Utilizing a Meals on Wheels Program to Teach Falls Risk Assessment to Medical Students

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Utilizing a Meals on Wheels Program to Teach Falls Risk Assessment to Medical Students

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Falls are a critical public health issue for older adults, and falls risk assessment is an expected competency for medical students. The aim of this study was to design an innovative method to teach falls risk assessment using community-based resources and limited geriatrics faculty. The authors developed a Fall Prevention Program through a partnership with Meals-on-Wheels (MOW). A 3rd-year medical student accompanies a MOW client services associate to a client’s home and performs a falls risk assessment including history of falls, fear of falling, medication review, visual acuity, a Get Up and Go test, a Mini-Cog, and a home safety evaluation, reviewed in a small group session with a faculty member. During the 2010 academic year, 110 students completed the in-home falls risk assessment, rating it highly. One year later, 63 students voluntarily completed a retrospective pre/postsurvey, and the proportion of students reporting moderate to very high confidence in performing falls risk assessments increased from 30.6% to 87.3% (p < .001). Students also reported using most of the skills learned in subsequent clerkships. A single educational intervention in the

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MOW program effectively addressed geriatrics competencies with minimal faculty effort and could be adopted by many medical schools.

KEYWORDS community-based organization, falls risk assessment, medical education

INTRODUCTION

One in three community-dwelling adults older than age 65 fall each year (Blake et al., 1988; Tinetti, Speechley, & Ginter, 1988). Falls are the leading cause of death due to injury and hospital admissions for trauma in older adults (Centers for Disease Control and Prevention, 2014; Stevens, Corso, Finkelstein, & Miller, 2006). Effective fall prevention has the potential to reduce serious injuries, emergency department visits, hospitalizations, nursing home placements, and functional decline (Panel on Prevention of Falls, 2011). Thus, falls risk assessment represents a critical skill for physicians serving older adults (Williams et al., 2010).

Published models for teaching falls risk assessment to medical students have limitations including minimal hands-on experience, lack of availability to all students, high faculty-to-student ratios, and time requirements that impede implementation in institutions with limited geriatrics resources or different curricular structures. Falls assessment teaching models that provide hands-on training and efficient use of faculty effort are needed.

Wake Forest School of Medicine (WFSM)’s Section on Gerontology and Geriatric Medicine partnered with Senior Services, Inc. in Winston-Salem, NC, to create a screening program for Meals on Wheels (MOW) clients at risk for falls. This provided an opportunity to foster medical student involvement in community engagement while teaching and evaluating falls risk assessment skills and covering related Association of American Medical Colleges (AAMC) geriatrics competencies in a “real-world” setting. This article describes the development, implementation, and evaluation of our curriculum using the MOW program to teach and assess falls risk assessment competency for 3rd-year medical students.

METHOD

Setting and Participants

A community partnership for education. In 2008, WFSM’s Section on Geriatrics and Senior Services, Inc. began working together to develop programs to make expertise from our research and clinical programs available to Senior Services and expose trainees to community-based programs supporting vulnerable elders. Senior Services, administrator of the county’s MOW
Teaching Falls Risk Assessment

program, had identified through its meal deliverers significant concerns about gait instability and falls in a substantial proportion of MOW clients and proposed the development of a falls risk screening program to provide standard screening and prevention in those clients most at risk for falling.

Federal law requires that MOW clients are evaluated every 6 months by a client services associate (CSA) to determine continued eligibility. We added two falls-related questions to their questionnaire: “Have you fallen in the last six months?” and “Do you have a fear of falling?” Clients answering yes to either were referred to our Fall Prevention Program to provide formal evaluation and recommendations. If agreeable with the client, an in-home assessment was performed by an advance practice nurse including a full medical history, physical exam, medication review, visual testing, the Tinetti Performance-Oriented Mobility Assessment (POMA; Tinetti, 1986), the Folstein Mini-Mental State Exam (Folstein, Folstein, & McHugh, 1975), and a home safety evaluation. Recommendations based on the assessment were forwarded to the client’s primary care provider, including referrals for therapy, in-depth memory testing, or medication changes.

Within the context of this program, and utilizing home-based assessments, we proposed adding a falls teaching module for our students. The Falls Risk Assessment Education program is implemented in parallel with the assessments completed by the CSAs and their referrals to the Fall Prevention Program. Discussions ensued with CSAs at MOW wherein the program was described and components of the assessment were discussed. Each associate expressed enthusiasm for the opportunity to assist with the education of medical students.

