



Integrative Medicine at Academic Health Centers: A Survey of Clinicians' Educational Backgrounds and Practices

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BACKGROUND AND OBJECTIVES: Integrative medicine is a relatively new field that seeks to combine conventional and non-conventional approaches to patient care. Many academic health centers have now established integrative medicine clinics, yet little is known about the clinicians who practice at them. We used a nationwide survey to characterize the backgrounds, clinical practices, and involvement in research and education of clinicians who practice integrative medicine at academic health centers.

METHODS: Participants included clinicians (MDs, DOs, PAs, and nurse practitioners) who practice at 30 different integrative medicine clinics that are affiliated with academic health centers.

RESULTS: Completed surveys from 136 of 162 clinicians were received (84% response rate). The integrative therapies that clinicians most often reported providing themselves were breathing exercises (66%), herbal medicine prescribing (61%), meditation (44%), and functional medicine (34%). The integrative therapies that clinicians most often referred their patients for were acupuncture (96%), massage (92%), yoga (85%), and meditation (79%). Respondents reported spending a mean of 20% of their time training medical students, and 63% had participated in research in the past year.

CONCLUSIONS: This survey provides the first national assessment of clinicians practicing integrative medicine at academic health centers. These clinicians use a wide variety of complementary and alternative therapies and appear involved in the research and education missions of their academic health centers.

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Large numbers of the US public report using complementary and alternative medicine (CAM) therapies such as herbal medicine, acupuncture, and meditation.^{1,2} The incorporation of such therapies into conventional medical

practice has been termed integrative medicine.³

Many medical schools have now incorporated CAM into their curricula, and many now have federally funded research programs studying the efficacy of CAM therapies.^{4,5} A

more recent development has been the addition of CAM therapies into the clinical services that academic health centers (AHCs) provide.⁶

Although the role of AHCs in educating students about CAM has been well documented,⁷ little is known about the integrative medicine that is now being practiced at US medical schools. The incorporation of these integrative practices at AHCs represents a shift in the conventional scope of medicine traditionally provided at these centers and so is worthy of careful study. We therefore designed a national survey of clinicians who work at academically affiliated integrative health centers, to systematically assess who these clinicians are, and to characterize the integrative medicine that they practice. These data will help to provide a picture of the current state of integrative medicine at AHCs, shedding light on the introduction of integrative medicine within the halls of academia and providing insight into the rapidly evolving nature of the field of integrative medicine.

Methods

Study Subjects

We sought to identify a clearly definable national group of clinicians

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who practice integrative medicine at AHCs. The Consortium of Academic Health Centers for Integrative Medicine (CAHCIM), as the organizing entity for academic integrative medicine, served as a natural focus.⁸ We conducted numerous, repeated inquiries to the program directors of all 46 member institutions of CAHCIM as well as performed iterative Boolean Internet searches to identify which of the 46 member institutions had dedicated integrative medicine clinics. This search identified 30 such clinics. Of note, the presence of such a dedicated clinic is not a requirement for membership to CAHCIM, with many institutions focusing instead on integrative medicine research and education rather than on structured integrative medicine patient care. (See Table 1 for the detailed search strategy used and Table 2 for a listing of the 30 academic integrative centers which we identified). We then made systematic inquiries to all 30 clinic directors and integrative medicine program directors at each of these centers to compile a comprehensive list of clinicians who practice integrative medicine at these 30 centers. Clinicians were defined as MDs, DOs, PAs, and nurse practitioners who were directly involved in patient care.

Data Collection and Analysis

We developed a 21-question survey to assess the backgrounds and clinical practices of integrative clinicians. Comprehensive questions about specific therapies utilized were derived from a validated list developed by Cutshall et al, which was based on a framework developed by the National Center for Complementary and Alternative Medicine.^{9,10} Our survey tool was pilot tested using focus groups of practicing clinicians, with input as well from well-known experts in the field of integrative medicine. The Institutional Review Board of the University of Washington approved the study design.

