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A Collaborative National Model to Assess Competencies for Medical Students, Residents, and Other Healthcare Practitioners in Gait and Falls Risk Evaluation

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To ensure that the healthcare workforce is adequately prepared to care for the growing population of older adults, minimum competencies in geriatrics have been published for medical students and primary care residents. Approaches to teaching and assessing these competencies are needed to guide medical schools, residencies, and continuing medical education programs. With sponsorship by the Education Committee and Teachers Section of the American Geriatrics Society (AGS), geriatrics educators from multiple institutions collaborated to develop a model to teach and assess a major domain of student and resident competency: Gait and Falls Risk Evaluation. The model was introduced as a workshop at annual meetings of the AGS and the American College of Physicians in 2011 and 2012. Participants included medical students, residents, geriatrics fellows, practicing physicians, and midlevel practitioners. At both national meetings, participants rated the experience highly and reported statistically significant gains in overall competence in gait and falls risk evaluation. The largest gains were observed for medical students, residents, and practicing physicians ($P < .001$ for all); geriatrics fellows reported a higher level of baseline competence and therefore had a lower magnitude of improvement, albeit still significant ($P = .02$). Finally, the majority of participants reported intent to disseminate the model in their institutions. This article describes the design, implementation, and evaluation of this collaborative national model. A number of institutions have used the model, and the goal of this article is to aid in further dissemination of this successful approach to teaching and assessing geriatrics competencies. J Am Geriatr Soc 2014.

Key words: geriatrics; education; competency; gait; falls

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In 2008, the Institute of Medicine reported that the healthcare workforce was unprepared to provide competent care for an aging population.[1] In response, the American Association of Medical Colleges (AAMC) and John A. Hartford Foundation sponsored the development of a minimum set of competencies that medical students should achieve before graduation.[2] These standards were published in 2009; the next year, competencies were published for internal medicine and family medicine residents.[3] The student competencies include 26 specific tasks in eight general domains focusing on reporting and interpreting medical information; resident competencies extend these requirements to more-advanced patient management skills.

Medical schools and residency programs have struggled to teach these competencies effectively and efficiently, although individual institutions have instituted a variety of curricular innovations.[4–11] These programs are important local educational advances but rely on specific, existing constellations of resources. They also have usually lacked multiinstitutional faculty input into design and implementation. Furthermore, because the primary goal is improving geriatrics education locally, they rarely provide a "turnkey" template for use elsewhere. Finally, these initiatives generally have not targeted learners at multiple levels. All of these factors limit the broad dissemination of existing programs.

Thus, there is a compelling need for easily adaptable, educationally sound programs to teach geriatrics competencies. With support from the Education Committee and Teachers Section of the American Geriatrics Society (AGS), a model was designed to teach and assess competency for the domain of Gait and Falls Risk Evaluation. It was implemented and evaluated at two national meetings

—the 2011 AGS and 2012 American College of Physicians (ACP) conferences. Gait and falls risk evaluation was chosen as the initial focus because of the high morbidity and mortality associated with falls in elderly adults and the planned 2011 publication of updated falls risk evaluation guidelines.[12] The model was designed for multiple learner levels and applied interactive adult learning principles.[13] This article reviews the development, implementation, and evaluation of this workshop with the aim of further disseminating this innovative and collaborative educational model.

METHODS

Workshop Development

Geriatrics clinician educators (HA, LG, ZT) from three institutions developed the workshop, which the AGS Teachers Section endorsed and the Education Committee supported. The AAMC minimum competencies for medical students in falls, balance, and gait disorders[2] and the minimum competencies for internal medicine and family medicine residents[3] were reviewed and the most appropriate techniques to observe competencies were defined. Principles of adult learning theory in medicine guided program development. These included using immediately relevant clinical scenarios, problem solving, and independent work with immediate and specific feedback.[13] A draft proposal outlined four general "stations": (1) obtaining a falls history and examining gait using a faculty member as a standardized patient, (2) observing and documenting abnormal physical findings on gait videos,[14] (3) synthesizing data from a history and physical in a written clinical case to identify falls risk factors, and (4) prescribing a risk reduction plan for the same case. Faculty preceptors assisted at all stations.