The program was piloted by geriatrics faculty and the Fall Prevention Program nurse practitioner with each CSA to ensure the student portion did not add excessive time to the visit or burden to the client and for each associate to become familiar with the components of the evaluation. The development of the program as described required an estimated 35 hours of faculty time to design the assessment, review items for prework, and build the partnership with the MOW program.

Educational setting and development of objectives. WFSM has approximately 120 medical students per class. The Falls Risk Assessment Education program occurs during a dedicated one-week geriatrics rotation for 100% of students within the 3rd-year internal medicine clerkship. An average of two to three students participates per week. The learning objectives developed for the MOW falls risk assessment include four of the eight AAMC competency domains including falls, balance and gait disorders, self-care capacity, cognitive and behavioral disorders, and medication management. Specific tasks include documenting medications and identifying medications that pose an increased risk for falls, performing and interpreting a Get Up and Go (GUG) test (Mathias, Nayak, & Isaacs, 1986; Podsiadlo & Richardson, 1991), administering the Mini-Cog (Borson, Scanlan, Chen, & Ganguli, 2003),
and evaluating the home for elements that pose an environmental risk factor for falls.

Program Description

*Elements of the MOW falls risk assessment educational program.* At the end of each week, the MOW coordinator gathers from each CSA the assessments planned for the upcoming week (a process that was in place before beginning the educational program) and e-mails this information to the school-based geriatrics student scheduler who spends no more than 15 minutes incorporating this into the student schedule for the following week. When new students begin the geriatrics rotation, they are told their assigned day to complete the MOW falls risk assessment.

Before the assessment, students complete the GeriaSims interactive patient simulation “Functional Assessment of the Elderly Patient” by University of Iowa College of Medicine (Jogerst, 2009) and review the “Summary of the Updated American Geriatrics Society/British Geriatrics Society Clinical Practice Guideline for Prevention of Falls in Older Persons” (Panel on Prevention of Falls, 2011). Each student individually accompanies the CSA on a regularly scheduled visit (2–3 hours duration) to the home of one to two MOW clients and performs a falls risk assessment for each client seen. During the visit, the medical students solicit a history (and number) of falls in the past year, ask about fear of falling, perform a medication review using the Beers List (Fick et al., 2003) to identify potentially inappropriate medications, test visual acuity using a Snellen chart, gait evaluation with the GUG test, cognitive evaluation using the Mini-Cog, and performs a brief home safety evaluation. At the end of the week-long rotation, the students formally present their assessment to a geriatric medicine faculty member. The faculty reviews the assessment with the students, provides formative feedback, and helps the students to categorize the MOW clients as low or high risk for falls (approximately 15 minutes spent on reviewing the assessments for each of two to three students).

*Evaluation of the educational experience.* The grading for the falls assessment is pass/fail, and comments are incorporated the faculty evaluation that contributes to the grade for the internal medicine clerkship. At the end of the geriatrics week, students complete a confidential feedback form in which they rate their experience in the MOW falls assessment on a scale of 1 to 10 (1 = worst, 10 = best). Students are also asked to provide comments on strengths and weaknesses. In 2011, 4th-year medical students who completed the geriatrics rotation in their 3rd year were asked to complete a retrospective pre/postsurvey to rate the impact of the experience on their overall confidence in performing elements of the falls risk assessment on a 5-point scale ranging from 1 (very low) to 5 (very high). The survey asked whether the student had used the elements of falls risk assessment on subsequent medical school rotations. This evaluation was approved by the WFSM Institutional Review Board that waived consent.
Analysis

Results on participation, satisfaction, and subsequent use of the MOW falls-risk activity are presented as percentages and means. The proportion of students that reported moderate to very high confidence overall and in each survey subdomain on the postsurvey was compared to the retrospective presurvey using McNemar’s Test for paired proportions (McNemar, 1947).

RESULTS

During the 2010 academic year, 110/124 (89%) 3rd-year students completed the in-home falls risk assessment. Reasons for not completing the module included shortened weeks due to school or MOW holidays and severe weather. Students rated the MOW fall risk assessment 7.2 out of 10 compared to 7.1 for the overall rotation. During the feedback sessions, the attending found that many students felt the strengths of the program were in showcasing the depth of need for many community-dwelling elders and the range of services available or lacking for these needs and the opportunity for learning outside of the typical hospital setting. The main weakness identified by a few students was the logistical aspect of the time commitment for the visit.

