A Model Intensive Course in Geriatric Teaching for Non-geriatrician Educators

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INTRODUCTION: Because of the aging demographics nearly all medical specialties require faculty who are competent to teach geriatric care principles to learners, yet many non-geriatrician physician faculty members report they are not prepared for this role.

AIMS: To determine the impact of a new educational intervention designed to improve the self-efficacy and ability of non-geriatrician clinician-educators to teach geriatric medicine principles to medical students and residents.

DESCRIPTION: Forty-two non-geriatrician clinician-educator faculty from17 academic centers self-selected to participate in a 3-day on-site interactive intensive course designed to increase knowledge of specific geriatric medicine principles and to enhance teaching efficacy followed by up to a year of mentorship by geriatrics faculty after participants return to their home institutions. On average, 24% of their faculty time was spent teaching and 57% of their clinical practices involved patients aged over 65 years. Half of all participants were in General Internal Medicine, and the remaining were from diverse areas of medicine.

EVALUATION: Tests of geriatrics medical knowledge and attitudes were high at baseline and did not significantly change after the intervention. Self-rated knowledge about specific geriatric syndromes, self-efficacy to teach geriatrics, and reported value for learning about geriatrics all improved significantly after the intervention. A quarter of the participants reported they had achieved at least one of their self-selected 6-month teaching goals.

DISCUSSION: An intensive 3-day on-site course was effective in improving self-reported knowledge, value, and confidence for teaching geriatrics principles but not in changing standardized tests of geriatrics knowledge and attitudes in a diverse group of clinician-educator faculty. This intervention was somewhat associated with new teaching behaviors 6 months after the intervention. Longer-term investigations are underway to determine the sustainability of the effect and to determine which factors predict the faculty who most benefit from this innovative model.

KEY WORDS: geriatric care; clinician educators; curriculum development.
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INTRODUCTION

The changing demographic makeup of the United States is dramatic and has critical implications for medical care and training. Current projections are that by 2030, about 20% of the US population will be people over the age of 65 years.[1] Even more striking, the fastest growing segment of the population is that group of the so-called old-old, or over the age of 85 years, who currently comprise 4.5% of the population but will represent nearly 1 in 5 people by the year 2050. The dramatic changes in the demographic composition of the U.S. certainly has important implications for the medical care system, both in terms of changing patient needs and in changing the required knowledge, skills, and attitudes of those who provide that care. This results in doctors being asked to provide care for a growing number of patients for whom they have not received adequate training to do so and to teaching an area they have received little if any formal training in themselves.

Several studies have found a low level of efficacy, comfort, and perceived self-competency in caring for geriatric patients by non-geriatricians. Internists adhered to evidence-based quality standards only 29% of the time in caring for chronically ill, vulnerable elderly[2] and reported frustration both with the process of providing care and with the limits of their training to meet the needs of their patients.[3,4,5] Further, a random sampling of U.S. physicians from various disciplines reported their chronic disease training was not sufficient.[6] In a similar manner, almost half of emergency physicians surveyed reported more difficulty caring for older than younger patients, believed geriatric training in residency was inadequate and desire more continuing medical education to address this shortfall.[7]

An enormous educational need exists in medical trainees. A study of internal medicine residents and medical students found that trainees felt overwhelmed by complex patients and identified gaps in their training to care for the elderly.[8] However, by extrapolation, one might expect that non-geriatricians might be uncomfortable teaching core geriatric concepts if they themselves feel their own knowledge in these areas is insufficient. Indeed, most general internal medicine fellowship-trained faculty did not receive training in teaching geriatrics[9] and reported discomfort

with teaching geriatrics.[10] The efforts to teach about the clinical care of geriatric patients within the surgical and medical specialties have lagged even farther behind.[11]

With these issues in mind, we developed a "Geriatrics Mini-Fellowship" for faculty from a wide array of disciplines and studied the short- and longer-term impact of the curriculum on teaching behaviors. We hypothesized that a 3-day on-site curriculum using multiple interactive educational techniques followed by 1 year of mentorship support would result in improved non-geriatrician clinician-educators' self-efficacy to teach geriatrics and increase geriatrics teaching over 6 months after the on-site intervention.

