

# Advancing Geriatrics Education: An Efficient Faculty Development Program for Academic Hospitalists Increases Geriatric Teaching

Lindsay Mazotti, MD<sup>1</sup>  
Adam Moylan, PhD<sup>2</sup>  
Elizabeth Murphy, MD<sup>1</sup>  
G. Michael Harper, MD<sup>2</sup>  
C. Bree Johnston, MD<sup>2</sup>  
Karen E. Hauer, MD<sup>1</sup>

<sup>1</sup>Department of Medicine, Division of Hospital Medicine, University of California San Francisco, San Francisco, California.

<sup>2</sup>Department of Medicine, Division of Geriatric Medicine, University of California San Francisco, San Francisco, California.

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**BACKGROUND:** Hospitalists care for an increasing number of older patients. As teachers, they are uniquely positioned to teach geriatric skills to residents. Faculty development programs focused on geriatrics teaching skills are often expensive and time-intensive, and may not enhance trainee learning.

**OBJECTIVES:** To evaluate a train-the-trainer (TTT) model designed to equip hospitalists with knowledge and skills to teach geriatric topics to residents in a time-constrained, resource-limited environment.

**DESIGN:** Cross-sectional survey.

**SETTING:** Academic tertiary hospital.

**INTERVENTION:** A 10-hour geriatric curriculum, the Reynolds Program for Advancing Geriatrics Education (PAGE), cotaught by geriatricians and hospitalists at preexisting noon conferences over 1 year that consisted of exportable teaching modules.

**MEASUREMENTS:** Session leaders' and faculty participants' satisfaction, hospitalist geriatrics teaching self-efficacy, residents' self-report of frequency of geriatric teaching received, and frequency of geriatric skill use.

**RESULTS:** The curriculum was highly rated by session leaders and hospitalist faculty. Hospitalists perceived improvement in geriatric teaching skills, indicating (1: "unlikely" to 5: "highly likely") that they are likely to use these teaching tools in the future ( $M = 4.61$ , standard deviation [SD] = 0.53). Residents reported both significantly more geriatrics teaching by hospitalists ( $P < 0.05$ ) and a borderline significant increase in their practice of geriatric clinical skills ( $P = 0.05$ ).

**CONCLUSIONS:** A time-efficient geriatric faculty development program for hospitalists suggests improvement in the amount and quality of geriatrics teaching and skill practice among faculty and residents at an academic medical center. Concise faculty development programs within preexisting faculty meetings may be a feasible, successful method to increase geriatric skill development in the hospital setting. *Journal of Hospital Medicine* 2010;5:541–546. © 2010 Society of Hospital Medicine.

**KEYWORDS:** continuing medical education (CME), education, geriatric patient, hospitalist as educators, resident.

Nearly half of the hospital beds in the United States are occupied by the elderly,<sup>1</sup> whose numbers are increasing.<sup>2</sup> The odds of a hospitalized Medicare patient being cared for by a hospitalist are increasing by nearly 30% per year.<sup>3</sup> Hospitalists require competence in geriatrics to serve their patients and to teach trainees. Train-the-Trainer (TTT) programs both educate health care providers and provide educational materials, information, and skills for teaching others.<sup>4</sup> This model has been successfully used in geriatrics to impact knowledge, attitudes, and self-efficacy among health care workers.<sup>4–6</sup>

A prominent example of a geriatrics TTT program is the University of Chicago Curriculum for the Hospitalized Aging Medical Patient (CHAMP),<sup>7</sup> which requires 48 hours of instruction over 12 sessions. To create a less time-intensive learning format for busy hospitalists, the

University of Chicago developed "Mini-CHAMP," a streamlined 2-day workshop with web-based components for hospitalist clinicians, but not necessarily hospitalist educators.<sup>7</sup>

We created The Donald W. Reynolds Program for Advancing Geriatrics Education (PAGE) at the University of California, San Francisco (UCSF), in light of the time intensity of CHAMP, to integrate geriatric TTT sessions within preexisting hospitalist faculty meetings. This model is consistent with current practices in faculty development.<sup>8</sup> This paper describes the evaluation of the PAGE Model, which sought answers to 3 research questions: (1) Does PAGE increase faculty confidence in teaching geriatrics?, (2) Does PAGE increase the frequency of hospitalist teaching geriatrics topics?, and (3) Does PAGE increase residents' practice of geriatrics skills?