A year after the experience, each of the 110 students who completed the in-home assessment was e-mailed a survey to rate their confidence in performing the components of the falls assessment before and after the exercise. With a response rate of 57%, 63 students completed the retrospective survey. Students reporting a moderate to very high confidence in performing all components of the falls risk assessment showed a statistically significant increase. Perceived confidence in performing the GUG rose from 43.6% to 85.4% and performing a home assessment from 50% to 91.5% with competence in performing a complete fall risk assessment rising from 30.6% to 87.3%. Knowledge of the components involved increased from 44.5% to 92.1%. The least change was in their confidence in completing medication reconciliation 79.1% to 93.5% (Table 1).

<table>
<thead>
<tr>
<th>Item</th>
<th>Before</th>
<th>After</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of the components of fall risk assessment</td>
<td>44.5%</td>
<td>92.1%</td>
<td>.001</td>
</tr>
<tr>
<td>Ability to identify medications that increase fall risk</td>
<td>41.3%</td>
<td>82.7%</td>
<td>.001</td>
</tr>
<tr>
<td>Ability to complete medication reconciliation</td>
<td>79.1%</td>
<td>93.5%</td>
<td>.004</td>
</tr>
<tr>
<td>Performing and interpreting a Get-Up and Go test</td>
<td>43.6%</td>
<td>85.4%</td>
<td>.001</td>
</tr>
<tr>
<td>Assessing cognition using a tool such as Mini-Cog</td>
<td>75.8%</td>
<td>95.1%</td>
<td>.001</td>
</tr>
<tr>
<td>Performing a home assessment for possible fall hazards</td>
<td>50.0%</td>
<td>91.5%</td>
<td>.001</td>
</tr>
<tr>
<td>Overall competence in performing fall risk assessment</td>
<td>30.6%</td>
<td>87.3%</td>
<td>.001</td>
</tr>
</tbody>
</table>
Table 2 reports the proportion of students who responded that they subsequently used each assessment skill learned on a future rotation. Medication review, cognitive screening, and falls history were most used on subsequent rotations (> 50% of students reporting), whereas the assessment of fear of falling, home safety evaluation, vision screening and GUG test were least used (< 30% of students reporting).

DISCUSSION

We demonstrate that a program to teach home-based falls risk assessment, developed in partnership with a vibrant community-based organization delivering Meals on Wheels, demonstrated excellent feasibility with a completion rate of 89% of medical students in the class. The students responding to the retrospective pre- and postintervention survey noted an improvement in confidence in performing each of seven falls risk assessment elements. This is confirmed by their reporting that they incorporated these skills into their patient examinations on other rotations. Importantly, incorporating these activities into their behavior, demonstrates the students achieved the highest level of Miller's pyramid: the learner “does” the activity independently (Miller, 1990).

Medical education literature and Med-Ed Portal reports were reviewed for curricular interventions addressing falls risk assessment and geriatric competences in a home-based setting. Some models utilize online (Helms, Denson, Brown, & Simpson, 2009) and gaming tutorials (Duque, Fung, Mallet, Posel, & Fleiszer, 2008), workshops, and classroom-based small-group sessions to target falls risk knowledge. These do not allow the application of evidence-based assessment tools as our program does, nor do they enable self- or faculty assessment. Although programs with standardized patients offer learners in-person assessment of skills and formative feedback, they do not allow students to experience the home setting (Sutin, Rolita, Yeboah, Taffel, & Zabar, 2011). Other programs that utilize home visits, with or
Teaching Falls Risk Assessment

without direct faculty supervision, do not focus on falls risk assessment as a geriatric competency. As in our model, students in these home-visit programs demonstrated improved attitudes, knowledge, and skills when such outcomes were evaluated (Denton et al., 2009; van Zuilen, Rodriguez, & Mintzer, 2008). Where our program required attendance, many published programs are voluntary (Denton et al., 2009; Willis, Hoy, & Jenkins, 2011; Yuen et al., 2006). Although our model does not include direct faculty supervision of the assessment, we require faculty interaction and review of each assessment, and our results show robust increases in student confidence. To our knowledge, this is the first program to utilize a CBO such as Meals on Wheels as a successful laboratory specifically for educating medical students on falls risk assessment.

A significant strength of our program is its modest faculty and student time requirement coupled with utilization of the MOW program, common in medical school communities. A strength of our analysis is the follow-up of learners to assess longitudinal impact. We measured confidence in performing the assessment but also the integration of falls risk assessment into practice. A review of the WFSM 3rd-year curriculum did not find a specific reference to falls risk assessment in other rotations. It appears to only be taught to students in the one-week geriatrics rotation, yet students find places to use it throughout their year allowing the cross-pollination of geriatrics competencies to other rotations. Evaluation of whether students recognize and incorporate falls risk assessment into routine care represents a novel and high-level assessment of the impact of an educational intervention. This model exposes all students in this required activity to four of the eight geriatric competency domains in an afternoon, addressing key competencies not consistently taught in other areas of the curriculum. Institutional cost is minimal, particularly after the establishment of the community-based relationship.

