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Project ASPIRE: Incorporating Integrative Medicine Into Residency Training

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Abstract

Griffin Hospital, a community hospital affiliated with Yale School of Public Health and Yale School of Medicine, received Health Resources and Services Administration funding to strengthen and improve its combined internal medicine and general preventive medicine residency program by incorporating an integrative medicine curriculum. The purpose of project ASPIRE (Advancing Skills of Preventive medicine residents through Integrative medicine Education, Research and Evaluation) was to create, implement, and evaluate a needs-based, innovative training curriculum in integrative medicine. Through this robust new training, the authors aimed to produce preventive medicine-trained physicians with competencies in integrative medicine to collaboratively work with other integrative medicine practitioners in interdisciplinary teams to provide holistic, patient-centered care. The multifaceted collaborative curriculum was composed of didactics, grand rounds, journal club, objective structured clinical examinations, and two new practicum rotations in integrative medicine. The new practicum rotations included block rotations at the Integrative Medicine Center at Griffin Hospital and the Yale Stress Center. Between 2012 and 2014, three cohorts participated in the curriculum; two of these cohorts included three advanced preventive medicine residents each and the fourth included four residents. Project faculty conducted 14 lectures and journal clubs, and two grand rounds. Six of the ten participating residents (60%) completed integrative medicine clinical rotations. Residents' attitudes toward integrative medicine were evaluated through self-assessment using the Complementary, Alternative, and Integrative Medicine Attitudes Questionnaire; data were analyzed in 2015. This article describes the results of this prospective observational study based on single-institution experience over the course of the 2-year project period.

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Introduction

Integrative medicine, as defined by the Academic Consortium for Integrative Medicine and Health, “reaffirms the importance of the relationship between practitioner and patient, focuses on the whole person, is informed by evidence, and makes use of all appropriate therapeutic and lifestyle approaches, healthcare professionals and disciplines to achieve optimal health and healing” (www.imconsortium.org). It is the fusion of conventional medical practice and some of the practices that fall under the complementary and alternative medicine (CAM) rubric. Although CAM use is prevalent among U.S. consumers,¹ the current healthcare delivery system and providers’ lack of training and understanding hamper adequate access to CAM. The extent to which conventional medicine will adapt integrative medicine will be greatly influenced by the attitudes of physicians.² There is widespread reticence about (if not outright opposition to) CAM practices among conventional physicians. CAM treatments are often overlooked or frequently missed in clinical encounters^{3–8} and tend to still be underemphasized in medical education.^{9,10} However, a case may be made for the responsible guidance of patients to CAM therapies both on the basis of patient interest, and in accordance with the prevailing standards of scientific evidence. The overlap of integrative medicine with preventive medicine is noteworthy. At the level of primary prevention, lifestyle counseling on nutrition, physical activity, smoking cessation, and stress reduction can reduce the risk of chronic diseases.^{11–13} CAM therapies have also been associated with favorable health outcomes such as reduction in joint and back pain^{14–16} and improved sleep health,^{17,18} among others. A healthcare system that is able to offer an integrated approach of incorporating best available conventional and CAM therapies to patients will likely increase patient satisfaction.¹⁹ Until mainstream physicians are trained in integrative medicine and their attitudes toward CAM change, adaptation of CAM into mainstream health care will be suboptimal.

Despite having a part-time Integrative Medicine Center (IMC) at Griffin Hospital and although having a significant number of patients seeking CAM in the local community, there was little if any integration of CAM into routine acute and ambulatory care training of medical students and residents. The Health Resources and Services Administration’s request for applications to incorporate Integrative Medicine training into the residency program provided the opportunity to conduct a needs assessment among residents and faculty. Based on a web-based survey conducted in 2012 (described in Methods section), the authors found a definitive interest in learning more about CAM among residents and faculty. This deficiency in integrative medicine education and training is consistent with previous literature.²⁰ In order to bridge the gap between the integrative medicine community and the hospital residency program, they sought to develop, implement, test, and improve a new innovative curriculum in integrative medicine for preventive medicine residents and faculty.

In September 2012, Griffin Hospital received a 2-year Health Resources and Services Administration Training Grant to develop an integrative medicine curriculum to enhance its preventive medicine residency program. The multifaceted curriculum was implemented from 2012 to 2014, and was composed of didactic workshops, integrative medicine research, new practicum rotations in integrative medicine, and robust evaluation and feedback. Below, the authors describe their efforts to create an innovative training model to incorporate CAM

training into a combined internal medicine and preventive medicine residency program at a mid-size community-based hospital.