**TABLE 1. PAGE Faculty Development Seminar Topics**

Topics	Geriatric Skills Addressed for Hospitalized Older Patients
1. Approach to the vulnerable older patient; assessing function; goals of care	Conduct functional status assessment
2. Minimizing medication problems	Mobilize early to prevent deconditioning
3. Framework for transitions in care (including home and community resources)	Reduce polypharmacy and use of high risk/low benefit drugs
4. Using prognostics to guide treatment decisions	Develop a safe and appropriate discharge plan, involving communication with other team members, family members and primary care physicians
	Give bad news
	Document advance directives and DNR orders
5. Falls & immobility	Discuss hospice care
6. Delirium	Identify risk factors of hospital falls, including conventional and unconventional types of restraints
7. Dementia & depression	Assess risk and prevent delirium
	Conduct cognitive assessment
	Screen for depression
8. Pain assessment in the elderly	Routinely assess pain at bedside in persons with dementia
	Routinely assess pain at bedside in persons with dementia
9. Foley catheters and incontinence	Manage pain using the WHO 3-step ladder and opiate conversion table and manage side effects of opiates
10. Pressure ulcers and wound care	Determine appropriateness for urinary catheter use, discontinuing when inappropriate
	Routinely perform a complete skin exam

Abbreviations: DNR, do not resuscitate; WHO, world health organization.

## Methods

### The PAGE Model

The PAGE Model comprises 10 hour-long monthly seminars held at UCSF from January through December 2008 to teach specific geriatrics principles and clinical skills relevant to providing competent care to a hospitalized older adult. The aims of the PAGE are to:

1. Give hospitalist physicians knowledge and skills to teach geriatric topics to trainees in a time-limited environment
2. Provide exportable teaching modules on geriatric topics for inpatient teaching
3. Increase teaching about geriatrics received by internal medicine residents
4. Increase resident use of 15 specific geriatric skills
5. Create a collaborative environment between the Geriatrics and Hospital Medicine Divisions at UCSF

The PAGE Development Group, which included 2 hospitalists, 2 geriatricians, and an analyst funded by the Donald W. Reynolds Foundation, reviewed American Geriatrics Society core competencies,<sup>9</sup> national guidelines and mandates,<sup>10,11</sup> and existing published geriatric curricula.<sup>7,12–14</sup> In late 2007, an email-based needs assessment listing 38 possible topics, drawn from the resources above, was emailed to the 31 hospitalists at UCSF. Each hospitalist identified, in no particular order, 5 topics considered most useful to improve his/her geriatric teaching skills, with write-in space for additional topic suggestions. The needs assessment also queried what format of teaching tools would be most useful and efficient, such as PowerPoint slides or pocket cards, and interest in session coteaching.

The topics most commonly selected by the respondents (n = 14, response rate 45%) included: home/community

resources (64%), delirium/dementia (57%), minimizing medication problems (50%), using prognostic indices to make decisions (43%), and general approach to older inpatients (43%). The Development Group identified less popular topics (falls, pressure ulcers, indwelling catheters/incontinence) that were gaining significant national attention.<sup>15</sup> Finally, a topic suggested by many hospitalists, pain management, was added. Each topic session was mapped to 1 or more of the 15 geriatrics skills in the CHAMP model<sup>7</sup> for residents to acquire. The requested and selected topics were then modified to create distinct sessions grouped around a theme, shown in Table 1. For example “home and community resources” was addressed in the session on “Framework on Transitions in Care.”

Most respondents (86%) wanted teaching materials in a format suitable for attending rounds; 64% preferred teaching cases, 29% PowerPoint presentations, and 29% quality improvement resources. The Development Group, with approval of the Chief of Hospital Medicine, planned 10, 1-hour monthly sessions during weekly hospitalist meetings to optimize participation. Nine hospitalists agreed to lead sessions with geriatricians; 1 session was co-led by a hospitalist and urologist.

