US population have used 1 or more CAM modalities, with patients often seeking CAM care and conventional care for the same problem.<sup>1</sup> In addition, insurance companies are beginning to cover some of these treatments (although some require that conventionally trained physicians make the referrals).

Despite widespread and increasing use of CAM within the United States, there are limited data on how conventional medical practitioners communicate with their patients about CAM. We hypothesized that physicians frequently fielded questions about CAM, but, because of lack of education and experience, physicians were likely to respond to patient inquiries neutrally or negatively and feel un-

comfortable discussing these treatments with their patients. We therefore surveyed a metropolitan area group of physicians to ascertain their patterns of communication with patients regarding CAM and the factors of importance to these physicians in deciding whether to discuss CAM modalities with their patients or refer their patients for CAM treatment.

## RESULTS

### RESPONSE RATE AND DEMOGRAPHICS

A total of 302 surveys (40%) were returned. Forty-six (6%) of the surveys were undeliverable and addressee physicians not located. Twenty-six of the 302 returned surveys were disqualified because the physicians indicated that they were no longer in practice or seeing patients, which left a total of 276 surveys available for analysis. Thus, 41% of deliverable surveys of actively practicing physicians were ana-

From the Departments of Rehabilitation Medicine and Medicine, University of Colorado Health Sciences Center (Dr Winslow) and HealthONE Alliance (Dr Shapiro), Denver Colo. Dr Winslow is now with the Center for Integrative Medicine, University of Colorado Hospital, Aurora.

## SUBJECTS AND METHODS

Names and addresses of physicians living in the Denver, Colo, metropolitan area were obtained from the Colorado Medical Society. Based on a review of previous surveys,<sup>2-7</sup> a survey instrument was developed, pilot-tested on 20 physicians, revised, and then mailed to 751 randomly selected physicians (approximately 14% of the 5200 on the list). For nonresponders, surveys were remailed twice, for a total of 3 mailings. Nonresponders were then called by a research assistant and given the option of receiving another survey or completing the survey over the telephone. For contacted nonresponders refusing to complete the survey, we attempted to gather demographic information and answers to the 2 short questions specifically addressing attitudes toward CAM.

The survey specifically inquired about the same 16 CAM modalities that patients were asked about in a well-publicized 1993 national survey<sup>8</sup>: acupuncture, aromatherapy, biofeedback, chiropractic, energy healing, folk remedies, herbal (botanical) therapy, homeopathy, hypnosis, massage therapy, megavitamin therapy, relaxation techniques, reflexology, special diet, spiritual or religious healing, and yoga. With regard to each of these modalities and CAM in general, physicians were asked if they had any patients ask about or use that treatment in the last year, if they had recommended that treatment to patients or used it for themselves, if they had been educated about that treatment (by book or journal reading, course work or class attendance, lay press reading, or watching television programs), and if they believed that treatment was effective or ineffective. Physicians were also asked whether their typical response was positive or negative when discussing CAM with patients, whether they were comfortable or uncomfortable discussing CAM with patients, if they routinely asked patients if they were using CAM, and if they were interested in learning more about CAM (including risk-benefit information or cost-effectiveness or learning how to advise patients who inquire about CAM modalities).

Comparisons of mean results between 2 groups were performed using the 2-tailed, independent samples *t* test. Correlations reported consist of Pearson correlation coefficients. Linear regression was used to provide additional detail beyond correlation coefficients. Categorical cross-tabulation tables were tested using the  $\chi^2$  test for contingency tables. Multivariate analyses included logistic regression. Model-building strategies, assessment of interactions, and evaluation of the appropriate scales for continuous variables followed those advocated by Hosmer and Lemeshow.<sup>9</sup> Statistical significance was assumed at  $P < .05$ . All analyses were conducted using the SAS system (version 6, 1989; SAS Institute Inc, Cary, NC).

lyzed. Demographic characteristics of respondents compared with the Denver physician population as a whole are detailed in **Table 1** (Denver physician data were provided courtesy of Ed Fryer, PhD, Colorado Health Professionals Panel, Denver).

