

UCSF

UC San Francisco Previously Published Works

Title

A Survey of Licensed Acupuncturists in the San Francisco Bay Area: Prevalence of Treating Oncology Patients.

Permalink

<https://escholarship.org/uc/item/01c1r9xp>

Journal

Integrative Cancer Therapies, 17(1)

Authors

Abrams, Donald
McCulloch, Michael
Cohen, Misha
[et al.](#)

Publication Date


2018-03-01

DOI

10.1177/1534735416684946

Peer reviewed

A Survey of Licensed Acupuncturists in the San Francisco Bay Area: Prevalence of Treating Oncology Patients

Integrative Cancer Therapies
2018, Vol. 17(1) 92–98
© The Author(s) 2017
Reprints and permissions:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/1534735416684946
journals.sagepub.com/home/ict


Donald Abrams, MD¹, Michael McCulloch, LAc, MPH, PhD²,
Misha Cohen, OMD, LAc³, Mike Liaw, LAc, OMD⁴,
Deborah Silverman, LAc⁵, and Carla Wilson, PhD, DAOM, LAc⁶

Abstract

Background: Many cancer patients seek traditional Chinese medicine (TCM), the prevalence varying with diagnosis, comorbidities, and demographics. Interventions sought include acupuncture, massage, herbs, diet, and exercise, usually combined with conventional therapies. It is not known what proportion of TCM practitioners care for cancer patients, their cancer specific training or caseload, what interventions they employ, their outcomes, and their communication patterns with conventional oncologists. **Methods:** A survey was mailed to all 2213 licensed acupuncturists in the 9-county San Francisco Bay Area gathering descriptive statistics. **Results:** A total of 472 (21%) responded by mail or web-based Research Electronic Data Capture (REDCap) tool. Most respondents (77%) reported caring for patients with cancer, with 29% reporting having 6 to 10 years of practice experience, and 44.2% having 0 to 20 hours of training specific to the needs of patients with cancer. Improving quality of life was reported by 94% as what their treatment offered cancer patients as well as the area where treatment was felt to have the greatest impact. The most useful TCM modalities were acupuncture (98%), herbs (79%), diet (72%), moxibustion (46%), and meditation instruction (44%). Absence of adverse reactions was noted by 95%. Ninety-one percent reported “never” or “hardly ever” having been contacted by patients’ oncologists to discuss treatment. **Conclusions:** Many acupuncturists seeing cancer patients have significant clinical experience and have sought specialized training. Improved communication is needed between TCM practitioners and oncologists sharing care of cancer patients.

Keywords

traditional Chinese medicine, oncology, acupuncture, oncology training, interdisciplinary medical education, Chinese herbal medicine, integrative medicine centers

Submitted Date: 13 July 2016; Revised Date: 16 November 2016; Acceptance Date: 18 November 2016

Introduction

A large proportion of patients living with and beyond cancer seek integrative medicine interventions.¹⁻³ Traditional Chinese medicine (TCM) is a frequently used modality including interventions such as acupuncture, massage, herbal medicine, dietary counseling, and exercise instruction. The prevalence of TCM use by cancer patients varies with patients’ diagnosis, age, comorbidities, and demographics.³⁻⁵ A 12-member panel at a National Institutes of Health Consensus Conference in 1997 concluded that “there is clear evidence that needle acupuncture treatment is effective for postoperative and chemotherapy nausea and vomiting.”⁶ Since that proclamation, numerous clinical trials have also demonstrated the potential utility of acupuncture for other cancer-related symptoms,⁷⁻¹⁰ including

pain,¹¹ neuropathy,¹² fatigue,¹³ hot flashes,^{14,15} xerostomia,^{16,17} lymphedema,¹⁸ and the arthralgias associated with aromatase inhibitor therapies.¹⁹

¹UCSF Osher Center for Integrative Medicine, University of California San Francisco, San Francisco, CA, USA