Several potential tools for gait assessment exist, including the Get Up and Go (GUG) test,[15] Timed Up and Go,[16] gait speed,[17,18] Short Physical Performance Battery,[19] and Berg Balance Scale.[20] Following input from national experts in falls prevention, the GUG test was selected as the most practical and appropriate tool for students, residents, and practicing physicians. It is consistent with the AAMC competencies in falls, balance and gait disorders because it is valid and simple and requires no timing or extra equipment. In addition, there is face validity and clinical evidence that any gait abnormality predicts greater falls risk.[21]

An expert panel of three geriatrician clinician educators critically reviewed the proposed program and provided feedback in a conference call. The workshop structure was deemed to be educationally sound, but the panel suggested further defining the role of the faculty and providing specific instructions for the GUG test at the first station. They also recommended that medical students should be able to pass the training without being required to prescribe a risk reduction treatment plan, reflecting their lower level of training and experience.

Participants

The intent of the workshop was to provide a model for dissemination of AAMC competencies. The 2011 AGS annual meeting was initially targeted because it is the major conference for geriatrics clinician educators. After assisting as preceptors, a group of geriatricians could apply and incorporate the model into their own curricula after returning home. The students, residents, and fellows participating would be targeted to incorporate content on falls prevention into noon conferences, academic half days, and morning reports, creating a ripple effect and leveraging the effect of the training. After the successful AGS workshop, the model was submitted to the 2012 ACP conference to assess its generalizability to practicing internists with the hope of disseminating the training to a broader audience. Participants in the workshop at each meeting were recruited by advertising the workshop before and at the meeting; no preworkshop registration was required. In addition, at the AGS meeting, workshop organizers attended the medical student, resident, and fellow breakfast meetings to encourage participation.

Brief Description of the Workshop

The workshop lasted 90 minutes, with an initial 15-minute lecture reviewing critical elements of gait and falls risk assessment. After an orientation to the interactive format, participants rotated through each of four stations for the next 60 minutes; faculty documented their successful completion of all tasks on a face-sheet included in each participant's packet. If a trainee initially failed, he or she was coached and allowed to repeat the task to demonstrate competency in a fashion like that employed in cardiopulmonary resuscitation certification. The stations are outlined in Figure 1; participants could start at Station 1 or 2 and, after both were completed, moved on to the paper case for Stations 3 and 4. Full details of the workshop and materials, including grading rules for each station, are available online at http://diginole.lib.fsu.edu/geriatrics_resources/. Finally, a 10-minute lecture discussed disseminating the workshop at the participants' home institutions. AGS participants received a Certificate of Observed Competency in Gait and Falls Risk Evaluation for their home programs, and ACP participants were given a letter of participation documenting their achievements. The goal was to disseminate the project and raise awareness of the geriatrics competencies. With permission, deans, program directors, and critical faculty members were notified of participants' successful completion of training.

Training of Facilitators

An additional 19 faculty assisted workshop leaders at the AGS meeting, and 11 precepted at the ACP conference. A faculty edition of workshop materials included appropriate responses and criteria for passing each station. Facilitators were recruited from the AGS Teachers Section and from other contacts at ACP. Faculty prepared by participating in one of two training conference calls in the month before the meetings or attending an on-site orientation session.