**Table 1. Demographic Characteristics of Survey Responders Compared With the Entire Denver, Colo, Physician Population\***

Characteristic	Responders	Physicians in Denver	P Value
Men	63 (173)	75 (4529)	<.001
Age, y			.02
≤39	36 (100)	37 (2260)	
40-49	35 (95)	28 (1711)	
50-59	19 (51)	16 (935)	
≥60	10 (27)	19 (1131)	
Mean ± SD	44±12	47 (44.8 if physicians older than 65 are excluded)†	
Medical specialty			.20
Internal medicine	26 (72)	25 (1519)	
Family medicine	16 (43)	13 (799)	
Pediatrics	13 (35)	9 (538)	
Obstetrics/gynecology	7 (18)	6 (352)	
Surgery	13 (36)	16 (970)	
Psychiatry	7 (18)	7 (410)	
Dermatology	1 (4)	2 (77)	
Radiology	3 (7)	4 (213)	
Other	13 (37)	18 (1082)	
Medical degree			.83
MD	96 (255)	95 (5750)	
DO	4 (12)	5 (290)	
Race			...
White	89 (247)	NA	
Other	11 (29)	NA	

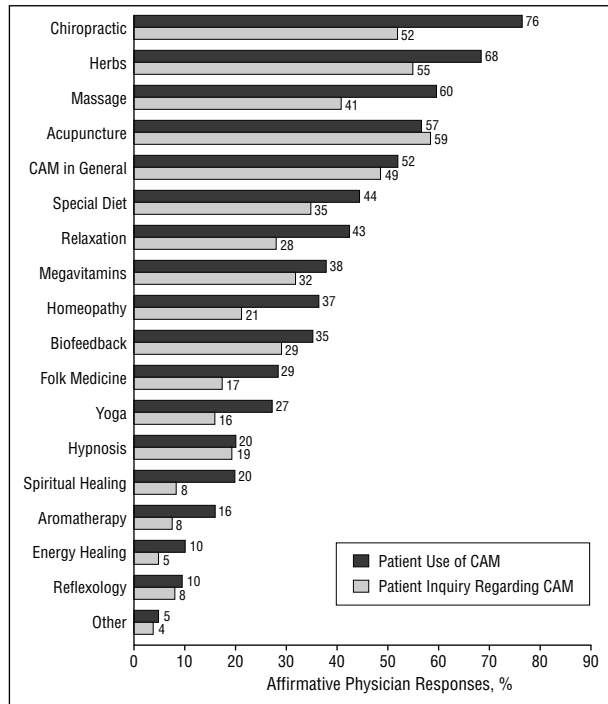
\*Unless otherwise indicated, data are percentage (number) of patients. NA indicates data not available; ellipses, not applicable.

†No SDs available for these means.

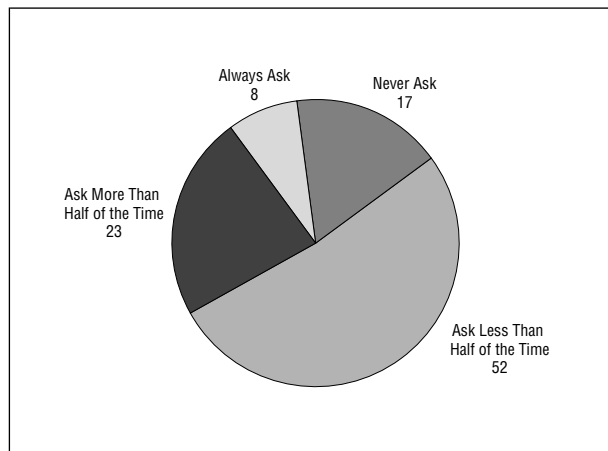
## PHYSICIAN-REPORTED PATIENT USE OF CAM

