# Characteristics of Visits to Licensed Acupuncturists, Chiropractors, Massage Therapists, and Naturopathic Physicians

*Daniel C. Cherkin, PhD; Richard A. Deyo, MD, MPH; Karen J. Sherman, PhD, MPH; L. Gary Hart, PhD; Janet H. Street, RN, MN, PNP; Andrea Hrbek; Roger B. Davis, ScD; Elaine Cramer, MD, MPH; Bruce Milliman, ND; Jennifer Booker, ND; Robert Mootz, DC, DABCO; James Barassi, DC; Janet R. Kahn, PhD, LMT; Ted J. Kaptchuk, OMD; and David M. Eisenberg, MD*

***Background:*** **Despite growing popularity of complementary and alternative medical (CAM) therapies, little is known about the patients seen by CAM practitioners. Our objective was to describe the patients and problems seen by CAM practitioners.**

***Methods:*** **We collected data on 20 consecutive visits to randomly sampled licensed acupuncturists, chiropractors, massage therapists, and naturopathic physicians practicing in Arizona, Connecticut, Massachusetts, and Washington. Data were collected on patient demographics, smoking status, referral source, reasons for visit, concurrent medical care, payment source, and visit duration. Comparative data for conventional physicians were drawn from the National Ambulatory Medical Care Survey.**

***Results:*** **In each profession, at least 99 practitioners collected data on more than 1,800 visits. More than 80% of visits to CAM providers were by young and middle-aged adults, and roughly two thirds were by women. Children comprised 10% of visits to naturopathic physicians but only 1% to 4% of all visits to other CAM providers. At least two thirds of visits resulted from self-referrals, and only 4% to 12% of visits were from conventional physician referrals. Chiropractors and massage therapists primarily saw musculoskeletal problems, while acupuncturists and naturopathic physicians saw a broader range of conditions. Visits to acupuncturists and massage therapists lasted about 60 minutes compared with 40 minutes for naturopathic physicians and less than 20 minutes for chiropractors. Most visits to chiropractors and naturopathic physicians, but less than one third of visits to acupuncturists and massage therapists, were covered by insurance.**

***Conclusions:*** **This information will help inform discussions of the roles CAM practitioners will play in the health care system of the future. (J Am Board Fam Pract 2002;15:463–72.)**

In spite of rapid growth in numbers of CAM providers[1] and use of CAM services,[2,3] little is known about the practices of the various types of CAM providers in the United States. This lack of fundamental information about CAM providers and their practices has limited the ability of patients, health care providers, and insurers to make informed decisions about the appropriate role of CAM providers in the health care system. This basic information would also be useful "to guide future research and to identify areas of greatest public health concern."[4] To begin to remedy this deficiency of information, we surveyed random samples of licensed acupuncturists, chiropractors, massage therapists, and naturopathic physicians and collected data on patients who visited these providers.

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From the Center for Health Studies (DCC, KJS, JHS), Group Health Cooperative, Seattle; the Departments of Medicine and Health Services (RAD) University of Washington, WWAMI Center for Health Workforce Studies (LGH) and Department of Family Medicine (LGH), University of Washington, Seattle; the Beth Israel-Deaconess Center for Alternative Medicine Research and Education (AH, RBD, JB, TJK, DME), and the Department of Medicine (RHB, TJK, DME), Harvard Medical School, Boston; the Vessel Sanitation Program (EC), Centers for Disease Control, Atlanta; Bastyr University (BM), Kenmore, a private practice (JB), and Department of Labor and Industries (RDM), Olympia, Washington; and the American Massage Therapy Association Foundation (JRK), Silver Springs, Maryland. Address reprint requests to Daniel C. Cherkin, PhD, Center for Health Studies, Group Health Cooperative, 1730 Minor Ave, Suite 1600, Seattle, WA 98101.

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## Methods

### *Study Design*

A study was undertaken to describe the personal and practice characteristics of representative samples of licensed providers in each of the four largest CAM professions: acupuncture, chiropractic, massage therapy, and naturopathy. An initial article[5] described the characteristics of CAM practitioners and presented details of the study design. This article summarizes practice characteristics based on visit data.