Three survey waves were sent electronically from January to March 2011 using a University of

Washington survey tool (Catalyst WebQ). Nonrespondents were then sent up to two paper surveys by US mail, the first of which included a \$2 cash incentive. Survey responses were kept anonymous by assignment of numerical identifiers. Data were downloaded and compiled into an Excel spreadsheet (Microsoft Corp) and analyzed using standard means and medians.

Results

Of 162 clinicians identified, 136 returned surveys, resulting in an 84% response rate. Of the 136 respondents, 19 indicated that they did not meet criteria for inclusion in our analysis by marking a box stating that they were not an “integrative clinical provider who sees patients in a dedicated, self-described integrative clinical setting at an academic health center.” Demographic details of the qualifying respondents are shown in Table 3. About half of respondents reported completing fellowship training in integrative medicine. A smaller number reported that they had received integrative medicine track training during residency. Four percent reported receiving both residency track and fellowship training in integrative medicine.

Use of Specific Therapies

The integrative therapies that respondents most often provide themselves, and those that they make referrals for, are shown in Table 4. Meditation emerged as the most common modality that clinicians have been trained in (33%). The most commonly used therapies by clinicians were breathing exercises (66%), herbal medicine prescriptions (61%),

and meditation (44%). The two most common therapies clinicians referred patients to were acupuncture (96%) and massage (92%).

Involvement in Education and Research

Clinicians were asked to estimate what percentage of time they routinely spend working with students. A total of 105 respondents (77%) reported that they routinely spend some of their time with students, with a median of 20% time spent in teaching-related activities. Seventy-four clinicians (54%) reported having been involved in research related to integrative medicine in the past year.

Practice Characteristics

Twenty-seven percent of clinicians reported that they commonly serve underserved populations, while 65% reported that they provide a significant amount of direct care that is not reimbursed by insurance. More than half of respondents reported that much of the integrative services they provide is paid for out of pocket by their patients. Clinicians were asked to identify if there were specific areas of focus to their clinical practice. Pain medicine (29%), oncology (19%), and women’s health (19%) were most frequently mentioned. Forty-six percent reported providing integrative medicine within a family medicine practice.

Discussion

This survey provides the first national assessment of clinicians at academic integrative medicine centers, describing their backgrounds and clinical practices. The presence of these integrative practitioners at

Table 1: Search Strategy Used to Identify Academic Integrative Health Care Centers

The following Boolean search terms were input into the Google search engine:
1. (Name of each academic health center) AND ((integrative OR integrated OR complementary OR alternative) AND (health OR health care OR medicine OR clinic OR center))
2. The first 50 hits listed were then scanned for any information regarding institutionally affiliated integrative health centers.