METHODS

Curriculum Development

The Donald W. Reynolds foundation has generously funded development of several educational innovations to try to better meet the needs of our aging population. One such project was the creation of a "Geriatrics Mini-Fellowship" at 4 leading institutions in geriatric medicine, including our institution. To develop our curriculum, we utilized the 6-step method of curriculum development described by Kern et al.[12] As advised in this approach, we performed a general and a local needs assessment utilizing faculty at the Johns Hopkins School of Medicine[13] to inform the contents and format of the course and to develop appropriate goals and measurable objectives for the curriculum. Our targeted learners were clinician educators who teach trainees in the in-patient setting, and we specifically sought to recruit and study hospitalists, emergency medicine physicians, general internists, family practitioners, and surgeons and related specialists. The design of the on-site course consisted of utilization of case-based didactic lectures interspersed with role-playing and trigger tapes to stimulate small and large group discussions and create an interactive format. The two main targets of the on-site intervention were to provide instruction in basic geriatrics principles and in basic teaching skills. Geriatrics principles comprised roughly half of the curriculum, but were interwoven with the teaching principles over the course of 3 days. Medical topics relevant to the elderly discussed included evaluation of altered cognition, nutrition, pain management, end-of-life principles, polypharmacy, diarrhea, pressure ulcers, acute care of the elderly, homecare, and geriatrics "pearls". Basic teaching skills included an overview of principles of adult learning, teaching in small groups, teaching utilizing the 1-minute preceptor model, providing effective feedback, role modeling, curriculum development, presenting a stage talk, and career advancement as an educator. All role-playing to practice particular teaching skills utilized scenarios involving geriatric patients to help clarify geriatric knowledge objectives. Through one-on-one work with geriatrics faculty all participants were encouraged to create educational goals related to teaching geriatrics to try to achieve in the 6 months following the on-site course.

Curriculum Implementation

Brochures were mailed both in hard copy and electronically to Chairs of Medicine and Residency Program Directors at academic medical institutions describing the content and format of the course. Interested parties were asked to complete a brief application form to collect demographic data and ensure this faculty member provided teaching to residents or students. Applicants self-select to participate. No specific criteria are used for accepting applicants other than reporting more than 10% effort in training medical students, residents, or fellows. There was no tuition charged to the participants, continuing medical education (CME) credit was available free of charge, and room and board within the conference facilities were all provided by a generous grant from the Donald W. Reynolds Foundation. Faculty participants were responsible for their own travel to and from the course site. The site of the course was a University-owned professional conference facility with classroom style rooms available for both large and small group work. The Reynolds Foundation provided financial support for implementation of the program, including the cost of conference facilities and food for 3 days, 20% salary support for the course director in the first year and 10% for each year subsequent, $1,000 to support select additional faculty time, advertising materials, and copies of the curriculum in a hardcopy binder and copies of all lectures on CD for each participant. Further, the Reynolds foundation provided financial support to the research infrastructure to study the effectiveness of this intervention.

At the initiation of the 3-day on-site course, participants were administered the UCLA Test of Geriatric Knowledge[14] and Attitudes[15] in addition to a questionnaire about self-perceived geriatrics knowledge, value of learning geriatrics for clinical care, and self-rated efficacy to teach geriatrics designed for this course, the Geriatrics Clinician-Educator Learning Questionnaire (G-CEL Q available at http://cms.hopkinsmedicine.org/geriatrics/education/Reynolds/GCEL-Qv20parketal.pdf). Geriatrics and General Internal Medicine faculty from our home institution administered the on-site curriculum over the course of 3 full days. At the conclusion of the on-site curriculum, participants were again administered the UCLA Tests of Geriatric Knowledge and Attitudes and the G-CEL Q as well as an evaluation of the quality and usefulness of the curriculum. Each participant was asked to list at least 1 goal for teaching geriatrics that he or she would like to achieve in the subsequent 6 months, and encouraged them to select a goal they felt they were 70% likely to achieve. Participants were encouraged to contact the course faculty at any time for assistance in achieving their goals and participants were contacted by the course faculty by e-mail 1, 3, and 6 months after the conclusion of the on-site course to offer assistance in attaining their goals. The study was approved by the Johns Hopkins Institution Review Board.