The Development Group encouraged session leaders to create case-based PowerPoint teaching modules that could be used during attending rounds, highlighting “teaching triggers” or “teachable moments” that modify or reinforce skills.<sup>16–18</sup> A Development Group hospitalist/geriatrician team cotaught the first session, which modeled the structure and style recommended. A teaching team typically met at least once to define goals and outline their teaching hour; most met repeatedly to refine their presentations. An example of a 1 PAGE session can be found online.<sup>19</sup>

## Evaluation

Evaluation involved data from hospitalist faculty trainees, hospitalist and geriatrician session leaders, and internal medicine residents. The institutional review board approved this study. Self-report rating scales were used for data collection, which were reviewed by experts in medical education at UCSF and piloted on nonparticipant faculty, or had been previously used by the CHAMP study.<sup>7</sup>

### *Hospitalist Trainees' Program Perceptions and Self-Efficacy*

Hospitalist trainees ( $n = 36$ ) completed paper questionnaires after each session to assess perceived likelihood to use the teaching tools that were presented (1: not at all likely, 5: highly likely), whether they would recommend the program to colleagues (1: do not recommend, 5: highly recommend), and the utility of the PAGE program ("Was this experience useful?" and "Prior to the sessions, did you think it would be useful?" 1: definitely not, 5: definitely yes). Change in trainees' perceived self-efficacy<sup>20</sup> to teach geriatrics skills was assessed at the end of the PAGE program, using a posttest and retrospective pretest format with a 12-items (1: low, 5: high) that was used in the CHAMP study.<sup>7</sup> This format was used to avoid response shift bias, or the program-produced change in a participant's understanding of the construct being measured.<sup>21</sup>

### *Faculty Session Leaders' Program Perceptions*

After PAGE completion, all faculty session leaders ( $n = 15$ ) completed an online questionnaire assessing teaching satisfaction (Likert-type 5-point scales), experience with coteaching, and years of faculty teaching experience.

### *Medical Residents*

To assess change in hospitalists' teaching about geriatrics and residents' practice of geriatric clinical skills, residents ( $n = 56$ ; post-graduate year (PGY)1 = 29, PGY2 = 27) who would not complete residency before the end of PAGE received an online questionnaire, modified from the CHAMP study,<sup>7</sup> prior to and after the completion of PAGE. Respondents received monetary gift cards as incentives. Residents gave separate ratings for their inpatient teaching attendings who were hospitalists (80% of inpatient ward attendings) and nonhospitalists (20%, mostly generalists) regarding frequency over the past year of being taught each of 15 geriatric clinical skills. A 3-point scale was used: (1) never, (2) once, and (3) more than once. Residents also reported the frequency of practicing those skills themselves, using a questionnaire from the CHAMP study,<sup>7</sup> with a scale of (1) never to (5) always.

## Analysis

Descriptive statistics were computed for all measures. Scale means were constructed from all individual items for the retrospective pretest and posttest measures. Wilcoxon matched-pairs signed ranks-tests were used to compare teaching differences between hospitalist and other attend-

ings. For the unmatched pre-post data on frequency of teaching, Wilcoxon-Mann-Whitney tests were used to determine significant differences in instruction, conducting separate tests for hospitalists and nonhospitalist attendings. Effect size<sup>22</sup> was calculated using Cohen's  $d$ <sup>23</sup> to determine the magnitude of increase in self-efficacy to teach geriatrics; an effect size exceeding 0.8 is considered large. Statistics were performed using PASW Statistics 17.0 (SPSS Inc., Chicago, IL, USA).

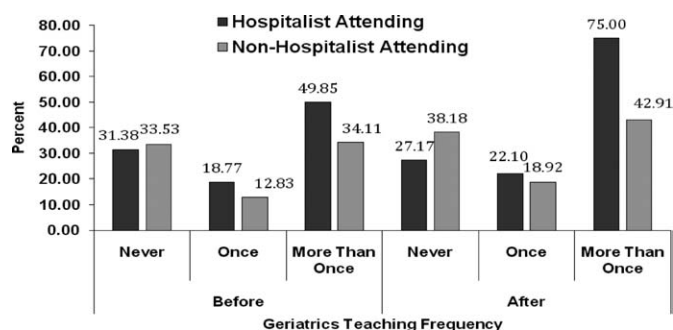
## Results

The hospitalist group grew from 31 to 36 members in June of 2008. On average, 14 hospitalists ( $M = 14.40$ , standard deviation [SD] = 2.41, range 11–19) attended each session, with all hospitalists ( $n = 36$ ) attending  $\geq 1$  session ( $M = 3.83$ , SD = 2.35, range 1–9). At each session, an average of 72% completed a post-session evaluation form. Overall, faculty were likely to use the PAGE teaching tools ( $M = 4.61$ , SD = 0.53) and would recommend PAGE to other hospitalists ( $M = 4.63$ , SD = 0.51).