Table 2: Academic Integrative Health Centers

Academic Center	Name of Integrative Clinic	Integrative Clinic Website	Year Founded
Albert Einstein College of Medicine	The Continuum Center for Health and Healing	www.healthandhealingny.org	2007
Boston University	Program for Integrative Medicine	www.bu.edu/integrativemed	2004
Duke University	Duke Integrative Medicine	www.dukeintegrativemedicine.org	1998
George Washington University	Center for Integrative Medicine	www.integrativemedicinedc.com	1998
Harvard University	Osher Center for Complementary and Integrative Medicine	www.osher.jms.harvard.edu	2007
Johns Hopkins University	Johns Hopkins Integrative Medicine and Digestive Center	www.hopkinsmedicine.org/integrative_medicine_digestive_center	2008
Mayo Clinic	Complementary and Integrative Medicine Program	www.mayoclinic.org/general-internal-medicine-rst/cimc.html	2001
Northwestern Univ	Integrative Medicine Program	http://www.nmpg.com/integrative-medicine	2000
Ohio State University	OSU Center for Integrative Medicine	www.medicalcenter.osu.edu/go/integrative	2005
Oregon Health & Science University	Center for Integrative Medicine	www.ohsu.edu/cam	2002
Stanford University	Center for Integrative Medicine	www.stanfordhospital.org/clinicsmedServices/clinics/complementaryMedicine	1998
Thomas Jefferson University	Myrna Brind Center of Integrative Medicine	www.jeffersonhospital.org/cim	1998
University of Arizona	Center for Integrative Medicine	http://integrativemedicine.arizona.edu	1994
Univ of California, Irvine	Susan Samuelli Center for Integrative Medicine	www.sscim.uci.edu	2000
Univ of California, Los Angeles	Collaborative Centers for Integrative Medicine	www.ccim.med.ucla.edu	1993
Univ of California, San Francisco	Osher Center for Integrative Medicine	www.osher.ucsf.edu	1997
University of Chicago	NorthShore Integrative Medicine Program	www.northshore.org/integrative-medicine	2000
Univ of Colorado	Center for Integrative Medicine	www.uch.edu/integrativemed	2001
University of Hawaii	Center for Complementary and Alternative Medicine	http://www.uhcam.blogspot.com	2008
University of Kansas	Program in Integrative Medicine	http://integrativemed.kumc.edu	1998
Univ of Maryland	Center for Integrative Medicine	www.compmed.umn.edu	1991
Univ of Michigan	Integrative Family Medicine	www.med.umich.edu/umim	2003
University of Minnesota	Center for Spirituality and Healing	www.csh.umn.edu	1995
Univ of New Mexico	Center for Life	http://hsc.unm.edu/som/medicine/sim/	2007
Univ of N Carolina	Program on Integrative Medicine	www.pim.med.unc.edu	2002
Univ of Pittsburgh	Center for Integrative Medicine	http://integrativemedicine.upmc.com	1997
Univ of Wisconsin	Integrative Medicine Program	www.fammed.wisc.edu/integrative	2001
Vanderbilt University	Center for Integrative Health	www.vcih.org	2006
Wake Forest University	Center for Integrative Medicine	www.wakehealth.edu/Center-for-Integrative-Medicine	2005
Yale University	Integrative Medicine Center at Griffin Hospital	www.imc-griffin.org	2001

Table 3: Integrative Medicine Clinicians at Academic Health Centers

Gender (total n=117)	
Female, n (%)	64 (55)
Male, n (%)	53 (45)
Racial diversity (total n = 115)	
White (non-Hispanic), n (%)	87 (76)
Asian, n (%)	20 (17)
Hispanic or Latino, n (%)	5 (4)
Black, n (%)	2 (2)
Native American or Alaskan Native, n (%)	1 (1)
Pacific Islander, n (%)	1 (1)
Years in practice	
Age, mean years (n=115)	49
Time in practice, mean years (n=116)	19
Time providing integrative medicine (IM), mean years (n=116)	9
Health care degree (n=116)	
MD degree, n (%)	94 (81)
ARNP degree, n (%)	15 (13)
DO, n (%)	5 (4)
PA, n (%)	2 (2)
CAM training (n=108)	
Fellowship training in IM, n (%)	51 (47)
Residency track training in IM, n (%)	9 (8)
Training in specific modalities* (n=117)	
Meditation, n (%)	39 (33)
Acupuncture, n (%)	29 (25)
Functional medicine, n (%)	28 (24)
Breathing exercises, n (%)	20 (17)
Hypnosis, n (%)	19 (16)
Herbal medicine, n (%)	17 (15)

* more than 50 hours of training

AHCs is noteworthy given the influential role which AHCs play in American medicine.