Measures of the Effectiveness of the Curriculum

Baseline demographic information about the participants was extracted from their written application forms. The efficacy of the curriculum was measured in 3 ways. First, the participants' knowledge and attitudes regarding geriatric medicine and their self-perceived knowledge and value of learning geriatric medicine for clinical care and perceived self-efficacy for teaching geriatric medicine principles were measured using the UCLA Test of Geriatric Knowledge[14] and Attitudes[15] and G-CEL Q pre- and postcourse. Reliabilities of these tests are presented in Table 1 and demonstrate good reliability. Second, a written course evaluation form was used to assess participant satisfaction with the on-site course. Participants were asked to rate the degree to which they were satisfied with the course overall on a scale from 0 (completely

Table 1. Reliability of Assessments for the Study Data

Assessment	Items	Pre-Reliability	Post-Reliability
Pre-post Geriatrics Knowledge Test[14]	18 items	0.700 *	0.126 *
Pre-post Geriatrics Attitude Scale[15]	14 items	0.440†	0.722†
G-CEL Q‡	3 components with 15 items each	0.901 to .919†	0.917 to 0.956†

* *Kuder-Richardson 20 coefficients were computed for the right-and-wrong answer scale.*
†*Cronbach's Alpha coefficients were computed for the 1-to-5 score-scale*
‡*Locally developed: Face validity of the 15 learning topics was established by the 21 content-experts, who are geriatricians at our institution*

dissatisfied) to 100 (completely satisfied). Third, we surveyed participants by e-mail 6 months after the conclusion of the on-site course to assess the implementation of their self-reported geriatric teaching activities or behaviors at their home institutions. Participants were asked to answer yes or no to the question, "Have you achieved any of the teaching goals you established for yourself on the final day of the on-site mini-fellowship?" Participants were also asked to comment on barriers and facilitators to achieving 6-month goals in an open-ended format.

Statistical Methods

Change in knowledge, attitudes, values, and self-efficacy to teach from the written tests was assessed using pre-post paired *t* tests. Data from the 6-month follow-up surveys are described using descriptive statistics. Achievement of 6-month teaching goals was recorded as a dichotomous variable and described as absolute counts. Logistic regression was used to determine associations between baseline characteristics and achievement of 6-month teaching behavior.

RESULTS

Participants

Forty-two non-geriatrician faculty in total attended one of 3 cohorts of the course (May 2005, n=9; May 2006, n=23; September 2006, n=10). The characteristics of the study participants are described in Table 2. There was a near-equal distribution of women and men with 27 (64%) faculty participants from Internal Medicine or an Internal Medicine specialty, 5 (12%) from Emergency Medicine, and the remaining 10 from a variety of fields. Participants estimated that nearly half of the clinical care they provided was for patients over the age of 65 years, and on average spent 24% of their time in teaching activities. Most participants did not have previous formal instruction in geriatric principles, teaching skills, or curriculum development.

Change in Knowledge and Attitudes After the 3-day Curriculum

At the initiation of the on-site course, scores on a test of geriatrics knowledge and attitudes were high at baseline and did not significantly change after the 3-day intervention (Table 3). In contrast, self-perceived knowledge about geriatric syndromes, reported value of learning about syndromes to improve clinical care, and self-efficacy to teach about geriatric principles as assessed by the G-CEL Q all improved significantly (all pre-post-comparisons p<0.001) over the course of 3 days.

Satisfaction with the 3-day Curriculum

Participants were asked to rate their overall satisfaction with the course at the conclusion of the 3-day on-site intervention using a scale ranging from 0 (completely dissatisfied) to 100 (totally satisfied). They were also asked to rate how they would recommend the course to a colleague using categorical variables. The results from the 37 participants who responded to this question demonstrate very high overall satisfaction with the course with a mean of 96% (SD 4.90, range 83–100) satisfied and all participants would recommend the course to a colleague as a good (9 participants), excellent (24 participants), or exceptional (4 participants) experience.

Impact on 6-month Post-course Teaching Behavior

At 6-months after the conclusion of the on-site curriculum, 10 participants (24%) responded that they had achieved at least 1

Table 2. Characteristics of the Participants (N=42)

Characteristic	Central Tendency (Range)
Age	44 years old (30 to 62)
Years Since Graduation from Medical School	17 years (3 to 36)
Percent of Patients Over 65 Years Old	57% (0 to 90%)
Percent of time spent in each of the following activities	
Clinical care	54% (10 to 90)
Teaching	24% (5 to 50)
Administration	14% (0 to 75)
Research	8% (0 to 50)
Characteristic	No. (%)
Female Gender	22 (52%)
Specialty	
General Internal Medicine	21 (50%)
Internal Medicine Specialty	5 (12%)
Emergency Medicine	5 (12%)
Family Medicine	4 (10%)
Other*	7 (20%)
Academic Rank	
Chief Resident or fellow	6 (13%)
Instructor	9 (21%)
Assistant Professor	22 (52%)
Associate Professor	5 (12%)
Prior Formal Instruction in Geriatric Principles	17 (40%)
Prior Formal Instruction in Curriculum Development	14 (33%)
Prior Formal Instruction in Teaching Skills	17 (41%)