### *Sampling and Eligibility of Licensed Providers*

Each of the four types of CAM providers was surveyed in one northeastern and one western state: acupuncturists in Massachusetts and Washington, chiropractors in Arizona and Massachusetts, and massage therapists and naturopathic physicians in Connecticut and Washington. Interviews for each profession were conducted in the western and northeastern states at the same time of year. The Northeast and West were selected because these regions are where licensed CAM providers are concentrated.[1] Licensure listings of providers with in-state addresses were obtained from Washington (1998), Arizona (1999), Connecticut (1999), and Massachusetts (1999). Providers without valid telephone numbers or not in practice were ineligible. More detail on the survey process is reported elsewhere.[5] Enough eligible providers in each profession in each state were interviewed to yield at least 50 participants willing to collect data on 20 consecutive patient visits.

Practitioners in each profession with extremely low patient volumes were not asked to collect visit data. Extremely low patient volumes were defined as fewer than 10 visits per week for acupuncturists and naturopathic physicians, fewer than 30 visits per week for chiropractors, and fewer than 5 visits per week for massage therapists. This criterion resulted in the exclusion of about 15% of the lowest volume practitioners in each profession who collectively accounted for about 2% of all visits to the profession.

To maximize the accuracy of statewide estimates, data collection efforts were concentrated on high-volume practitioners from each profession: acupuncturists and naturopathic physicians with at least 20 patient visits per week, massage therapists with at least 10 visits, and chiropractors with at least 60 visits. About 60% to 70% of practitioners in each profession had a high-volume practice and accounted for roughly 85% to 90% of all visits to the profession. The remaining practitioners were categorized as low-volume providers. All high-volume practitioners, but only the first 10 low-volume practitioners (the first 20 for massage therapy), were asked to collect data on 20 consecutive visits. The rationale was to collect only enough data from low-volume providers to ascertain whether their practices differed markedly from those of high-volume providers. It was ultimately decided, however, to weight data for high- and low-volume providers in a manner that produced annual estimates of visits to each profession in each state.

### *Data Collection*

Visit data were collected in 1998 (Washington) and 1999 (Arizona, Connecticut, Massachusetts). Data for each profession were collected in both states at the same time of year. No financial incentives to participate were offered. Practitioners were provided with blank visit forms coded with unique identification codes and began data collection on randomly assigned weekdays to minimize reporting bias. They were asked to collect data on 20 consecutive visits even if the same patient was seen more than once.

Visit data were collected using one-page forms modeled after the one used by the National Ambulatory Medical Care Survey (NAMCS).[6] To permit comparison with the NAMCS data, identical questions were used (eg, patient's demographic characteristics, smoking status, reason for visit, referral source, source of payment, visit duration, and visit disposition). New questions were added about whether the patient was receiving care from a conventional physician for their primary problem and whether the CAM practitioner had discussed care of the patient with a conventional physician. Data on diagnoses (for chiropractors and naturopathic physicians), tests, treatments, and self-care recommendations, tailored to each profession, were also collected and will be reported elsewhere.

Practitioners were asked to record up to five "complaints, symptoms, or other reasons for this visit," using the patient's own words, listing the most important reason first. The NAMCS Reason for Visit Classification System (RVCS),[6] which distinguishes among symptoms; diseases; diagnostic,

**Table 1. Participation Rates of Random Samples of Licensed Acupuncturists, Chiropractors, Massage Therapists, and Naturopathic Physicians by State.**