The percentage of physicians reporting patient use of and inquiries regarding various CAM modalities is shown in **Figure 1**. Chiropractic, herbal therapy, massage therapy, acupuncture, and alternative medicine in general were the modalities cited by physicians as most often used and asked about by their patients. Physicians were asked about a mean ± SD of 4.1 ± 3.6 of the 16 CAM modalities (range, 0-16). Primary care physicians were more likely to report that their patients inquired about more CAM modalities than specialists (5.0 ± 3.6 vs 3.3 ± 3.5 CAM modalities;  $P < .001$ ). Physicians reported that their patients used 4.9 ± 3.7 of the 16 modalities (range, 0-15). Primary care physicians also reported more patients using CAM than specialists did (5.4 ± 3.8 vs 4.4 ± 3.5, respectively;  $P = .03$ ). These data indicate substantial physician awareness of CAM use among their patients and significant patient inquiries directed to physicians about a wide range of CAM modalities.

The percentage of physicians who specifically ask their patients about CAM use is shown in **Figure 2**. Seventeen percent never ask, and an additional 52% ask less than half the time, indicating a pattern of infrequent inquiry about patient CAM use. There were no statistically significant differences for physician age ( $P = .61$ ), sex ( $P = .11$ ), or degree (MD vs DO;  $P = .32$ ) in the pattern of physician inquiry regarding patients' CAM use. These data



**Figure 1.** Physician reports of patient use of and inquiries regarding complementary and alternative medicine (CAM). For each CAM modality, the top bar shows what percentage of physicians had at least 1 patient using that modality, and the bottom bar shows the percentage of physicians who had been asked by patients about that modality. All numbers indicate percentages of physicians.

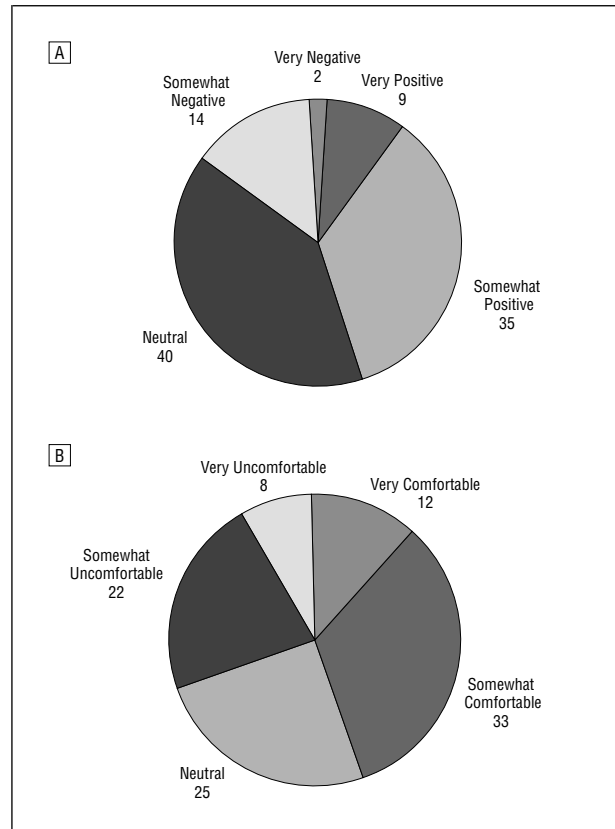


**Figure 2.** How often physicians ask their patients about use of complementary and alternative medicine. Numbers indicate percentage of physicians.

demonstrate that, despite physician knowledge of the high rate of patient use of CAM, physicians do not routinely inquire about such use.