²Pine Street Foundation, San Anselmo, CA, USA

³Chicken Soup Chinese Medicine, San Francisco, CA, USA

⁴Mike Liaw Acupuncture Clinic, Saratoga, CA, USA

⁵Body Mind Spirit, San Francisco, CA, USA

⁶California Institute of Integral Studies, American College of Traditional Chinese Medicine, San Francisco, CA, USA

Corresponding Author:

Donald Abrams, UCSF Osher Center for Integrative Medicine, University of California San Francisco, 1545 Divisadero Street, 4th Floor, San Francisco, CA 94115, USA.
Email: donald.abrams@ucsf.edu



Creative Commons Non Commercial CC-BY-NC: This article is distributed under the terms of the Creative Commons

Attribution-NonCommercial 3.0 License (<http://www.creativecommons.org/licenses/by-nc/3.0/>) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access pages (<https://us.sagepub.com/en-us/nam/open-access-at-sage>).

In addition to acupuncture, practitioners of TCM are trained to prescribe mixtures of herbs as part of their practice. As more conventional oncologists have become aware of their patients seeking TCM consultation and treatment, concern has been raised about the potential interaction between the botanical supplements and conventional chemotherapeutic agents.²⁰⁻²⁴ Ironically, patients frequently report to their TCM practitioners that medical oncologists often caution against taking Chinese herbal therapies. This may be based on their concern that herbs have the capacity to be “toxic” and oncologists may interpret episodes of liver function test abnormalities or thrombocytopenia on consuming Chinese medicines rather than on the cytotoxic agents they themselves may have prescribed. This leads to the frequent suggestion that although acupuncture might be grudgingly acceptable, Chinese herbal concoctions should be eschewed during active chemotherapy. Only a limited number of pharmacokinetic studies have been completed investigating the potential interactions between the hundreds of chemotherapeutic agents and hundreds of Chinese botanicals to support evidence for either safety or concern.

Although Chinese medicine has its roots dating back thousands of years in China, its introduction into Western medicine has been more recent. Increased numbers of Western medicine providers have been exposed to the basic theories behind Chinese medicine and the modalities employed by practitioners, but little is actually known about the people who are providing TCM interventions to patients living with and beyond cancer. Prior surveys have queried acupuncture providers about their training backgrounds or approaches to treatment, practice patterns and perceived best practices in the fields of obstetrics,²⁵ fertility,^{26,27} infant colic,²⁸ neck and shoulder pain.²⁹ We undertook this survey of licensed acupuncturists in the 9-county San Francisco Bay Area in order to obtain descriptive data regarding their demographics, training, experiences with cancer patients and communication patterns with conventional oncologists. This type of investigation, surveying a complete sampling of TCM practitioners caring for people living with cancer in a major metropolitan area, has not been previously conducted.

Methods

Research Instrument

An invitational email was circulated within the community to TCM practitioners in the San Francisco Bay Area. The open invitation encouraged practitioners of TCM that treat patients with cancer to attend a series of informational meetings in anticipation of developing a research study. Using a consensus-based working committee consisting of 21 volunteer acupuncture providers with diverse licensure and practice environments, a survey questionnaire was created. The survey instrument asked questions about basic demographics, respondents’ training, their involvement

with cancer patients, the interventions that they utilized and found most useful and their communication patterns with conventional oncology providers.