Methodology/Project Implementation

Setting and Participants

Griffin Hospital is a 160-bed academic community-based hospital affiliated with the Yale School of Public Health and Yale School of Medicine. Griffin Hospital serves Connecticut's Lower Naugatuck Valley, and the teaching program admits approximately 4,000 patients per year. Griffin Hospital offers postgraduate residency programs in preliminary medicine, internal medicine, and preventive medicine. In 1995, Griffin Hospital implemented a unique 4-year combined internal medicine/preventive medicine program. Each year, residents are recruited at the postgraduate year 1 level and complete the majority of their internal medicine clinical experience during the first 2 years. The third and fourth years of residency comprise the preventive medicine portion of training. The third year of the combined program focuses on didactic training, where the majority of residents attend the Yale School of Public Health and complete a MPH degree. The preventive medicine practicum rotations are primarily completed during the fourth year of the residency program. The focus of the new integrative medicine training program was the fourth-year advanced preventive medicine residents. The program was composed of three cohorts, graduating classes of 2013, 2014, and 2015. The first two cohorts included three residents each and the final cohort had four residents (N=10).

Baseline Needs Assessment

The authors conducted an online needs assessment survey in June 2012 to assess integrative medicine knowledge and skills of the preventive medicine residents and faculty. The survey was composed of 17 questions including multiple-choice and Likert-type scale questions regarding prior experiences and attitudes toward integrative medicine. The survey link was e-mailed to ten internal and preventive medicine faculty and 16 combined program residents, four of which were graduating, and three each were entering their fourth, third, second, and intern years. The response rate for both faculty and residents was 100%. About 81% of residents stated they believe CAM is beneficial for their patients, and 69% agreed that integrative medicine approaches should be offered to patients. However, residents reported that they only discuss integrative medicine treatments with their patients either *never* (38%) or *only sometimes* (10%). Respondents were also asked, *To what extent the following factors are barriers to counsel patients about complementary medicine?* The four proposed barriers, *limited time*, *lack of knowledge/skills*, *lack of confidence in counseling patients about integrative medicine*, and *perceived poor efficacy of complementary therapies in healing patients*, were measured on a 10-point Likert-type scale with *not a barrier* and *absolute barrier* being the extremes. The largest reported barrier to discussing integrative medicine with patients was *lack of knowledge about integrative medicine* and *lack of confidence in counseling patients about integrative medicine* (63% of residents). *Limited time* and *perceived poor efficacy of complementary therapies in healing patients* were reported as barriers by 56% and 33% of residents, respectively. Only half of the residents had coursework in integrative medicine in medical school. Overall, 69% of residents stated

they had a low competency in integrative medicine. All of the residents indicated a desire to learn more about integrative medicine, thus highlighting the clear need for a formal and more robust integrative medicine curriculum.

The results from the faculty survey presented a similar need for integrative medicine training. About 67% of faculty felt integrative medicine is beneficial and useful to patients, yet 75% still did not discuss integrative medicine with patients. Of those who did, all said they discussed integrative medicine only *rarely* or *occasionally*. None of the faculty had prior training in integrative medicine, and 90% felt they had low competency in practicing and teaching integrative medicine. However, 100% of faculty reported wanting to learn more about integrative medicine.

Curriculum Implementation

The curriculum included both didactics and new practicum rotations in integrative medicine. Under this new curriculum, residents were trained not only on Griffin Hospital's campus, but participated in experiential learning at local integrative medicine clinical centers. In each of the first two cohorts, two of the three residents participated in integrative medicine rotations. In the last cohort, two of four residents completed the rotations. In total, six of ten residents completed the program in its entirety. All of the advanced preventive medicine residents attended didactic sessions.

Didactics, Grand Rounds, Journal Club

An integrative medicine lecture schedule was designed with assistance from faculty at both the IMC at Griffin Hospital and the Yale Stress Center. During the project period, a total of 13 lectures were conducted on topics such as "Stress and Relaxation Response," "Mindfulness-Based Interventions for Stress Management," and "Wellness and Self-Care for Residents." Speakers included Drs. Lisa Rosenberger and David Katz from the IMC, Dr. Herbert Benson from the Benson-Henry Institute for Mind Body Medicine at Massachusetts General Hospital, and Drs. Keri Tuit, Rajita Sinha, and Ather Ali from the Yale Stress Center. Though these lectures were designed for preventive medicine residents, internal medicine residents, medical students, physical therapy students, and faculty also attended. One integrative medicine-based journal club session was conducted as well. One of the advanced preventive medicine residents presented an article titled "Randomized Controlled Trial of *Sajabalssuk (Artemisia princeps Pampanini)* to Treat Diabetes,"²¹ and Dr. Ali moderated the discussion regarding the strengths, weaknesses, and clinical relevance of the article. An effort was also made to incorporate preventive medicine articles with integrative medicine relevance into other journal club sessions.^{22,23}