Thirteen hospitalist trainees of 36 (36%) completed a post-PAGE online questionnaire. Respondents taught on faculty for an average of 5 years (mean ( $M$ ) = 5.08, SD = 3.52). Faculty perceived self-efficacy at teaching residents about geriatrics improved significantly with a large effect size (pretest  $M = 3.05$ , SD = .60; posttest  $M = 3.96$ , SD = .36,  $d = 1.52$ ;  $P < 0.001$ ). Session attendance was positively correlated with the increase in geriatrics teaching self-efficacy ( $r = .62$ ,  $P < 0.05$ ), while teaching experience was not ( $r = -0.05$ ,  $P = 0.88$ ). Hospitalist trainees found the PAGE model more useful after participating ( $M = 4.62$ , SD = 0.65), than they had expected ( $M = 3.92$ , SD = 0.76;  $P < 0.05$ ).

All session leaders ( $n = 15$ ) completed the questionnaire after PAGE (9 hospitalists, 5 geriatricians, 1 urologist). Two-thirds had  $\leq 5$  years on faculty; eight had no prior experience as a faculty development trainer. Over 80% indicated that they found their coteaching experience, enjoyable, useful and collaborative. Only 1 participant did not commit to interdisciplinary teaching again. Most hospitalist session leaders reported that coteaching with a geriatrician enhanced their knowledge; they were more likely to consult a geriatrician regarding patients. All but 2 session leaders felt that the model fostered a collaborative environment between their 2 divisions.

Of the 56 residents, 41% (16 PGY1, 7 PGY2) completed a pretest; 43% (15 PGY1, 9 PGY2) completed a posttest. Residents reported receiving inpatient teaching on geriatrics skills significantly more frequently from hospitalists vs. nonhospitalist attendings both before PAGE (hospitalists  $M = 2.18$ , SD = 0.37; nonhospitalists  $M = 2.00$ , SD = 0.53,  $P < 0.05$ ), and after (hospitalists  $M = 2.39$ , SD = 0.46; nonhospitalists  $M = 2.05$ , SD = 0.57,  $P < 0.05$ ; see Fig. 1). Although hospitalists taught more frequently about geriatrics than nonhospitalists before PAGE, our findings suggest that they increased their teaching by a greater magnitude than



**FIGURE 1.** Frequency of geriatrics teaching by faculty before and after PAGE reported by medical residents.

nonhospitalists ( $P < 0.01$ ,  $P > 0.05$ , respectively). Residents reported increased geriatric skill practice after PAGE with a medium effect size (pretest  $M = 2.92$ ,  $SD = 0.55$ , posttest  $M = 3.28$ ,  $SD = 0.66$ ,  $P = 0.052$ ,  $d = 0.66$ ). There was greater mean reported practice for all skills with the exception of hospice care, which already was being performed between “often” and “very often” before PAGE. The largest increases in skill practice were (descending order, most increased first): assessing polypharmacy, performing skin exams, prognostication, performing functional assessments and examining Foley catheter use.

## Discussion

Our aging population and a shortage of geriatricians necessitates new, feasible models for geriatric training. Similar to the CHAMP model,<sup>7</sup> PAGE had a favorable impact on faculty perceived behavioral change; after the PAGE sessions, faculty reported significantly greater self-efficacy of teaching geriatrics. However, this study also examined the impact of the PAGE Model on 2 groups not previously reported in the literature: faculty session leaders and medicine residents.

To our knowledge, this is the first study about a hospitalist TTT program codeveloped with nonhospitalists aimed at teaching geriatrics skills to residents, though smaller scale programs for medical students exist.<sup>24</sup> We believe codevelopment was important in our model for many reasons. First, using hospitalist peers and local geriatricians likely increased trust in the educational curricula and allowed for strong communication channels between instructors.<sup>25,26</sup> Second, coteaching allowed for hospitalist mentorship. Hospitalists acknowledged their coleaders as mentors and several hospitalists subsequently engaged in new geriatric projects. Third, coteaching was felt to enhance patient care and increase geriatrician consultations. Coteaching may have applicability to other hospitalist faculty development such as intensive care and palliative care, and hospitalist programs may benefit from creating faculty development programs internally with their colleagues, rather than using online resources.