Mailing addresses for all licensed acupuncture practitioners in the 9 San Francisco Bay Area counties—Marin, Contra Costa, Alameda, Napa, San Francisco, San Mateo, Sonoma, Santa Clara, and Solano—were obtained from public records held by the California Acupuncture Board (www.acupuncture.ca.gov). The survey was printed and mailed to the entire list. The licensed acupuncturists were offered the option of responding to the survey by mail or online using the Research Electronic Data Capture (REDCap) electronic data capture tool. REDCap is a secure, web-based application designed to support data capture for research studies, providing (1) an intuitive interface for validated data entry, (2) audit trails for tracking data manipulation, (3) automated export procedures for seamless data downloads to common statistical packages, and (4) procedures for importing data from external sources.³⁰

Human Subjects Concerns

Institutional review board approval of this survey was provided by the University of California San Francisco (protocol #10-00247). Approval was granted under expedited review, as this research involved the use of an anonymous survey in which information was obtained in such a way that no individuals could be identified. Since this was a confidential anonymous survey, no risks to the subjects were anticipated. Consent was implied by respondents filling out the survey.

No personally identifiable information (such as respondent names, addresses, or license number) was collected. Surveys received on paper mailed to the study office were destroyed after data entry into REDCap. Respondents were not compensated in any way.

Analysis

In this descriptive survey, we sought to compile simple epidemiologic descriptive statistics, to understand the prevalence and practices of licensed practitioners of TCM providing care to San Francisco Bay Area patients with cancer. Descriptive summaries were presented as means and standard deviations for continuous variables and as frequencies and percentages for categorical variables.

Results

Demographics

Of the 2213 acupuncturists surveyed, 472 (21%) responded, with 405 (86%) returning paper surveys by mail and 67 (14%) entering their responses directly into the REDCap online system. Following nine basic demographic questions, the survey asked “Do you treat patients with cancer?” Respondents were then instructed to stop at question 10 if

Table 1. Responding Acupuncturists' Demographics.^a

	Yes		No		Total	
	n	(%)	n	(%)	n	(%)
Acupuncturists Consulting With Patients Diagnosed With Cancer						
Age, years						
21-30	3	(0.8)	5	(4.7)	8	(1.7)
31-40	75	(20.5)	30	(28.3)	105	(22.2)
41-50	91	(24.9)	27	(25.5)	118	(25.0)
51-60	130	(35.5)	29	(27.4)	159	(33.7)
61-70	61	(16.7)	11	(10.4)	72	(15.3)
71-80	4	(1.1)	2	(1.9)	6	(1.3)
81-90	2	(0.5)	2	(1.9)	4	(0.8)
Total	366	(100.0)	106	(100.0)	472	(100.0)
Sex						
Female	250	(68.3)	75	(71.4)	325	(69.0)
Male	115	(31.4)	30	(28.6)	145	(30.8)
Female to male	1	(0.3)	0	(0.0)	1	(0.2)
Total	366	(100.0)	105	(100.0)	471	(100.0)
Primary language spoken by acupuncturist						
English	269	(73.5)	77	(73.3)	346	(73.5)
Chinese	74	(20.2)	18	(17.1)	92	(19.5)
Korean	7	(1.9)	5	(4.8)	12	(2.5)
Japanese	4	(1.1)	3	(2.9)	7	(1.5)
Vietnamese	3	(0.8)	1	(1.0)	4	(0.8)
Spanish	2	(0.5)	0	(0.0)	2	(0.4)
Hebrew	2	(0.5)	0	(0.0)	2	(0.4)
Russian	2	(0.5)	1	(1.0)	3	(0.6)
Thai	2	(0.5)	0	(0.0)	2	(0.4)
French	1	(0.3)	0	(0.0)	1	(0.2)
Total	366	(100.0)	105	(100.0)	471	(100.0)

^aTotals column not always equivalent due to varying question response rates.

they did not provide treatment for patients with cancer but to return the survey. A total of 366 respondents (77% of those returning the survey) reported that they consult with patients who have cancer. Sixty-nine percent of the practitioners were women and English was the primary language spoken by 73.5% with Chinese next by 19.5%. Acupuncturists reporting seeing patients with cancer were older than those who did not. Among those reporting that they do see cancer patients, the 51- to 60-year age group had the highest proportion of responses (36%), whereas the highest proportion of acupuncturists who do not see cancer patients were aged 31 to 40 years (28%). All other demographic parameters were similar between the 2 groups (see Table 1).