#### DETERMINANTS OF PHYSICIAN DISCUSSION OF CAM WITH THEIR PATIENTS

Physician comfort levels and attitudes toward discussing various modalities of CAM are shown in **Figure 3**. More than 50% of physicians did not have a positive attitude about CAM when discussing these modalities with patients and were not comfortable during these discus-

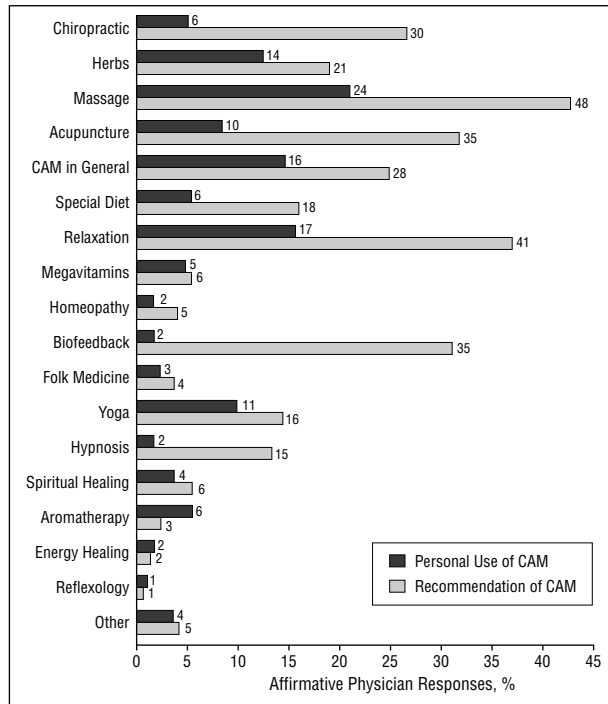


**Figure 3.** Physicians' overall feelings (A) and comfort levels (B) when discussing complementary and alternative medicine with patients. Numbers indicate percentages of physicians.

sions. The relationship between physicians asking patients about CAM use and physicians' comfort level discussing CAM use was further explored by calculating the Pearson correlation, which was statistically significant ( $r=0.33$ ;  $P<.001$ ). We conclude that there is a linear association between an increasing comfort level in discussing CAM use with an increasing propensity to ask patients about their use of CAM modalities.

Physician recommendations to patients about use of CAM and physician personal use of CAM modalities are illustrated in **Figure 4**. Massage therapy, relaxation techniques, acupuncture, and biofeedback are the CAM modalities most often recommended by physicians to their patients. Female physicians were more likely to recommend CAM modalities than male physicians. Female physicians recommended a mean  $\pm$  SD of  $3.3 \pm 2.9$  therapies, while their male counterparts recommended  $2.4 \pm 2.7$  ( $P=.005$ ). There was no statistical difference in the number of treatments recommended by osteopathic physicians ( $3.9 \pm 3.7$ ) vs allopathic physicians ( $2.6 \pm 2.8$ ) ( $P=.16$ ), likely because of the small number of osteopathic physicians in the sample. Physician age was not associated with the number of therapies recommended to patients (Pearson  $r=-0.16$ ;  $P=.34$ ).

Physicians used  $1.1 \pm 1.8$  of the 16 CAM treatment modalities themselves (range, 0-9). Figure 4 shows the percentage of physicians who have used each therapy. Physicians who used a CAM therapeutic modality for themselves were more likely to recommend a CAM therapy to their



**Figure 4.** Physician reports of personal use of complementary and alternative medicine (CAM) modalities and likelihood of recommending them to patients. For each CAM therapy, the top bar represents the percentage of physicians who have used this therapy for themselves, and the bottom bar represents the percentage of physicians who have recommended this therapy to a patient. Numbers indicate percentages of physicians.