| Profession and State | Eligible Practitioners Interviewed | | Eligible Practitioners Providing Visit Data | | Patient Visits Reported‡ | |
|---|---|---|---|---|---|---|
| | No. | Percent* | No. | Percent† | Total | Mean per Practitioner |
| Acupuncture | | | | | | |
| Massachusetts | 101 | 91.0 | 67 | 75.3 | 1,298 | 19.4 |
| Washington | 116 | 88.6 | 66 | 81.5 | 1,263 | 19.1 |
| Chiropractic | | | | | | |
| Arizona | 104 | 61.2 | 62 | 68.1 | 1,201 | 19.4 |
| Massachusetts | 101 | 85.6 | 68 | 76.4 | 1,349 | 19.8 |
| Massage Therapy | | | | | | |
| Connecticut | 114 | 85.7 | 61 | 65.6 | 965 | 15.8 |
| Washington | 112 | 83.6 | 65 | 69.9 | 1,040 | 16.0 |
| Naturopathy | | | | | | |
| Connecticut | 59 | 93.6 | 34 | 61.8 | 631 | 18.6 |
| Washington | 111 | 78.2 | 65 | 69.9 | 1,186 | 18.2 |

*Denominator is licensed practitioners who see patients and for whom a telephone number could be identified.
†Denominator is interviewed practitioners who saw a minimum number of patients per week (varied by profession—see Methods section of text).
‡Each practitioner was asked to provide descriptive information on 20 consecutive patient visits.

screening, or preventive interventions; treatments; and injuries was used. Clinically similar reasons for visit (eg, back sprain, back pain, back stiffness) were combined. A copy of this categorization scheme is available from the authors.

### *Comparative Data for Conventional Medical Physicians*

Comparative data on visits to conventional medical and osteopathic physicians (collectively referred to as conventional physicians) were obtained from the 1995 to 1998 National Ambulatory Medical Care Surveys.[7–10]

### *Statistical Methods*

The study used a two-stage sampling design. We selected a random sample of practitioners, stratified by weekly visit volume (described above), and obtained data on consecutive patient visits. Each visit in the sample was weighted by the inverse of the sampling probability, reflecting both the chance that the particular provider was selected and the proportion of that provider's annual visits sampled. As a result, the statistics we report reflect estimates for all visits within a state except for the roughly 2% of visits made to the lowest volume practitioners. To account for the complex sampling design, we used SAS-callable SUDAAN software (version 7.5, Research Triangle Institute, Research Triangle, NC) to estimate standard errors using Taylor series linearization.

## Results

### *Participation Rates*

Between 78% and 94% of eligible practitioners in 7 of the 8 samples agreed to be interviewed[5] and between 62% and 82% of the interviewed practitioners who did not have very low patient volumes agreed to collect visit data (Table 1). Data were collected on more than 1,800 visits to each profession by 99 to 133 practitioners.

### *Patient Characteristics*

The great majority of visits to all four professions were made by young and middle-aged adults (Table 2). Children made more than 10% of the visits to naturopathic physicians but only 1% to 4% of visits to the other professions. Adults older than 65 years of age comprised 7% to 10% of visits to massage therapists and naturopathic physicians and 12% to 20% of visits to acupuncturists and chiropractors. Conventional physicians were much more likely than the CAM practitioners to see both children (18% of visits) and older adults (24% of visits). The percentage of visits made by women ranged from about 60% for chiropractors and conventional physicians to 75% for naturopathic physicians.

**Table 2. Sociodemographic Characteristics and Smoking Status of Consecutive Patients Seen by Licensed Acupuncturists, Chiropractors, Massage Therapists, and Naturopathic Physicians by State (1998–99).**