**Other = General Surgery, Orthopedics, Anesthesiology, Cardiology, Neurology*

Table 3. Immediate Impact of the 3-day On-site Intervention (*N*=42)

Assessment	Pre	Post	Mean Difference (95% CI)	*D**	*P*†
Score Geriatrics Knowledge Test, % (SD), *n*=32	77.60 (12.8)	76.22 (9.28)	−3.44 to 6.22	–	.56
Score on the Geriatrics Attitude Scale‡ (SD), n=32	3.96 (.32)	3.96 (.46)	−.12 to.098	–	.96
G-CEL Q Perception, % (SD), *n*=38					
Knowledge of geriatric principles	59.04 (16.10)	80. 14 (9.70)	21.10 (16.30 to 25.90)	1.15	<.001
Value of learning geriatric principles for care	68.55 (22.65)	83.51 (13.33)	14.96 (10.00 to 19.92)	0.99	<.001
Efficacy of teaching geriatrics	61.24 (21.11)	80.02 (12.92)	18.78 (13.20 to 24.35)	1.11	<.001

CI confidence interval. d the effect size of Cohen's d
**calculated using the paired difference not the original standard deviation*[16]
†p value by paired t test
‡Maximum score of 5, indicating agreement

of the new teaching behavior goals they had established for themselves at the conclusion of the on-site course. The behaviors achieved included teaching new courses to students, teaching geriatrics principles at the bedside, giving a new lecture on a selected geriatrics topic to residents, and organizing a seminar focused on teaching geriatrics to faculty at the home institution. Logistic regression analysis indicated that overall satisfaction with the on-site course was associated with self-evaluated accomplishment of teaching goal at 6-months (OR.84, 95% CI=0.71–0.99, p=.03), but no other selected measures such as knowledge, attitudes, perception of knowledge, values for practice, or teaching self-efficacy predicted reported achievement of 6-month goals. In data not shown, lack of time and conflicting priorities were the main reasons cited for not achieving 6-month post-course teaching goals.

CONCLUSIONS

Non-geriatrician clinician-educator faculty from diverse specialties found participation in a 3-day on-site curriculum focused on teaching geriatrics principles and teaching skills to be highly satisfying. A standardized written test of knowledge of geriatrics principles and attitudes toward geriatrics patients, designed to assess medical students and primary care residents, indicated a high baseline then no significant change after the 3-day intervention. In contrast, faculty's self-rated knowledge about geriatric principles, the clinical application of these principles, and their self-efficacy to teach geriatrics all increased significantly after the on-site intervention. About a third of the participants who were surveyed 6-months after the on-site course reported they had implemented new geriatrics teaching behaviors. In data not shown, time and competing priorities were reported as the most significant barriers to achieving 6-month teaching goals.

Discussion

In this study, 2 established tools for geriatric knowledge and attitude assessments indicated low reliability coefficients for the pretest on geriatrics knowledge and the post-assessment on geriatrics attitude. Factors that may contribute to this finding include the self-selection of highly motivated individuals, which may not represent a true cross-section of faculty or the appropriateness and difficulty of the test may not adequately address the different needs of faculty who present with a significantly more sophisticated knowledge base and experiential wisdom than those residents and students for whom the test was originally designed. We speculate that the faculty participants may be already informally exposed to basic geriatrics knowledge and attitudes toward older patients, therefore the assessment tools may not hold sufficient power to discriminate the target respondents' change of learning in such areas through 3 days on-campus. In contrast, these faculty perceived their baseline knowledge was fair and perceived it was significantly improved at the conclusion of the on-site intervention by the G CEL-Q, a locally developed instrument designed specifically for this course. This contrast could represent a genuine increase in knowledge or perhaps suggest that the largest benefit from the course was on increasing self-perception and confidence. This issue deserves further investigation and has important implications for understanding how physicians experience learning in other specialty areas and continuing medical education courses and for how this impacts teaching to learners.

We found an association between the short-term learning experience in overall satisfaction and self-reported achievement of personal teaching goals within 6 months. Further investigations are needed to better inform the selection of participants most likely to benefit from this type of intervention. Further, longer-term investigations are warranted to determine the sustainability of this effect. These important investigations coupled with similar novel educational interventions could serve to meet the enormous needs for geriatrics education in trainees and increase the supply of competent geriatrics educators in many disciplines.

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