**Table 2. Association Between Belief in Efficacy and Recommendation of a Particular CAM Modality\***

Modality	Physicians Stating That This CAM Modality "Probably or Definitely Works" Who		P Value
	Do Recommend	Do Not Recommend	
Acupuncture	100.0 (90/90)	87.5 (147/168)	<.001
Aromatherapy	71.4 (5/7)	20.7 (43/208)	.007
Biofeedback	100.0 (86/86)	91.1 (153/168)	.003
Chiropractic	100.0 (77/77)	71.9 (128/178)	<.001
Energy healing	75.0 (3/4)	17.5 (39/223)	.02
Folk remedies	80.0 (8/10)	47.9 (101/211)	.06
Herbs	94.4 (51/54)	56.4 (105/186)	<.001
Homeopathy	91.7 (11/12)	33.0 (71/215)	<.001
Hypnosis	97.2 (35/36)	73.7 (146/198)	<.001
Massage	99.2 (122/123)	71.8 (94/131)	<.001
Megavitamins	87.5 (14/16)	19.8 (42/212)	<.001
Spiritual healing	100.0 (16/16)	52.9 (111/210)	<.001
Relaxation	100.0 (101/101)	81.3 (113/139)	<.001
Reflexology	100.0 (2/2)	22.4 (46/205)	.05
Special diet	84.6 (33/39)	45.6 (84/184)	<.001
Yoga	97.6 (40/41)	69.0 (129/187)	<.001
CAM in general	93.4 (57/61)	60.6 (77/127)	<.001

\*Unless otherwise indicated, data are percentage of physicians (number who say that the given CAM modality probably or definitely works/number who do or do not recommend the given modality). CAM indicates complementary and alternative medicine.

patients (Pearson  $r=0.55$ ;  $P<.001$ ). From extrapolation of linear regression, we found that physicians who do not use any CAM treatment still recommend such treatments to

**Table 3. Association Between Education About CAM Modalities and Recommendation of Those Modalities to Patients\***

Modality	Physicians Recommending This Modality Who		P Value
	Have Received Education About This Modality	Have Not Received Education About This Modality	
Acupuncture	40.5 (83/205)	14.1 (10/71)	<.001
Aromatherapy	5.2 (4/77)	1.5 (3/199)	.10
Biofeedback	42.0 (79/188)	13.6 (12/88)	<.001
Chiropractic	36.1 (52/147)	19.4 (25/29)	.003
Energy healing	1.6 (1/61)	1.4 (3/215)	>.99
Folk remedies	6.9 (7/102)	2.3 (4/174)	.11
Herbs	29.5 (51/173)	4.8 (5/103)	<.001
Homeopathy	9.5 (10/105)	1.2 (2/171)	.001
Hypnosis	26.9 (35/130)	2.7 (4/146)	<.001
Massage	61.5 (75/122)	32.5 (50/154)	<.001
Megavitamins	10.9 (12/110)	2.4 (4/166)	.007
Spiritual healing	11.8 (10/85)	3.1 (6/191)	.01
Relaxation	64.1 (82/128)	17.6 (26/148)	<.001
Reflexology	3.2 (2/63)	0.0 (0/213)	.05
Special diet	30.5 (29/95)	9.9 (18/181)	<.001
Yoga	36.6 (30/82)	6.2 (12/194)	<.001
CAM in general	43.9 (47/107)	15.4 (26/169)	<.001

\*Unless otherwise indicated, data are percentage of physicians (number who recommend the given CAM modality/number who have or have not received education about the given modality). CAM indicates complementary and alternative medicine.

their patients (average of 1.8 treatments recommended). Belief in efficacy of selected CAM modalities and self-reported education about specific modalities were clearly associated with high frequency of physician recommendation of the modality to patients (**Table 2** and **Table 3**). Belief in efficacy of CAM in turn was related to specific education about the CAM modality (**Table 4**).

To identify predictors of likelihood of a physician recommending CAM therapy, logistic regression analysis was used. The number of CAM modalities recommended was dichotomized into 0 and 1 or more. Traditional univariate analysis was used to identify potential predictor variables of interest, with univariate logistic regression agreeing with the selection of variables for the multivariate model testing. Stepwise logistic regression selected self-use and interest in learning as independently significant variables ( $P=.001$  and  $P<.001$ , respectively). Self-use has an estimated odds ratio of 6.98, which is interpreted as showing that compared with physicians who do not use CAM modalities, physicians who use 1 or more modalities are almost 7 times more likely to recommend CAM to their patients. Interest in learning has an estimated odds ratio of 4.38, so that physicians who are interested in learning are 4.4 times more likely to recommend CAM than physicians not interested in learning.