Evaluation of the Competency Assessment Session

Demographic characteristics (medical student, resident, other healthcare practitioner; medical school or residency
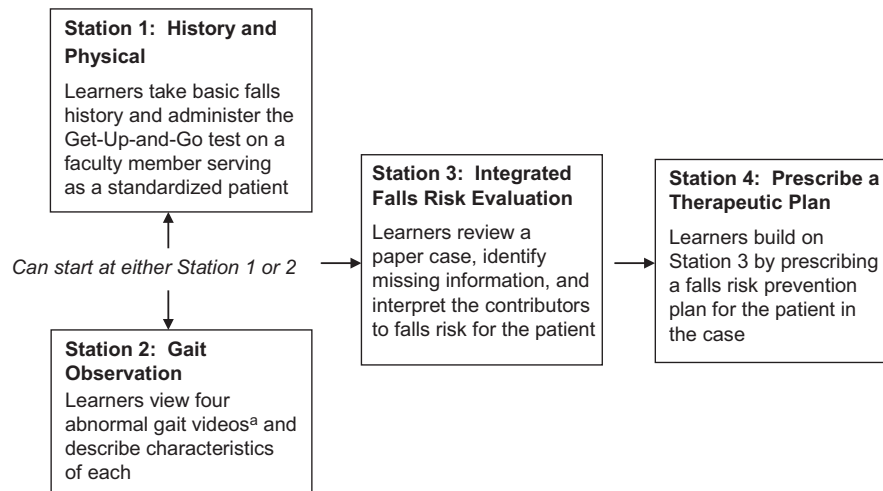
Figure 1. Design of the gait and falls risk evaluation workshop stations. [a]Used with permission from the authors of the NeuroLogic and PediNeuroLogic websites.[14]

program; teaching roles in their home programs) were recorded and linked by identification numbers to the evaluations. A retrospective pre–post survey was administered to assess awareness of falls guidelines, knowledge of risk assessment, and ability and confidence in performing components of falls risk assessments on a 5-point Likert scale (1 = low to 5 = high). Participants were asked to name one change they would make at their home programs as a result of the session, to comment on the workshop's strengths, and to suggest potential improvements. The evaluations were analyzed by conference because of differences in the composition and backgrounds of AGS and ACP attendees. Paired *t*-tests were used to compare the means on the retrospective pre–post surveys. Qualitative comments regarding plans to apply the skills mastered and workshop strengths and suggestions for improvement were organized and reported according to theme. The Wake Forest School of Medicine institutional review board, where all data were managed and analyses conducted, approved evaluation of the workshop.

RESULTS

Forty-four participants completed the workshop at the AGS 2011 meeting, and 39 provided survey data (10 medical students (MS2 = 6, MS3 = 4), 12 residents, nine geriatrics fellows, five nurse practitioners, and three others (chiropractic physician, pharmacy resident, and neuroscience PhD candidate)). At the 2012 ACP meeting, 33 participated, and 27 provided survey data (26 practicing physicians and 1 nurse practitioner).

Figure 2 shows the change in overall perceived competence in falls risk assessment and prevention stratified according to meeting, and (for AGS) according to medical student, resident, or fellow status. The gain in self-reported competence was similar for both meetings, and as expected, at the AGS meeting, the preworkshop perceived competence level was highest for fellows and lowest for students. All subgroups rose in perceived overall competence, although the absolute increase was least for the fellows, who started from a higher level, and greatest for the medical students.
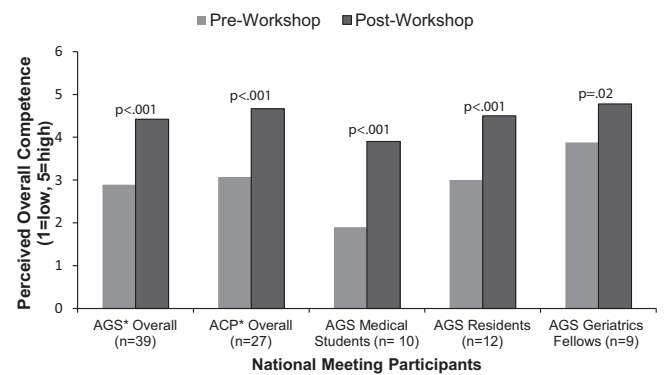
Figure 2. Increase in perceived overall competence in falls risk assessment and prevention before and after workshops. AGS = American Geriatrics Society 2011 Annual Meeting, ACP = American College of Physicians 2012 Annual Meeting.