Training and Licensure

Acupuncturists seeing patients with cancer were most frequently trained in the United States (72%), followed by China (20%), Taiwan (3%), and Europe (2%). The majority were trained in accredited US-based schools (83%),

followed by those trained as physicians in China (13%), accredited schools outside the United States (10%), tutorial programs (6%), medical acupuncture for US physicians (6%), family lineage (4%), and medical training outside of the United States (3%).

Acupuncturists seeing patients with cancer reported an average of three different medical professional licenses or qualifications (965 licenses, among 366 acupuncturists). Most of these were California-licensed acupuncturists (LAc) (96%), followed by Masters of Traditional Chinese Medicine (MSTCM) (42%), Oriental Medical Doctor (OMD) (13%), PhD (9%), Certified Massage Therapist (CMT) (8%), Doctor of Acupuncture and Oriental Medicine (DAOM) (7%).

A total of 345 acupuncturists responded to the question asking how many hours of specialized training they had received specific to the care of patients with cancer. Those reporting 0 to 20 hours of specialized training represented 44% of the sample, followed by 21 to 100 hours (32%), 101 to 500 hours (15%), 501 to 1000 hours (3%), and 1000+ hours (6%).

Table 2. Treatment Modalities.

Treatment Modality	Used the Most Often in Practice		Used in Treating Cancer Patients		Useful for Cancer Patients	
	n	% Using This Method	n	% Using This Method	n	% Using This Method
Acupuncture	349	(98.3)	346	(98.3)	323	(92.3)
Herbal medicine	281	(79.2)	255	(72.4)	259	(74.0)
Massage	140	(39.4)	64	(18.2)	88	(25.1)
Cupping	94	(26.5)	32	(9.1)	37	(10.6)
Gua Sha	61	(17.2)	5	(1.4)	20	(5.7)
Moxibustion	164	(46.2)	61	(17.3)	118	(33.7)
Dietary advice	256	(72.1)	124	(35.2)	190	(54.3)
Meditation instruction	156	(43.9)	36	(10.2)	120	(34.3)
Tai Chi/Qi Gong instruction	103	(29.0)	12	(3.4)	82	(23.4)
Qi Gong transmission/Reiki	65	(18.3)	21	(6.0)	56	(16.0)
Nutritional supplements	156	(43.9)	54	(15.3)	125	(35.7)
Homeopathic supplements	31	(8.7)	6	(1.7)	22	(6.3)
Others	44	(12.4)	1	(0.3)	35	(10.0)

Table 3. Treatment Goals.

Treatment Goals	Treatment Goals Employed		Reported These Goals as Successful	
	n	% Using This Strategy	n	% Using This Strategy
Adjunct to cancer therapy	288	(80.9)	154	(43.6)
Help immune system	304	(85.4)	181	(51.3)
Improve quality of life	335	(94.1)	255	(72.2)
Manage symptoms	300	(84.3)	170	(48.2)
Manage side effects	318	(89.3)	237	(67.1)
Effect the cancer itself	113	(31.7)	42	(11.9)
Adjunct to palliative care	149	(41.9)	66	(18.7)
Adjunct to hospice care	113	(31.7)	49	(13.9)
Other	13	(3.7)	9	(2.6)

Patient Volume

The monthly case load of cancer patients ranged between 0 and 200, with most respondents (68%) reporting providing treatment for less than 5 individuals with a diagnosis of cancer in the prior month. Practitioners with the lowest number of hours of specialized cancer-specific training (0-20 hours), reported seeing fewer cancer patients in the past month (<5), compared to those with between 101 and 500 hours, who reported up to 25 cancer patients in the past month.