#### PHYSICIAN ATTITUDES TOWARD CAM EDUCATION

In view of the impact of education on physician belief in efficacy, we analyzed further physician interest in CAM edu-

cation (**Figure 5**). Most physicians (60%) wanted to learn more about CAM. Female physicians were more interested than male physicians (91.0% vs 80.1%;  $P=0.02$ ). There was no statistically significant difference in mean  $\pm$  SD age

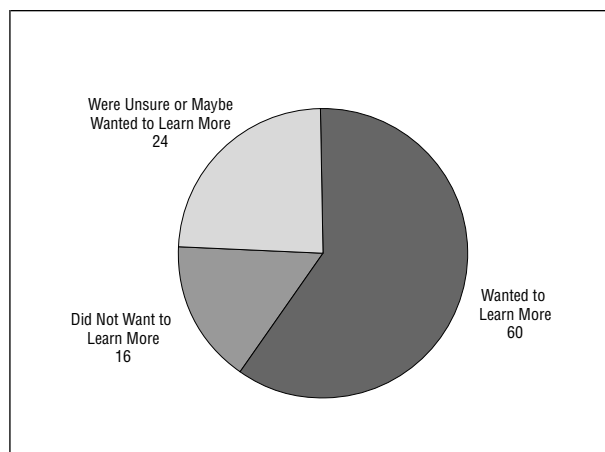
**Table 4. Association Between Education About a Particular CAM Modality and Belief That It Works\***

Modality	Physicians Saying That This CAM Modality Probably or Definitely Works Who		P Value
	Have Received Education	Have Not Received Education	
Acupuncture	93.5 (187/200)	86.2 (50/58)	.01
Aromatherapy	37.0 (27/73)	14.8 (21/142)	<.001
Biofeedback	96.1 (172/179)	89.3 (67/75)	.05
Chiropractic	81.8 (117/143)	78.6 (88/112)	.53
Energy healing	29.3 (17/58)	14.8 (25/169)	.02
Folk remedies	62.1 (59/95)	39.7 (50/126)	.001
Herbs	72.4 (118/163)	49.4 (38/77)	<.001
Homeopathy	50.0 (50/100)	25.2 (32/127)	<.001
Hypnosis	88.3 (106/120)	65.8 (75/114)	<.001
Massage	96.7 (116/120)	74.6 (100/134)	<.001
Megavitamins	39.8 (41/103)	12.0 (15/125)	<.001
Spiritual healing	71.4 (55/77)	48.3 (72/149)	.001
Relaxation	95.8 (113/118)	82.8 (101/122)	.002
Reflexology	33.9 (20/59)	18.9 (28/148)	.03
Special diet	65.6 (59/90)	43.6 (58/133)	.002
Yoga	86.7 (65/75)	68.8 (104/153)	.02
CAM in general	83.3 (75/90)	60.2 (59/98)	<.001