| Profession and State | Age | | | Sex | Race | Ethnicity | Known |
|---|---|---|---|---|---|---|---|
| | < 15 Years (%) (SE) | 15–64 Years (%) (SE) | 65 + Years (%) (SE) | Female % (SE) | Nonwhite % (SE) | Hispanic % (SE) | Cigarette Smokers % (SE) |
| Acupuncture | | | | | | | |
| Massachusetts | 3.0 (0.7) | 82.8 (1.5) | 14.2 (1.3) | 68.4 (1.6) | 4.0 (0.6) | 2.5 (0.5) | 8.2 (0.9) |
| Washington | 1.9 (0.4) | 85.6 (1.4) | 12.5 (1.4) | 68.5 (1.6) | 9.3 (1.2) | 1.9 (0.5) | 12.6 (1.4) |
| Chiropractic | | | | | | | |
| Arizona | 3.7 (0.8) | 76.5 (1.9) | 19.8 (1.8) | 58.2 (1.8) | 6.7 (1.1) | 11.0 (1.5) | 14.8 (1.4) |
| Massachusetts | 2.7 (0.5) | 85.7 (1.2) | 11.6 (1.2) | 57.1 (1.6) | 5.1 (0.8) | 5.0 (1.1) | 13.0 (1.3) |
| Massage Therapy | | | | | | | |
| Connecticut | 0.7 (0.3) | 91.3 (1.2) | 8.0 (1.1) | 66.5 (2.4) | 2.8 (0.8) | 2.4 (0.7) | 9.9 (1.3) |
| Washington | 1.0 (0.4) | 91.6 (1.1) | 7.4 (1.1) | 70.6 (1.8) | 4.5 (0.9) | 3.5 (0.8) | 12.0 (1.4) |
| Naturopathy | | | | | | | |
| Connecticut | 12.8 (1.6) | 79.4 (1.9) | 7.8 (1.2) | 75.5 (2.2) | 3.0 (0.7) | 2.2 (0.6) | 5.2 (0.9) |
| Washington | 10.2 (1.3) | 80.1 (1.5) | 9.7 (1.1) | 74.5 (1.6) | 4.4 (0.9) | 2.6 (0.6) | 5.5 (0.8) |
| Conventional physicians (US, 1997–98) | 17.6 (0.2) | 58.3 (0.2) | 24.2 (0.2) | 60.1 (0.2) | — | — | 9.3 (0.1)*† |

SE = standard error.
*28% missing data.
†1995/1996 data.

Only 3% to 9% of visits to CAM practitioners were by nonwhites (Table 2). Hispanics were also relatively infrequent consumers of CAM care except in Arizona, where 11% of visits to chiropractors were by Hispanics. The percentage of visits made by known cigarette smokers ranged between 8% and 15% for acupuncturists, chiropractors, and massage therapists, compared with only about 5% for naturopathic physicians. The percentage of visits to conventional physicians by current smokers was also relatively low (9%), although they were much more likely to fail to report their patients' smoking status than were the CAM providers (28% missing vs 1%–9%, respectively). The percentage of visits with missing data on smoking status was high even for conventional physicians in family and general practice (26%).

### *Role of CAM Practitioners in Care of Patients*

Most patients seeking care from CAM practitioners were self-referred (Table 3). Chiropractors and naturopathic physicians were particularly dependent on self-referrals, which represented more than 80% of their visits. Between 4% and 12% of visits resulted from referrals by conventional physicians, with acupuncturists most likely to receive referrals (10%–12% of visits). Massage therapists were most likely to receive referrals from other CAM practitioners (about 18% of visits), primarily chiropractors.

As is the case for visits to conventional physicians, roughly 80% of visits to CAM practitioners were by patients who had been seen by the practitioner before, usually for the same reason (Table 3). About one half of visits to acupuncturists and one third to one half of visits to naturopathic physicians were for problems that the CAM practitioner believed were concurrently being cared for by a conventional physician. Acupuncturists and naturopathic physicians, however, indicated that they had discussed the care of their patient with a conventional physician for only 10% to 15% of visits. Finally, massage therapists were most likely to discuss the care of their patients with other CAM providers (primarily chiropractors), doing so for about one in five visits.

### *Major Reasons for Visit*

About 75% of visits to acupuncturists and naturopathic physicians were for chronic conditions, 20% for acute problems, and 5% for care not related to illness (including preventive and wellness care). Massage therapists provided care for chronic problems at about one half of their visits and wellness care at about 30% of visits. Chiropractors provided almost equal proportions of chronic and acute care