In addition to the resident lecture series, three grand rounds in integrative medicine were also conducted, which were open to all clinical staff in the hospital. These grand rounds included

- Neurobiology of Stress: Reversing the Effects on Health and Behavior. Rajita Sinha, Yale Stress Center

- Mind–Body Medicine. Darshan Mehta, Benson-Henry Institute for Mind Body Medicine at Massachusetts General Hospital
- Irritable Bowel Syndrome, the Integrative Medicine Approach. Benjamin Kligler, the Center for Health and Healing, Mount Sinai Beth Israel

Practicum Rotations

The ten preventive medicine residents had the opportunity to participate in two integrative medicine rotations during their fourth year, one at the IMC at Griffin Hospital, and the other at the Yale Stress Center.

The IMC at Griffin Hospital is one of the first and few centers of integrative medicine in Connecticut. The IMC allows access to both naturopathic physicians and multiple other types of integrative medicine professionals. The patient is provided with evaluations that are holistic and involve a conference of experts specializing in internal and preventive medicine, primary care, naturopathy, and Chinese medicine. Treatment approaches available at the IMC include pharmacologic interventions, nutritional counseling, nutritional supplements, herbal medicine, acupuncture, therapeutic touch, homeopathy, intravenous micronutrient therapy, massage therapy, stress management, and relaxation training.

A total of six advanced preventive medicine residents completed a rotation at the IMC. During this 2–4-week rotation, the residents shadowed the providers and received an introduction to integrative medicine; learned to take an integrative medicine–focused history; and learned about the commonly prescribed integrative medicine treatments, side effects, and precautions. They were exposed to the epidemiology, patterns of use, licensing, legal status, and clinical applications of the most commonly used integrative medicine therapies, as well as given the opportunity to participate in dietary supplement research.

The Yale Stress Center, located in New Haven, Connecticut provides a setting for both treatment and research to coexist. The Yale Stress Center’s clinical treatment services address ongoing stress and stress-related behaviors that negatively affect health, incorporating integrative therapies and practitioners. Cutting-edge interdisciplinary science on the deleterious effects of stress and adversity, how stress and lifestyle choices promote chronic diseases, and new treatments to optimize functioning under stress is being conducted to improve health outcomes and pre-empt disease and relapse.

The same six preventive medicine residents also completed a rotation at the Yale Stress Center. During this portion of the IM rotation, residents were assigned background readings on integrative medicine epidemiology^{24–26}; learned about the role of stress, stress response, and relaxation skills in health; participated in integrative medicine clinical evaluations; and critically analyzed therapeutic approaches and treatment plans in integrative medicine. Residents also had the opportunity to participate in clinical research in various aspects of integrative medicine and stress research. One of the residents collaborated with Dr. Ali on a meta-analysis looking at the effects of yoga, meditation, and guided imagery on hypertension.

Objective Structured Clinical Examination

Preventive medicine residents, as well as both internal medicine and preventive medicine faculty, participated in a videotaped integrative medicine objective structured clinical examination (OSCE). OSCEs have been found to be a very effective educational tool in graduate medicine education.²⁷ In particular, videotaped patient encounters can be a powerful tool to enhance communication skills for both residents and faculty.^{28,29} Project faculty designed an integrative medicine–focused OSCE scenario in which the standardized patient was seeking natural, non-pharmaceutical means to control her blood pressure, specifically asking about a U.S. Food and Drug Administration–approved treatment called Resperate. Residents and faculty who participated had 2 minutes to read the scenario, and then they interacted with a standardized patient while being videotaped for 6 minutes. At the end of the encounter, the standardized patient spoke for 1 minute into the camera to provide feedback to the physician. Each resident OSCE was later played back and reviewed with the resident by a faculty member to promote discussion and to provide feedback. Faculty members used a modified version of the validated Calgary-Cambridge patient-centered assessment tool to guide discussion.³⁰ The modified Calgary-Cambridge rating score assigns points between 0 and 2 for 21 observable behaviors. A total of seven preventive medicine residents completed the OSCE. In addition, faculty members were asked to undergo the same OSCE before it was offered to residents for practice and calibration purposes, as well as for faculty development. A total of eight faculty members completed the OSCE. In the future, the authors hope to conduct OSCE annually so it can be used as an evaluation tool as well as an educational tool.