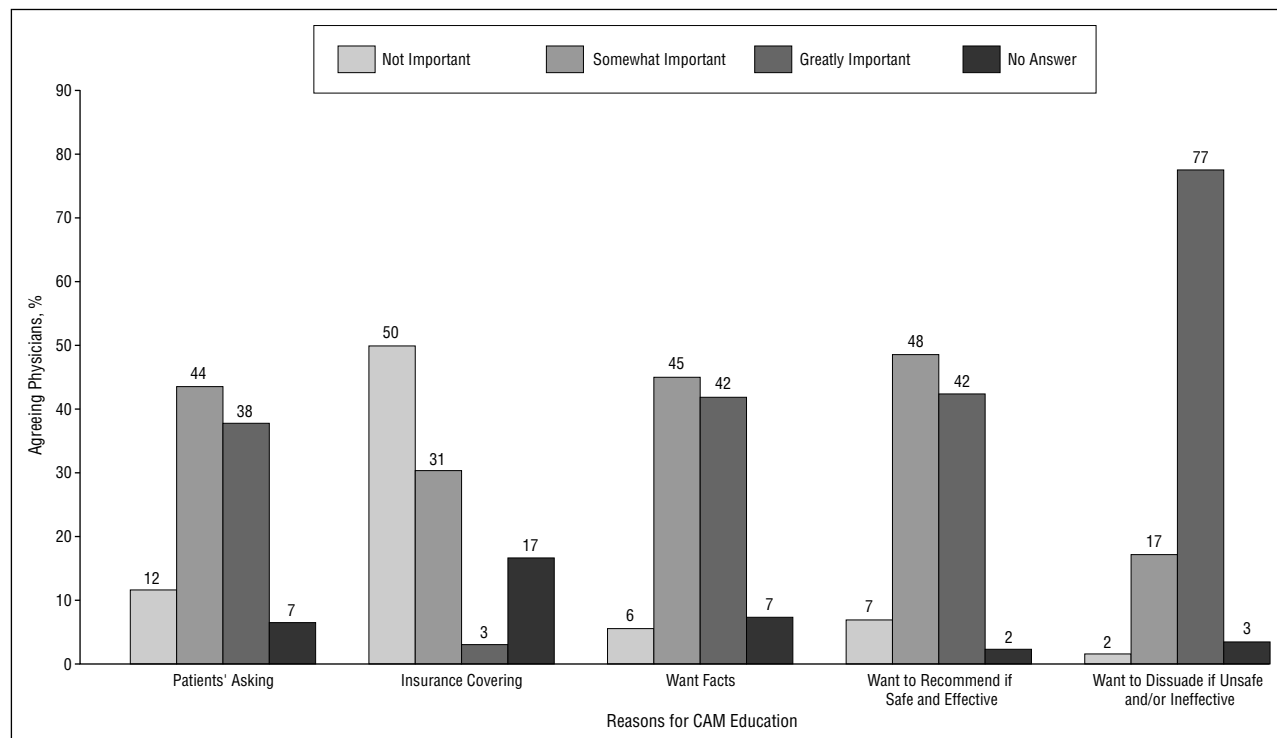
\*Unless otherwise indicated data are percentage of physicians (number who say that the given CAM modality probably or definitely works/number who have or have not received education about the given modality). CAM indicates complementary and alternative medicine.

for physicians who were and were not interested in CAM education ( $44.0 \pm 10.2$  years vs  $45.8 \pm 11.1$  years;  $P=.30$ ).

Five reasons for physician desire to learn more about CAM are illustrated in **Figure 6**. The most cited reasons were “want to dissuade patient if alternative method is unsafe and/or ineffective” (94% said this reason was somewhat or very important) and “want to recommend method to patient if safe and effective” (90% said this reason was somewhat or very important). Interestingly, the physicians who felt very positive or somewhat positive about CAM therapies were more interested in education and learning how to advise patients ( $P=.001$ ;  $\chi^2$  test for contingency tables), yet there was no correlation between interest in education and comfort level discussing CAM with patients.



**Figure 5.** Physician interest in learning more about complementary and alternative medicine. Numbers indicate percentages of physicians.



**Figure 6.** Importance of various reasons that physicians were interested in further education about complementary and alternative medicine (CAM). Numbers indicate percentages of physicians.

---

**COMMENT**

---

Given the widespread public interest in and use of CAM, we were interested in ascertaining how conventional physicians communicate with their patients regarding CAM treatments. We found that physicians commonly do not explicitly inquire about CAM use by their patients. However, when specific inquiries were made, it was statistically related to a higher level of comfort in discussing such modalities with patients. Although physicians often do not specifically inquire about CAM use, they are often aware of such use, presumably because of patient self-disclosure.