**Table 3. Source of Patients and Role of Licensed Acupuncturists, Chiropractors, Massage Therapists, and Naturopathic Physicians in Care of Patient (Consecutive Patient Visits) by State (1998–99).**

| Profession and State | Source of Patients | | | Have Seen Patient Before | | Patient Believed to Be Receiving Care From MD/DO for Primary Reason for Visit % (SE) | Discussed Care of this Patient With | |
|---|---|---|---|---|---|---|---|---|
| | Patient Self-Referral* % (SE) | MD/DO Referral % (SE) | CAM Referral† % (SE) | For Any Reason % (SE) | For Same Reason % (SE) | | MD/DO % (SE) | CAM Provider % (SE) |
| Acupuncture | | | | | | | | |
| Massachusetts | 74.3 (1.7) | 9.9 (1.3) | 9.4 (1.0) | 81.5 (1.9) | 73.9 (2.1) | 56.2 (1.9) | 10.9 (1.2) | 11.7 (1.2) |
| Washington | 69.8 (1.9) | 12.2 (1.5) | 12.6 (1.2) | 78.9 (2.0) | 73.2 (2.1) | 49.7 (2.1) | 9.9 (1.3) | 13.3 (1.4) |
| Chiropractic | | | | | | | | |
| Arizona | 87.2 (1.4) | 3.5 (0.7) | 3.5 (0.6) | 80.7 (2.8) | 72.7 (2.9) | 16.8 (1.7) | 10.8 (1.5) | 4.4 (0.8) |
| Massachusetts | 81.1 (1.5) | 6.6 (0.9) | 6.2 (0.9) | 88.7 (1.3) | 79.5 (1.6) | 18.2 (1.4) | 15.5 (1.4) | 10.2 (1.4) |
| Massage therapy | | | | | | | | |
| Connecticut | 75.1 (3.7) | 3.8 (1.1) | 16.5 (3.6) | 77.5 (2.3) | 65.9 (2.5) | 22.1 (1.8) | 3.6 (1.2) | 18.2 (3.7) |
| Washington | 64.1 (2.6) | 10.7 (1.8) | 19.3 (2.0) | 81.5 (1.8) | 72.0 (2.1) | 29.7 (2.2) | 8.4 (1.4) | 20.5 (2.0) |
| Naturopathy | | | | | | | | |
| Connecticut | 84.0 (2.5) | 5.9 (1.6) | 5.6 (1.4) | 77.6 (2.3) | 60.3 (3.0) | 46.2 (2.7) | 14.9 (2.9) | 4.1 (1.1) |
| Washington | 80.1 (1.7) | 5.8 (0.8) | 7.6 (1.0) | 78.5 (1.6) | 64.0 (2.0) | 32.3 (1.9) | 13.2 (1.7) | 6.1 (0.9) |
| Conventional physicians (US, 1997–98) | — | 15.8 (0.2) | — | 85.7 (0.2)‡ | 65.2 (0.2)‡ | — | — | — |

MD = doctor of medicine, DO = doctor of osteopathy, CAM = complementary and alternative medicine, SE = standard error.
*Includes referral by another patient, friend, relative, or advertisement.
†Acupuncturist, chiropractor, massage therapist, or naturopathic physician.
‡1995–96 data.

(about 45% and 40%, respectively) and provided care not related to illness during 12% of visits. Visits to conventional physicians were also evenly split between acute and chronic problems (37% of each), and they provided care not related to illness (preventive) for 18% of visits. A small percentage of visits (1%–8%) to each profession were presurgical or postsurgical or for injury follow-up.

The most frequent primary reasons for visits to CAM practitioners are listed in Table 4. The five most frequent reasons patients were seen by chiropractors made up 85% of total visits. Although the great majority of these visits related to musculoskeletal conditions, visits for wellness care, primarily for maintenance for musculoskeletal problems, were also common. Massage therapists also saw a relatively limited range of problems, with their top five primary reasons for visit comprising about 70% of all visits. In addition to musculoskeletal conditions, substantial fractions of visits to massage therapists were for wellness (primarily relaxation) care (about 20%) and anxiety or depression (5%–9%).