Another important finding of this study is that training hospitalists to teach about geriatrics seems to result in an increase in both the geriatric teaching that residents receive

and residents’ practice of geriatric skills. This outcome has not been previously demonstrated with geriatric TTT activities.<sup>27</sup> This trickle-down effect to residents likely results from both the increased teaching efficacy of hospitalists after the PAGE Model and the exportable nature of the teaching tools.

Several continuing medical education “best practices” were used which we believe contributed to the success of PAGE. First, we conducted a needs assessment, which improves knowledge outcomes.<sup>28,29</sup> Second, sessions included cases, lectures, and discussions. Use of multiple educational techniques yields greater knowledge and behavioral change as compared to a single method, such as lecture alone.<sup>24,25,30,31</sup> Finally, sessions were sequenced over a year, rather than clustered in short, intensive activity. Sequenced, or “learn-work-learn” opportunities allow education to be translated to practice and reinforced.<sup>8,27,30,32</sup>

We believe that the PAGE Model is transportable to other hospitalist programs due to its cost and flexible nature. In economically-lean times, hospitalist divisions can create a program similar to the PAGE Model essentially at no cost, except for donated faculty preparation time. In contrast, CHAMP was expensive, costing nearly \$72,000 for 12 faculty to participate in the 48-hour curriculum,<sup>7,33</sup> and volunteering physicians were compensated for their time. Though Mini-CHAMP is a streamlined 2-day workshop that offers free online lectures and slide sets, there may be some benefit to producing a faculty development program internally, as we stated above, and PAGE included additional topics (urinary catheters and decubitus ulcers/wound care) not covered in mini-CHAMP.

There were several limitations to this study. First, some outcomes of the PAGE Model were assessed by retrospective self-report, which may allow for recall bias. Although self-report may or may not correlate with actual behavior,<sup>34</sup> faculty and resident perspectives of their teaching and learning experiences are themselves important. Furthermore, a retrospective presurvey allows for content of an educational program or intervention to be explained prior to a survey, so that participants first assess their new level of understanding or skill on the post test, then reflectively assess the level of understanding or skill they had prior to the workshop. This avoids “response shift bias” and can improve internal validity.<sup>21,35</sup>

Second, the small numbers of session leaders, hospitalist trainees, and residents restricted statistical power to detect small effects. The fact that we found significant improvements enhances the likelihood that the differences observed were not due to chance.

Third, the low response rates from the hospitalist trainee post-intervention questionnaire and the residents’ questionnaires may affect the validity of our results. For the resident survey, the subjects were not matched, and we cannot state that an individual’s geriatric skill practice changed due to PAGE, though the results suggest the residency program as a whole improved the frequency of geriatric skill practice.

Finally, the residents were required to report the frequency of teaching on and practice of geriatric skills practice over the prior year and accuracy of recall may be an issue. However, frequencies were queried both pre and post intervention and favorable change was noted. Furthermore, because the high end of the 3-point teaching scale was limited to “more than once,” the true amount of teaching may have been underestimated if “more than once” actually represented high frequencies.

Future studies are needed to replicate these findings at other institutions to confirm generalizability. It would be beneficial to measure patient outcomes to determine whether increased teaching and skill practice benefits patients using measures such as reduction in catheter related urinary tract infections, falls, and inadequate pain management. Further investigations of cotaught faculty development programs between hospitalists and other specialists help emphasize why internally created TTT programs are of greater value than online resources.

## Conclusions

This time-sensitive adaptation of a hospitalist geriatric TTT program was successfully implemented at an academic medical center and suggests improved hospitalist faculty self-efficacy at teaching geriatric skills, increased frequency of inpatient geriatric teaching by hospitalists and increased resident geriatric skill practice. Confidence to care for geriatric patients and a strong skill set to assess risks and manage them appropriately will equip hospitalists and trainees to provide care that reduces geriatric patients' in-hospital morbidity and costs of care. As hospitalists increasingly care for older adults, the need for time-efficient methods of teaching geriatrics will continue to grow. The PAGE Model, and other new models of geriatric training for hospitalists, demonstrates that we are beginning to address this urgent need.

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## Address for correspondence and reprint requests:

Lindsay Mazotti, MD, Assistant Clinical Professor of Medicine, University of California, San Francisco, 533 Parnassus Ave, Room U112; Box 0131, San Francisco, CA 94143-0131; Telephone: 415-476-4846; Fax: 415-476-4818; E-mail: lindsay.mazotti@ucsf.edu Received 11 November 2009; revision received 25 March 2010; accepted 8 April 2010.

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