In addition to improvements in overall perceived competence, pre- to postworkshop increases were observed in all areas assessed: awareness of AGS guidelines for prevention of falls in older persons; knowledge of prevalence of falls, components of falls risk assessment, and interventions to prevent falls; ability and confidence in administering and interpreting the GUG; ability to identify the most important contributors to falls risk and prescribe a treatment plan; and confidence in screening an older adult for falls risk, initially evaluating an elderly adult with falls, describing common gait characteristics, and prescribing an initial treatment plan to mitigate risk. At the AGS meeting, students and residents had statistically significant improvements in all of these areas; the magnitude of increases in awareness, knowledge, ability, and confidence was less for fellows but remained statistically significant in most cases ($P < .05$). The geriatrics fellows had a high level of baseline competence regarding prevalence of falls, proper administration of the GUG, and identification of the most important contributors to falls risk. Therefore, their perceived posttraining improvements failed to reach statistical significance for these items ($P > .05$ for all).

Participants were asked to report any plans to use or implement the training after returning home. Responses are shown in Figure 3, classified in the two broad categories of Use Skills for Clinical Practice and Use Model for Teaching; 26.6% of the AGS and 12.5% of the ACP respondents did not answer this question. AGS participants planned to use the model for teaching (56.7%) more often than for clinical practice (16.7%), whereas the reverse was the case for ACP attendees (8.3% teaching vs 79.2% clinical). Figure 3 shows that most participants at both meetings planned to share the content with other faculty.

Of the five AGS participants intending to apply the skills clinically, two planned to take a more-systematic history and three to use the general knowledge gained. Of the 19 ACP attendees planning to incorporate the training into clinical practice, seven intended to use the GUG test, seven to employ general knowledge gained and incorporate regular screening for falls risk in their practices, three to directly assess gait more often, and two to employ the specific history elements taught. Sixteen AGS respondents intended to use the skills and knowledge gained in teaching. Eight hoped to hold the workshop at their medical schools or residencies as a specific event, seven to incorporate what they had learned into existing curricula, and one to adapt portions of the model for a student geriatrics interest group. At the ACP meeting, one participant planned to use the model as an in-service in the nursing home setting and one in general teaching.

Finally, information on strengths and suggestions for improvement were collected, organized according to theme, and quantified. Identified strengths included the interactive or hands-on approach (25 comments), quality of the teaching model (21 comments), content and skills taught (19 comments), individualized faculty contact (15 comments), and good organization (nine comments). The main suggestion for improvement was to extend the range of the material taught, perhaps by enriching the number of

Figure 3. Planned uses for the gait and falls risk evaluation competency model reported by participants. *Data qualitatively reported from answer to the question, "Name one new thing you plan to implement in your school, training program, or clinical practice as a result of this workshop." Answers were free text and categorized into clinical practice or teaching. Question was not answered for 26.7% of American Geriatrics Society 2011 Annual Meeting participants and 12.5% of American College of Physicians 2012 Annual Meeting participants.
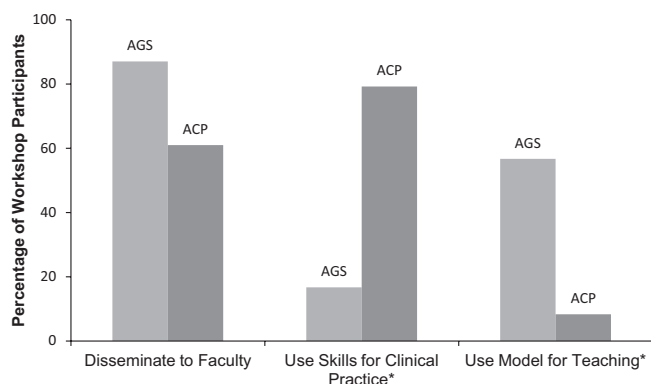
videos or cases (16 comments). Other suggestions included increasing organization or orientation (12 comments), altering the scheduling or conference facilities (eight comments), and adding more in-depth content (five comments).

DISCUSSION

The AAMC minimum competencies in geriatrics represent an example of the overall shift to competency-based medical education from time-based, generally nonspecific, and more-subjective educational paradigms.[22] The driving force behind this movement is the concept that the health system's needs should define competencies, which should then inform curricula and assessment. For this approach to succeed, geriatrics clinician educators must develop and share pedagogically sound curricula and assessment tools for these predefined skills.