Of the four CAM professions, acupuncturists and naturopathic physicians saw the broadest range of conditions. Musculoskeletal problems were common in the practices of acupuncturists, as were anxiety-depression and fatigue (Table 4). The top five reasons for visit to acupuncturists represented only about 35% of all visits, indicating that acupuncturists saw most patients for a wide variety of reasons, most commonly allergies, infectious diseases, abdominal pain, and knee pain. Naturopathic physicians most often saw fatigue, back symptoms, anxiety-depression, headache, skin rashes, and menopausal symptoms, although their five most common problems represented only about 25% of their practices. Other conditions seen relatively frequently by naturopathic physicians were bowel and abdominal problems, allergies, and neck symptoms. The top reasons for visit to conventional physicians were routine and special examinations (21.8%), screening and diagnostic tests (4.1%), cough (3.5%), upper respiratory tract infections (2.6%), and back symptoms (2.4%).

### *Visit Duration and Disposition and Insurance Coverage*

The median reported duration of visit to acupuncturists and massage therapists was 60 minutes. Naturopathic physicians reported visits averaging about 40 minutes, and chiropractors and conventional physicians reported the shortest visits (medians between 15 and 17 minutes).

**Table 4. Five Most Frequent Primary Reasons for Visit by Practitioner Type and State (1998–99).**

| Practitioner and State | Primary Reason for Visit | % (SE)* |
|---|---|---|
| Acupuncturist | | |
| Massachusetts (n = 1,298) | 1. Back symptoms | 11.3 (1.0) |
| | 2. Anxiety or depression | 7.5 (0.9) |
| | 3. Fatigue | 4.8 (0.8) |
| | 4. Headache | 4.0 (0.7) |
| | 5. Wellness | 3.9 (0.6) |
| Washington (n = 1,263) | 1. Back symptoms | 17.0 (1.4) |
| | 2. Neck symptoms | 7.3 (0.8) |
| | 3. Headache | 6.6 (0.9) |
| | 4. Shoulder symptoms | 5.6 (1.0) |
| | 5. Anxiety or depression | 4.5 (0.6) |
| Chiropractor | | |
| Massachusetts (n = 1,349) | 1. Back symptoms | 44.2 (1.7) |
| | 2. Neck symptoms | 22.5 (1.4) |
| | 3. Wellness | 10.1 (1.7) |
| | 4. Headache | 4.6 (0.7) |
| | 5. Shoulder symptoms | 3.4 (0.5) |
| Arizona (n = 1,201) | 1. Back symptoms | 41.0 (1.8) |
| | 2. Neck symptoms | 24.5 (1.6) |
| | 3. Wellness | 8.7 (1.4) |
| | 4. Headache | 6.4 (1.0) |
| | 5. Shoulder symptoms | 3.9 (0.6) |
| Massage therapist | | |
| Connecticut (n = 965) | 1. Back symptoms | 20.4 (1.7) |
| | 2. Wellness | 19.5 (2.1) |
| | 3. Neck symptoms | 13.0 (1.5) |
| | 4. Anxiety or depression | 8.8 (1.0) |
| | 5. Shoulder symptoms | 8.4 (1.1) |
| Washington (n = 1,040) | 1. Back symptoms | 20.2 (1.6) |
| | 2. Neck symptoms | 20.0 (1.8) |
| | 3. Wellness | 18.7 (1.8) |
| | 4. Shoulder symptoms | 7.4 (0.9) |
| | 5. Anxiety or depression | 5.2 (0.8) |
| Naturopathic physician | | |
| Connecticut (n = 631) | 1. Fatigue | 6.1 (1.1) |
| | 2. Headache | 4.4 (0.9) |
| | 3. Back symptoms | 4.4 (1.0) |
| | 4. Skin rashes | 4.2 (1.1) |
| | 5. Menopausal symptoms | 3.7 (0.8) |
| Washington (n = 1,186) | 1. Back symptoms | 6.5 (1.5) |
| | 2. Fatigue | 6.0 (0.8) |
| | 3. Anxiety or depression | 5.1 (0.7) |
| | 4. Headache | 3.8 (0.7) |
| | 5. Routine and special examinations | 3.7 (0.8) |

SE = standard error.
*Percentages are weighted to provide state estimates.