Treatment Modalities and Treatment Goals

The most commonly used treatment modalities employed in the TCM practitioner's clinical care of cancer patients were

acupuncture (98%), herbal medicine (79%), dietary advice (72%), moxibustion (46%), and nutritional supplements (44%). When asked which of the modalities they felt were most useful for cancer patients, acupuncture (92%), herbal medicine (74%), dietary advice (54%), moxibustion (34%), and nutritional supplements (36%) were most frequently cited (see Table 2).

Participants were asked to check all that apply from a list of 9 choices for "What do you offer cancer patients with your treatment?" The most frequently selected treatment goals were improving quality of life (94%), managing side effects (89%), and helping the immune system (85%) (see Table 3). When asked "For which of these do you find your treatment is most successful," a lower proportion of acupuncturists reported these goals as being successful: improving quality of life (72%), managing side effects

(67%), and helping the immune system (51%). While 32% of the sample endorsed affecting the cancer itself as a treatment goal, only 12% reported success.

A surprisingly low number of acupuncturists reported observing any adverse events related to their treatments. The most frequently selected side effects chosen from the options offered on the questionnaire included herbal medicine-related adverse events ($n = 14$), acupuncture reactions ($n = 10$), dietary reactions ($n = 7$), herb-drug interactions ($n = 4$), supplement-related reactions ($n = 2$), and other ($n = 6$).

Communication With Conventional Oncologists

The final questions on the survey investigated communication patterns between TCM practitioners and conventional caregivers. In response to a Likert-type question “Do you initiate communication with the patient’s conventional oncologist or biomedical provider while you are providing treatment?” the respondents chose *never* (28%), *hardly ever* (49%), *usually* (15%), and *always* (8%). In response to the question “Are you consulted by a patient’s conventional oncologist or biomedical provider to discuss the patient’s treatment?” a similar lack of communication was evident with responses of *never* (56%), *hardly ever* (35%), *usually* (7%), and *always* (2%).

Discussion

The 2012 National Health Interview Survey Adult CAM Supplement subset found that 33.2% of 88 962 US adults older than 18 years surveyed had used at least one form of complementary therapy in the preceding 12 months.^{31,32} The number is reported to be even higher in patients living with or beyond a cancer diagnosis, with estimates ranging from 41% to 93%.¹⁻³ Integrative oncology promotes the rational, evidence-informed combination of complementary therapies with conventional cancer care.³³ TCM is a popular whole systems complementary modality that an increasing number of patients are seeking to integrate into their treatment regimen. The National Health Interview Survey notes a linear increase in the use of acupuncture among US adults between 2002 and 2012.³¹ An increasing body of evidence suggests that acupuncture may have benefit in treating a number of symptoms related to cancer or its treatment.⁵⁻⁷

Most integrative medicine centers have acupuncturists and/or TCM practitioners on their staff.³⁴ The integrative medicine centers that constitute the Academic Consortium for Integrative Medicine and Health have developed mechanisms for the credentialing of these providers so that they may practice in conjunction with their Western counterparts. Many patients are more prone to explore complementary modalities if they are offered under the aegis of an academic medical center. However, because of geographic

concerns or insurance issues, cancer patients may seek care from practitioners in the community. The San Francisco Bay Area has no shortage of TCM practitioners, with 2213 licensed providers listed at the time of our survey. Many acupuncturists seeing cancer patients in our study have significant clinical experience, but only a minority sought training specialized to the needs of cancer patients.

The fact that the vast majority of those surveyed feel acupuncture is their most effective modality and symptom management the area where they can have the biggest impact is totally consistent with the ever-increasing database from controlled clinical trials.⁷⁻¹⁹ TCM, however, is not just acupuncture. Seventy-two percent of our respondents also report use of herbal therapies in their treatment of cancer patients. Although conventional oncologists often caution their patients to avoid any botanical supplements while receiving radiation or chemotherapy, our respondents reported virtually no evidence of ever having noted any adverse experiences from their treatments. The possibility of chemotherapy: botanical pharmacokinetic interactions exist, but the low percentage of respondents in our survey reporting they had seen these interactions suggests that either the likelihood of such interactions being clinically significant is low, or these practitioners have low awareness of them (which would be surprising given the public availability of databases like the Natural Medicines Database (<https://naturalmedicines.therapeuticresearch.com/>)).