Learner Evaluation

To evaluate the learners, the Complementary, Alternative, and Integrative Medicine Attitudes Questionnaire (CAIMAQ) was used. Residents completed baseline and follow-up self-assessments using the CAIMAQ survey tool. The CAIMAQ was developed by a panel of experts in complementary, alternative, and integrative medicine, conventional medicine, medical education, and survey development, and has been validated in U.S. medical students.³¹ The CAIMAQ has five distinct attitudinal domains: desirability of complementary, alternative, and integrative therapies; progressive patient/physician healthcare roles; mind–body–spirit connection; principles of allostasis; and a holistic understanding of disease. The survey instrument contains 30 items regarding attitudes about integrative medicine administered using a 7-point Likert-type scale. Pre- and post-program resident attitudes in the five attitudinal domains are displayed in Table 1. Paired *t*-test analysis of baseline and follow-up scores was conducted and found no significant change.

The CAIMAQ also asks about the participants' personal experience with 26 specific forms of integrative medicine, such as acupuncture, guided imagery, and magnet therapy. Eight of the ten residents reported using at least one new form of integrative medicine since starting the program. Some new forms of integrative medicine residents stated using are Ayurveda, folk medicine, diet-based therapies, deep breathing exercise, energy healing therapy/Reiki, herbal medicine, hypnosis, massage, megavitamin therapy, and natural products.

Discussion

The authors' experience in designing and implementing a formal integrative medicine curriculum into their preventive medicine residency program was overall positive. Two new rotations in integrative medicine were established at the IMC and the Yale Stress Center, which gave preventive medicine residents exposure to CAM and naturopathic clinicians that they previously did not have. Residents' opinions toward the new curriculum varied depending on interest and background. However, regardless of the learner's attitude or belief in CAM, all of the residents learned how to talk to their patients about alternative medicine, improving the level of patient-centered care in the hospital. Residents learned how to consider alternatives to conventional therapy, how to take complete patient histories that include supplements and CAM therapies, and when to refer their patients to the integrative medicine specialists in the community.

The authors faced several challenges during the implementation of this project. The program period only lasted 2 years, which made it difficult to conduct thorough evaluation of learners and measure the effect the curriculum had on patient care. The sample size of ten was also very small, making it difficult to achieve statistically significant results.

The timing of the program made it difficult to ensure every advanced preventive medicine resident was able to participate in the integrative medicine rotations. The authors received the notice of grant award in September, 2 months after the academic year started. This made it difficult to schedule new practicum rotations into an already full academic schedule during the first year. The October 1–September 30 project schedule also affected the final cohort. The last cohort of four advanced preventive medicine residents only had 3 months to complete the rotations before funding ended. The difficulties in scheduling resulted in a program completion rate of 60%. However, all ten residents were able to participate in lectures, grand rounds, and journal club.

Although the didactic and rotation portions of the project were successfully implemented, other aspects of the project proved challenging. In the original proposal, the authors wanted their naturopathic physician to attend clinic with the residents twice a month to show them how to integrate CAM into their everyday patient encounters. They felt this would have the dual benefit of providing the residents with direct supervised integrative medicine experience, as well as providing integrative medicine to a patient population that may not have the resources to pursue care in other settings. However, lack of sufficient support from clinic administration, as well as length of time for credentialing and complications in the credentialing process for the naturopathic physician severely hampered this effort. This is an emerging problem among integrative medicine specialists nationwide.³² Ultimately, the naturopathic physician was granted a limited access within the clinic and allowed to only educate residents, with no opportunity to interact with patients. This limited engagement, although disappointing, did provide a valuable opportunity for an integrative medicine provider to interact with residents and discuss the role of potential CAM treatment for patients.

Unfortunately, soon after the end of the project period, the IMC closed in November 2014 because it was not financially viable for the hospital. Owing to its closure, residents are no longer able to complete an elective rotation at the IMC. However, the Yale Stress Center is still available to interested residents for electives. Project faculty plan to continue to build upon these relationships and continue to provide integrative medicine training to both internal and preventive medicine residents.

In conclusion, the authors have demonstrated a high degree of interest and need for integrative medicine training among residents and faculty. Despite several limitations and the short duration of this project, they were pleased with the improvement in attitude toward CAM among residents. Future funding is needed to implement well-designed and longer educational interventions to train future preventive medicine providers in CAM.

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Table 1
Resident Self-Assessment Scores in Five Attitudinal Domains From CAIMAQ Survey Tool

	<i>n</i>	Desirability	Progressive	Mind-body	Allostasis	Holistic
Baseline	10	5.63	6.40	6.45	5.83	6.25
Follow-up: program completers ^a	6	5.89	6.52	6.29	5.67	6.46
<i>p</i> -value		0.19	0.18	0.58	0.52	0.15
Follow-up: partial program completers ^b	4	5.50	6.57	7.00	5.58	6.44
<i>p</i> -value		0.26	0.17	0.39	0.16	0.66

^aResidents who completed integrative medicine rotations.

^bResidents who did not complete integrative medicine rotations.

CAIMAQ, Complementary, Alternative, and Integrative Medicine Attitudes Questionnaire.