Between 57% (Washington) and 68% (Connecticut) of visits to chiropractors and 50% (Washington) to 61% (Connecticut) of visits to naturopathic physicians were covered by insurance compared with 8% (Connecticut) to 26% (Washington) of visits to acupuncturists and 10% (Massachusetts) to 33% (Washington) of visits to massage therapists. Thus, the percentages of insured visits to acupuncturists and massage therapists in Washington were markedly higher than in the northeastern states. The percentage of visits to conventional physicians covered by insurance, 86%, is much higher than for any of the CAM professions.

Between 75% and 85% of visits to acupuncturists, chiropractors, and naturopathic physicians and about 60% of visits to massage therapists and conventional physicians concluded with a plan for the patient to return at a specific time. Naturopathic physicians were about twice as likely as other CAM practitioners to refer patients to conventional physicians (almost 4% of visits). Massage therapists were about twice as likely as acupuncturists, chiropractors, and naturopathic physicians to refer pa-

tients to other CAM practitioners (about 4% of visits).

## Discussion

### *Regional Variation in CAM Practice*

This study provides unique data on the practices of representative samples of providers in the four largest licensed CAM professions in the United States. For each profession, data are presented from one state in each of the two regions where CAM services are most popular, the West and the Northeast.[1,3] Despite the large distance between these regions, differences between states within a profession were generally much smaller than differences between professions. The largest differences appear to be related to differences in the sociodemographic characteristics of the states. For example, compared with patients of Massachusetts chiropractors, patients of Arizona chiropractors were more likely to be Hispanic, reflecting the high percentage of Hispanics in that state. The extensive similarities between states in the practice characteristics of each CAM profession suggest that the results of this study might generalize to other states that license CAM practitioners. The only certain way of knowing whether these findings are nationally representative, however, is to survey a national sample of CAM practitioners. The absence of a comprehensive national listing of licensed CAM practitioners would make a representative national survey difficult.

### *Patient Populations Served by CAM Practitioners and Conventional Physicians*

Consistent with national surveys,[3,11] this study found that patients of CAM practitioners are mostly young to middle-aged, female, and white. Except for naturopathic physicians, CAM practitioners provided very little care for children, at levels substantially below those for conventional physicians. Adults older than 65 years were also less frequently seen by CAM practitioners than by conventional physicians in the United States. The percentages of visits by nonwhites to CAM practitioners (ranging from 3%–9%) were substantially lower than the percentages of nonwhites living in these states, which ranged between 16% and 24%.* The age, sex, and race-ethnicity of the patients of CAM practitioners generally resemble those of the practitioners themselves.[5]

This study suggests that patients of naturopathic physicians might have healthier habits than do those of the other CAM practitioners, ie, their patients are one half as likely to smoke. Whether naturopathic physicians are more attractive to nonsmokers or better at convincing patients to stop smoking is unclear. The percentage of visits to conventional physicians by smokers falls within the range reported by the four CAM professions. Even primary care conventional physicians, however, were much more often unaware of their patients' smoking status than were CAM providers. Whether this apparently greater attentiveness to medically relevant lifestyle issues by CAM providers generalizes to other behaviors (eg, diet, exercise, stress reduction) is worthy of further investigation.

### *Patient Care Roles Played by CAM Practitioners and Conventional Physicians*

Most visits to CAM practitioners resulted from self-referrals. The highest rates of self-referral were found for the professions whose care is most likely to be covered by insurance: chiropractors and naturopathic physicians. CAM practitioners are not dependent on conventional physicians for referrals, receiving only about 5% to 10% of patients from this source. Concurrent care, however, appears to be common, representing between one quarter and one half of visits to acupuncturists, massage therapists, and naturopathic physicians. Nevertheless, these CAM providers typically do not discuss care for concurrent patients with conventional physicians, which might not be surprising, given the small percentage of concurrent visits resulting from referrals by conventional physicians. Even so, this finding, in conjunction with the fact that patients rarely discuss their CAM care with conventional physicians,[2,3] raises concerns about the coordination and safety of concurrent care. Lack of coordination and safety issues are a particular concern for care by acupuncturists and naturopathic physicians, who might prescribe herbs that interact with medications prescribed by conventional physicians.[12–16]