Some conventional oncologists may be likely to advise their patients to avoid TCM interventions while undergoing chemotherapy or radiation based on concerns of a botanical interaction via the cytochrome P450 enzyme system.²⁰⁻²⁴ In spite of the systematic review published by Yasueda et al,³⁵ some concern remains to the effect that if a Chinese herbal formula has antioxidant activity, it could interfere with the reactive oxygen species generated by radiation and some chemotherapeutic agents to kill the cancer cells, thus negating the effects of the conventional therapies. The concepts of oxidant:antioxidant interactions are not part of the teachings of TCM. Hence it would require a TCM practitioner with some integrative knowledge of Western conventional cancer therapies to assure the treating oncologist that the herbal formula they are recommending is safe.

It is interesting to note from our results that only a third of the TCM doctors responding to the survey state that a goal of their treatment is an antitumor effect, and only 1 in 9 feel that their treatment is effective in that regard. Acupuncturists are trained to treat the presenting symptoms and pathology of any disease process. A TCM diagnosis and treatment of a Western diagnosis would approach each individual based on their own particular constitution and presenting symptoms. Patients being treated with a biomedical diagnosis of breast cancer would receive individualized treatments different from each other based on the particular presenting syndromes and the constitution of the individual.³⁶ Assessment

of the patient's internal dysregulation is determined primarily through pulse diagnosis, combined with presenting symptoms. From this meta-pattern, the provider determines a treatment strategy for supporting host defense in pushing back against the disease process. The needle prescription, use of moxibustion, cupping, nutritional and herbal recommendation, which constitute the TCM treatment would be individually tailored to each patient's particular needs to achieve the best possible outcome. During the course of cancer treatment, many conditions emerge in the patient such as pain, nausea, vomiting, constipation, dry skin, oral ulcers, emotional confusion, fear, behavioral changes, insomnia, and a weakened immune system. It is the acupuncturist's role to treat these specific individual presenting symptoms thereby supporting the patient's overall well-being.

TCM practitioners are working side by side with oncologists at an increasing number of cancer treatment or integrative medicine centers. Such proximity favors discussion of mutual patients in casual conversation or organized case conference formats. However, when the oncologist and TCM doctor are not co-located, our survey discovered a striking lack of communication between the practitioners. The overwhelming majority of our respondents admit to never or hardly ever contacting the patient's treating oncologist, and similarly, very rarely being contacted by the oncologist to discuss a mutual patient. Lack of a common language and vocabulary would also serve to impede truly meaningful communication. However, if Western physicians and doctors of TCM make an effort to dialogue, it is likely that understanding could be reached. Perhaps grand rounds presentations on the use of TCM in oncology or TCM practitioner participation in tumor boards could serve as ways to improve communication between providers sharing care of cancer patients, ultimately leading to optimized outcomes.

Acknowledgments

This survey was designed by a group of volunteer clinicians and researchers with an interest in traditional Chinese medicine, who met at the Osher Center at the invitation of Donald Abrams MD and Beverly Burns, LAc. The participants included Amy Mateki, MD, Joseph Aquah, LAc OMD, Anahita Forati, LAc OMD, Mike Liaw, LAc, OMD Carmencita Poe, LAc, Erlene Chiang, LAc, Carla Wilson, PhD, DAOM, LAc, and Efreem Korngold, LAc, OMD. Anand Dhruva, MD, was also an active participant.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was supported in part by a generous gift from the Bradley family.