Previous studies have focused on aspects of clinicians' attitudes and knowledge related to CAM, but none have characterized integrative clinicians.¹¹⁻¹³ One study of clinical nurse specialists working at a single AHC found that massage and breathing exercises were commonly prescribed,⁹ and a study of physicians in Hawaii also identified acupuncture, massage, and meditation as being the most common referrals

among CAM therapies.¹⁴ A qualitative study of nine CAM programs at AHCs found levels of involvement in research and education similar to our study.⁶

Clinicians at academic integrative centers generally reported having wide involvement in education and research in keeping with the core mission of AHCs. As AHCs have incorporated CAM in their curricula,⁷ the education of students in the clinical setting at integrative clinics is now clearly playing a role.

We generally found treatment patterns by integrative clinicians at AHCs to reflect patterns of CAM usage by the US public.^{1,2} This aggregate data, however, likely misses the diverse nature of practices among integrative medicine centers in terms of the services they provide and the variable status of practitioner licensing across the country.

One striking exception to previously published data was the widespread identification of functional medicine as a commonly used modality, a finding which has not previously been reported. Functional medicine is a relatively new approach to patient care that assigns a central role to interactions between patients' environments and their gastrointestinal, endocrine, and immune systems. Practitioners of functional medicine focus on interactions with environmental factors, on an individual basis for each patient, to develop specific treatment plans.¹⁵

This study's strengths included its high response rate from a well-defined, nationwide, reproducible group of clinicians, its use of a comprehensive list of CAM modalities that respondents could choose from when describing their practice patterns, and its inclusion of mid-level clinicians (ARNPs and PAs) as well as MDs and DOs. This last feature reflects the team approach often used at integrative medicine centers, although by excluding CAM-only providers, such as naturopaths, acupuncturists, and massage therapists, we may not have captured the totality of services provided at these clinics. By choosing to select as the focus of our investigation the individual clinicians who are nationally licensed to prescribe overall integrative treatment plans, we were able to achieve the sought-after characterization of the integrative clinicians who practice at AHCs.

The study has several limitations. By surveying only centers that are members of the large national organization CAHCIM, and only clinicians who practice in centers that self-describe themselves as providing

Table 4: Most Common Therapies Used by Integrative Medicine Clinicians

Provided by clinician, n=136	n (%)
Breathing exercises	77 (66)
Herbal medicine prescription	71 (61)
Meditation	51 (44)
Functional medicine	40 (34)
Acupuncture	30 (26)
Guided imagery	29 (25)
Homeopathy	23 (20)
Referrals made by clinician, n=136	n (%)
Acupuncture	112 (96)
Massage	108 (92)
Yoga	100 (85)
Meditation	92 (79)
Traditional Chinese medicine	90 (77)
Breathing exercises	88 (75)
Tai chi	73 (62)

integrative medicine, we likely missed some clinicians who practice integrative medicine at AHCs. Given the challenges inherent in identifying clinicians who practice integrative medicine, ie, the absence of specific credentialing and the lack of a representative professional organization for individuals (CAHCIM is an organization of institutions), we felt this methodology would give us the best chance of assessing a definable, reproducible sample. That said, it is in fact likely that we reached almost all academic integrative centers, given that a large number of US medical schools are members of CAHCIM, and that those that are not members of CAHCIM are less likely to have established integrative medicine programs. We also acknowledge that the findings regarding educational activities and patient populations are subject to memory bias, limitations that flow directly from the project's focus on individual clinicians' self-reports of their practice patterns.

This survey set out to study clinicians at integrative medicine centers. It is quite possible, however, that a significant amount of integrative medicine at AHCs is being provided outside of such centers. Examining

the integrative medicine practiced across all clinical settings at AHCs, and the nature of integrative medicine that clinicians are providing outside of academia, are especially useful areas for future research.

The field of integrative medicine has emerged quickly in the United States over the past 20 years and is now part of the care that is provided at many AHCs. By assessing the backgrounds and practices of clinicians providing integrative care at these centers, this survey adds a new dimension to our understanding of the role of CAM in American medicine. Academic health centers, as providers of such care and as engines for innovation in education, clinical practice, and CAM research, are now even better positioned to improve the safety of, and evidence behind, integrative medicine for the US public.

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