Although the overlap in the types of problems addressed by the four CAM professions is considerable, each profession has unique aspects. Chiropractors and massage therapists have the narrowest clinical focus, treating mostly musculoskeletal

*http://quickfacts.census.gov/qfd/.

problems. Previous studies have also found that chiropractors' practices consist almost entirely of patients who have musculoskeletal complaints and conditions.[17,18] Chiropractors and massage therapists are also the most likely to provide care not related to illness. For chiropractic patients, most such care is for maintenance, typically directed at maintaining spinal function or addressing activities and lifestyle.[19,20] Care for other than illness in massage patients, representing almost one in five visits, is focused on relaxation and stress reduction. Massage therapists also see a substantial number of patients for self-reported anxiety or depression, some of whom might also want help relaxing and coping with stress. Another distinctive aspect of chiropractic is its relatively large role in caring for acute conditions (about 40% of visits compared with roughly 20% of visits for the other CAM professions).

Acupuncturists and naturopathic physicians see a broader range of conditions than do chiropractors and massage therapists, often providing care for such problems as anxiety, depression, fatigue, and allergies (acupuncturists), and for fatigue, skin rashes, and menopausal symptoms (naturopathic physicians). Compared with the other CAM practitioners, naturopathic physicians provide relatively little care for musculoskeletal conditions. The most notable differences between the practices of conventional physicians and CAM providers was the relatively large fraction of visits to the former for examinations, screening, and diagnostic tests and for symptoms associated with respiratory tract infections.

Although this study documented substantial differences among the professions in visit duration, reported visit duration might not accurately reflect amount of time actually spent with patients. Although it is likely that massage therapists spend most of their 1-hour visits with the patient, such might not be true for acupuncturists, who often leave the room after inserting needles or who might treat 2 or more patients simultaneously, using different rooms. The fraction of the total visit length that chiropractors, naturopathic physicians, and conventional physicians spend with patients is less clear. Furthermore, because of the different circumstances under which each type of practitioner sees patients and differences in the types of patients they see, it is difficult to know whether the observed differences in visit duration are likely to have implications for patient satisfaction or specific clinical outcomes. Nevertheless, even though spinal manipulation is a brief procedure, it is noteworthy that chiropractors appear to spend as much time with patients as do conventional physicians.

### *Insurance, Licensure, and Future Demand for CAM Services*

Visits to conventional physicians were much more likely to be covered by insurance than visits to CAM practitioners, and coverage for visits to acupuncturists and massage therapists in the states included in this study remains limited. Acupuncture and massage visits were three times as likely to be covered in Washington as in the northeastern states, possibly reflecting an effect of an enhanced access law enacted in Washington several years ago.[21] Naturopathic care, however, was less likely to be covered in Washington than in Connecticut, where naturopathic services have been covered for 25 years.

At present, chiropractic is licensed or regulated in all 50 states, acupuncture in 39 states, massage therapy in 30 states, and naturopathy in 11 states. Thus, there is substantial room for growth in the number of states in which CAM professions are licensed. As this occurs, it is likely that demand for their services and for insurance coverage will also increase. Furthermore, the large increases in the numbers of CAM practitioners projected for the future[1] will likely provide further impetus to increase access to their services throughout the country.

### *Strengths and Limitations of Study*

The major strengths of this study are the selection of random samples of the four largest groups of licensed CAM practitioners practicing in two geographically diverse states, the large sample sizes, and the relatively high participation rates. The main limitation is that, despite the similarities between the states studied, it is not known whether the results are nationally representative.

## Conclusion

This study adds important information to the sparse literature describing the practices of CAM practitioners in the United States. In addition to providing descriptive data for each CAM profession, this study identified which questions will be

important for future policy makers and researchers to address. These data will help inform discussions underway that will determine the future role of CAM practitioners in the health care system.

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