References

1. Mao JJ, Palmer C, Healy K, Desai K, Amsterdam J. Complementary and alternative medicine use among cancer survivors: a population-based study. *J Cancer Surviv.* 2011;5:8-17.
2. Anderson JG, Taylor AG. Use of complementary therapies for cancer symptom management: results of the 2007 National Health Survey. *J Altern Complement Med.* 2012;18:235-241.
3. Truant TL, Porcino AJ, Ross BC, Wong ME, Hilario CT. Complementary and alternative medicine (CAM) use in advanced cancer: a systematic review. *J Support Oncol.* 2013;11:105-113.
4. Fouladbakhsh JM, Stommel M, Given BA, Given CW. Predictors of use of complementary and alternative therapies among patients with cancer. *Oncol Nurs Forum.* 2005;32:1115-1122.
5. Fouladbakhsh JM, Stommel M. Gender, symptom experience, and use of complementary and alternative medicine practices among cancer survivors in the U.S. cancer population. *Oncol Nurs Forum.* 2010;37:E7-E15.
6. NIH Consensus Statement. <https://consensus.nih.gov/1997/1997Acupuncture107PDF.pdf>. 1997;15:5. Accessed November 16, 2015.
7. Lu W, Dean-Clower E, Doherty-Gilman A, Rosenthal DS. The value of acupuncture in cancer care. *Hematol Oncol Clin North Am.* 2008;22:631-648.
8. Towler P, Molassiotis A, Brearley SG. What is the evidence for the use of acupuncture as an intervention for symptom management in cancer supportive and palliative care: an integrative overview of reviews. *Support Care Cancer.* 2013;21:2912-2923.
9. Garcia MK, McQuade J, Lee R, Haddad R, Spano M, Cohen L. Acupuncture of symptom management in cancer care: an update. *Curr Oncol Rep.* 2014;16:418.
10. Acupuncture (PDQ®)—Health Professional Version. <https://www.cancer.gov/about-cancer/treatment/cam/hp/acupuncture-pdq>. 2016. Overview, para 2. Accessed October 17, 2016.
11. Alimi D, Rubino C, Pichard-Leandri E, Fermand-Brule S, Dubreuil-Lemaire HL, Hill C. Analgesic effect of auricular acupuncture for cancer pain: a randomized, blinded, controlled trial. *J Clin Oncol.* 2003;21:4120-4126.
12. Donald GK, Tobin I, Stringer J. Evaluation of acupuncture in the management of chemotherapy-induced peripheral neuropathy. *Acupunct Med.* 2011;29:230-233.
13. Molassiotis A, Bardy J, Finnegan-John J, et al. Acupuncture for cancer-related fatigue in patients with breast cancer: a pragmatic randomized controlled trial. *J Clin Oncol.* 2012;30:4470-4476.
14. Walker EM, Rodriguez AI, Kohn B, et al. Acupuncture versus venlafaxine for the management of vasomotor symptoms in patients with hormone receptor-positive breast cancer: a randomized controlled trial. *J Clin Oncol.* 2010;28:634-640.
15. Beer TM, Benavides M, Emmons SL, et al. Acupuncture for hot flashes in patients with prostate cancer. *Urology.* 2010;76:1182-1188.
16. Meng Z, Kay Garcia M, Hu C, et al. Sham-controlled, randomised, feasibility trial of acupuncture for prevention of