This collaborative model to teach and assess competencies in gait and fall risk evaluation was successfully implemented at national workshops for multiple learner levels and resulted in observed competency assessments for 77 participants. The learners, who reported significant gains in overall competence, regardless of learner level (with the exception of a few expected subdomains in which geriatrics fellows had higher baseline competence) received it well. Finally, consistent with the intent of the workshop to provide a model for dissemination, participants at both meetings planned to share the program with faculty at their home institutions. AGS participants more frequently intended to use the model for teaching, and ACP attendees were more likely to plan to apply the workshop clinically, although a plan to use the model for teaching would not exclude use in a participant's clinical practice. It is likely that the differences in reported plans reflect the different composition of attendees at each meeting. AGS participants included a large proportion of medical students, residents, and geriatrics fellows with interest in academic geriatrics. ACP attendees were primarily practicing physicians who probably had little formal geriatrics clinical training and were less likely to be involved in clinical training programs. They therefore saw more immediate benefit in applying their new skills to clinical practice.

To the knowledge of the authors, this is the first effort by faculty from multiple institutions to collaborate on a turnkey program for teaching geriatrics competencies since the publication of minimum competencies for students and residents. Local models to address the competencies exist[4–11] and contribute to advancing geriatrics education, but these approaches all require significant effort by educators to adapt them to other environments. This model requires some faculty time, but no other specific resources are necessary. Faculty time commitment can be estimated from the national workshops and subsequent local implementation at a few institutions. Training faculty as standardized patients and preceptors takes approximately 1 hour; eight to 10 faculty members per 30 to 35 learners suffice to run the 1-hour workshop effectively. Therefore, to train 100 residents or students, eight to 10 faculty members would need to commit 4 hours of time to certify the learners in gait and falls risk evaluation. Trainers need not be geriatricians; internists, family practitioners, and mid-level providers can readily master the content with some

preparation. (Several internists precepted at the ACP workshop.) Given the shortage of geriatricians nationwide, this is a significant benefit that makes adoption of the program much more feasible for smaller programs. In addition to accessing the materials posted online, other programs interested in adopting this model may contact the corresponding author for this article for additional advice on successful implementation.

This model has a number of strengths. Medical schools and residencies can easily implement it. The collaboration of geriatrics clinician educators from multiple institutions optimized teaching methodologies and content. Workshop content reflects the most up-to-date, evidence-based recommendations.[12] In particular, the input of national experts in falls risk helped define the most-appropriate gait screening measure. Finally, the faculty members' one-on-one interactions with participants and the hands-on approach reflect contemporary pedagogical theories and proved to be particularly effective and popular teaching strategies.

A few limitations and challenges were identified. Some participants noted that the workshop failed to provide in-depth education about gait evaluation, but the geriatrics competencies are not meant to be aspirational; they represent a basic set of minimum skills. There were also few participants who were not physicians or physicians in training. It will be desirable to increase the interprofessional range of the workshop by adapting the content to learners and practitioners in other disciplines. In addition, managing the workshop flow can be challenging and requires vigilance by organizers—the evaluations identified organization as an area for improvement more often than as a strength. In response to this feedback, it is recommended that Stations 3 and 4 be completed in order before checking out with the preceptors. Furthermore, it is recommended that anyone implementing the program pay particular attention to room setup and faculty roles at each station, as well as ensuring that learners are well oriented to program logistics. Finally, the evaluation data are limited to surveys of participants at the national programs and the observations of faculty observers. A higher proportion of AGS participants did not comment on their plans to use the model (26.6%), which probably was a result of this question's free-text format on the second page of the survey. (This barrier was addressed for the ACP meeting.) Nonetheless, 73.4% of AGS participants responded to the question, providing a reliable sample of overall views of participants. Additionally, it has not been possible to track the effectiveness of subsequent workshops at other institutions. Nonetheless, at least three sites have successfully implemented the model.

In conclusion, this practical workshop represents the collaborative work of multiple institutions, and the evaluations were positive. The authors plan to expand this work further by developing additional programs to teach and assess other geriatrics competencies.

ACKNOWLEDGMENTS

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