Our study also provides new information about physician recommendations of CAM to their patients. Physicians most commonly recommended massage therapy, relaxation techniques, acupuncture, and biofeedback. We found several factors significantly associated with physicians recommending use of CAM: female sex of physician, physician self-use of CAM, physician self-reported education in CAM, and physician self-reported belief in CAM efficacy. Together, these data provide information on characteristics of physicians who advise patients to seek CAM and the specific modalities recommended.

Our study also demonstrates a desire by most physicians to learn more about CAM. Physicians who had positive attitudes toward CAM were those most interested in learning more about CAM. We found several reasons for physicians' desire for CAM education. By far the most powerful reason was the desire to dissuade patients from undergoing an unsafe or ineffective modality. Other frequently cited reasons were the desire to recommend a safe and effective CAM modality, the desire to receive factual information about CAM modalities, and the desire to be able to respond to patient queries.

We should note some of the shortcomings of our analysis. Our survey was conducted in a single geographic area, and thus the results may not be generalizable. Also, despite many contacts, our overall response rate of 41% is suboptimal, and we thus cannot be sure that our results are applicable to the entire population of physicians surveyed. However, the demographic characteristics of responders did not differ substantially from the survey area's physician population in general. Fi-

nally, our questions were global rather than specific. For example, a physician may feel very comfortable discussing acupuncture but not homeopathy. Other studies have looked at the responses by treatment.<sup>4</sup>

Our study is the first that we are aware of to investigate communication between physicians and patients about CAM. We conclude that physicians often do not explicitly ask their patients about CAM use and feel uncomfortable discussing risks and benefits of CAM modalities. These findings likely drive the overwhelming desire of physicians to learn more about CAM, a point underscored by comments made on returned surveys such as this: "let's study these things and find out if they work; if so, we can recommend them wholeheartedly and they will no longer be 'complementary or alternative' but conventional."

*Accepted for publication November 19, 2001.*

*This study was funded by HealthONE Alliance, Denver, Colo.*

*Corresponding author and reprints: Lisa Corbin Winslow, MD, Center for Integrative Medicine, University of Colorado Hospital, PO Box 6510, Mail Stop F730, Aurora, CO 80045 (e-mail: lisa.winslow@uchsc.edu).*

---

**REFERENCES**

---

1. Eisenberg DM, Davis RB, Ettner SL, et al. Trends in alternative medicine use in the United States, 1990-1997: results of a follow-up national survey. *JAMA*. 1998; 280:1569-1575.
2. Berman BM, Singh BK, Lao L, Singh BB, Ferentz KS, Hartnoll SM. Physicians' attitudes toward complementary or alternative medicine: a regional survey. *J Am Board Fam Pract*. 1995;8:361-366.
3. Borkan J, Neher JO, Anson O, Smoker B. Referrals for alternative therapies. *J Fam Pract*. 1994;39:545-550.
4. Crocetti E, Crotti N, Montella M, Musso M. Complementary medicine and oncologists' attitudes: a survey in Italy. *Tumor*. 1996;82:539-542.
5. Goldszmidt M, Levitt C, Duarte-Franco E, Kaczorowski J. Complementary health care services: a survey of general practitioners' views. *CMAJ*. 1995; 153:29-35.
6. Verhoef MJ, Sutherland LR. General practitioners' assessment of and interest in alternative medicine in Canada. *Soc Sci Med*. 1995;41:511-515.
7. Verhoef MJ, Sutherland LR. Alternative medicine and general practitioners: opinions and behaviour. *Can Fam Physician*. 1995;41:1005-1011.
8. Eisenberg DM, Kessler RC, Foster C, et al. Unconventional medicine in the United States. *N Engl J Med*. 1993;328:246-252.
9. Hosmer DW, Lemeshow S. *Applied Logistic Regression*. New York, NY: John Wiley & Sons; 1989:82-91.