- radiation-induced xerostomia among patients with nasopharyngeal carcinoma. *Eur J Cancer*. 2012;48:1692-1699.
17. Simcock R, Fallowfield L, Monson K, et al. ARIX: a randomized trial of acupuncture v oral care sessions in patients with chronic xerostomia following treatment of head and neck cancer. *Ann Oncol*. 2013;24:776-783.
 18. Cassileth BR, Van Zee KJ, Yeung KS, et al. Acupuncture in the treatment of upper-limb lymphedema: results of a pilot study. *Cancer*. 2013;119:2455-2461.
 19. Crew KD, Capodice JL, Greenlee H, et al. Randomized, blinded, sham-controlled trial of acupuncture for the management of aromatase inhibitor-associated joint symptoms in women with early stage breast cancer. *J Clin Oncol*. 2010;28:1154-1160.
 20. Cheng KF, Leung KS, Leung PC. Interactions between modern and Chinese medicinal drugs: a general review. *Am J Chin Med*. 2003;31:163-169.
 21. Meijerman I, Beijnen JH, Schellens JH. Herb-drug interactions in oncology: focus on mechanisms of induction. *Oncologist*. 2006;11:742-752.
 22. Yang AK, He SM, Liu L, Liu JP, Wei MQ, Zhou SF. Herbal interaction with anticancer drugs: mechanistic and clinical considerations. *Curr Med Chem*. 2010;17:1635-1678.
 23. Pao LH, Hu OY, Fan FH, Lin CC, Liu LC, Huang PW. Herb-drug interaction of 60 Chinese herbal medicines of CYP3A4 activity in vitro and in vivo. *Am J Chin Med*. 2012;40:57-73.
 24. Wu JJ, Ai CZ, Liu Y, et al. Interactions between phytochemicals from traditional Chinese medicines and human cytochrome P450 enzymes. *Curr Drug Metab*. 2012;13:599-614.
 25. Smith CA, Betts D. The practice of acupuncture and moxibustion to promote cephalic version for women with a breech presentation: implications for clinical practice and research. *Complement Ther Med*. 2014;22:75-80.
 26. Smith CA, Grant S, Lyttleton J, Cochrane S. Using a Delphi consensus process to develop an acupuncture treatment protocol by consensus for women undergoing assisted reproductive technology (ART) treatment. *BMC Complement Altern Med*. 2012;12:88.
 27. Nedeljkovic M, Bouzas-Ammann G, Zimmermann L, Stute P, Ausfeld-Hafter B. Modalities of acupuncture treatments in assisted reproductive technology—a comparison of treatment practice in Swiss, German, and Austrian fertility centers with findings from randomized controlled trials. *Forsch Komplementmed*. 2013;20:112-118.
 28. Landgren K. Acupuncture in practice: investigating acupuncturists' approach to treating infantile colic. *Evid Based Complement Alternat Med*. 2013;2013:456712.
 29. Denyer K, Smith H, Davies K, Horne R, Hankins M, Walker-Bone K. A pilot study to compare the views of traditionally trained and CAM-trained therapists using the clinical exemplar of the management of neck/upper limb pain to assess barriers to effective integration of approaches. *Complement Ther Med*. 2012;20:38-44.
 30. Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. Research electronic data capture (REDCap)—a metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform*. 2009;42:377-381.
 31. Clarke TC, Black LI, Stussman BJ, Barnes PM, Nahin RL. Trends in the use of complementary health approaches among adults: United States, 2002-2012. *Natl Health Stat Rep*. 2015;79:1-16.
 32. Zhang Y, Leach MJ, Hall H, Sundberg T, Ward L, Sibbritt D, Adams J. Differences between male and female consumers of complementary and alternative medicine in a national US population: a secondary analysis of 2012 NIH data. *Evid Based Complement Alternat Med*. 2015;2015:413173.
 33. Abrams DI. An overview of integrative oncology. *Clin Adv Hematol Oncol*. 2007;5:45-47.
 34. Horrigan B, Lewis S, Abrams DI, Pechura C. Integrative medicine in America—how integrative medicine is being practiced in clinical centers across the United States. *Glob Adv Health Med*. 2012;1:19-92.
 35. Yasueda A, Urushima H, Ito T. Efficacy and interaction of antioxidant supplements as adjuvant therapy in cancer treatment: a systematic review. *Integr Cancer Ther*. 2016;15:17-39.
 36. Ji Q, Luo Y-Q, Wang W-H, Liu X, Li Q, Su S-B. Research advances in traditional Chinese medicine syndromes in cancer patients. *J Integr Med*. 2016;14:12-21.