Connecting medical students with a CBO, we bring medical education outside the hospital and contextualize community resources—a critical partnership for the future of medical care (Peccoralo, Callahan, Stark, & DeCherrie, 2012). By accompanying the CBO staff, the student is allowed an opportunity to see interprofessional team members who assist in maintaining older adults’ independence. This yields other benefits, including the provision of clinically-relevant information to the CBO that may inform service provision to their clients.

The program and our analysis also have limitations. Students self-report their assessments and are not directly supervised by faculty. However, they are accompanied by CBO staff who oversees this process. Furthermore, students review their methods of falls risk assessment and interpret their results with a faculty member. Also, some elements of falls risk assessment were not routinely incorporated into subsequent rotations: assessments of vision, fear
of falling, or the GUG test after this single intervention. Our program’s implementation and analysis was limited to one institution. Future partnerships with additional institutions to test this program are needed to demonstrate its value as a more, widely available program for teaching falls assessment and prevention.

We learned several valuable lessons in implementing this program. It was developed as a purely educational medium for our students. During end of the week discussions, students questioned the next step taken for the clients determined to be at high risk for falls. Although persons with positive responses to the falls questions added to the CSA assessment were already being referred to the Fall Prevention Program, students found other elements from their assessment that may increase falls risk including cognition and medication interactions. Taking this into consideration, after the 2010 to 2011 year that is evaluated here we implemented a referral process for clients identified to be at risk for falls based on the student assessment.

Although our initial evaluation process was limited in that formal feedback from CSAs was not collected, we sought informal feedback. The program was generally perceived very positively by the MOW staff and clients. The MOW staff did provide constructive feedback. For example, they noticed some variability among students in their approach to clients and recommended reinforcing that each student should ask permission to review medications and the home environment and to avoid all medical jargon. These points were added to the student orientation packet. To strengthen the impact of grading, the geriatrics faculty who taught them during the rest of the week became the evaluator for the end of the week discussion thereby providing formative feedback for this project and summative feedback for their week’s work.

This is an efficient method to teach and assess competency in falls risk assessment that simultaneously addresses four of the eight AAMC geriatrics competency domains. It allows students an opportunity for a hands-on experience, requires minimal faculty effort, and utilizes available community resources. The presence of Meals on Wheels programs in many cities would allow this innovative program to be adopted by most medical schools.

ACKNOWLEDGMENTS

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REFERENCES


APPENDIX A—GERIATRIC COMPETENCIES COVERED DURING THE MEALS ON WHEELS FALLS RISK ASSESSMENT EXPERIENCE

<table>
<thead>
<tr>
<th>Geriatrics competency domains covered</th>
<th>Individual competencies</th>
</tr>
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</table>
| Medication management                | ● Document a patient’s complete medication list, including prescribed, herbal and over-the-counter medications  
                                         ● Identify medications that should be avoided or used with caution |
| Cognitive and behavioral disorders    | ● Perform and interpret a cognitive assessment in older patients |
| Self-care capacity                   | ● Identify and assess safety risks in the home environment  
                                         ● Assess and describe baseline and current functional abilities and performing a vision examination |
| Falls, balance, gait disorders        | ● Ask all patients >65 years, or their caregivers, about falls in the last year, watch the patient rise from a chair and walk, then interpret the findings |
APPENDIX B—FORM USED BY THE STUDENTS FOR THE IN-HOME FALL RISK ASSESSMENT

Medical Student MOW Falls Risk Assessment

Client: _____________________________  DOB:_________________________

Have you fallen in the past year?  ____  # falls ____
Are you afraid of falling?  ____

Medications and dosing instructions, including OTC (Review bottle to see if current, use back of sheet if additional space needed):

_________________________________  ______________________________
_________________________________  ______________________________
_________________________________  ______________________________
_________________________________  ______________________________
_________________________________  ______________________________
_________________________________  ______________________________

Visual acuity (corrected vision using Snellen card):

_____/______ Right  ______/______ Left  ______/______ Both

Get-Up and Go (check all that apply):

__ Able to stand without assist of arms  __ Able to ambulate 20 feet (10 out and 10 back)
__ Able to stand with assist of arms  __ Unable to ambulate 20 feet (10 out and 10 back)
 If so, what type of device? ________  __ Unsteady during ambulation
__ Able to stand with use of assistive device  __ Space not available for 20 ft ambulation

Mini-cog:
3-item recall

____BALL  ____FLAG  ____TREE

Score _____ / 3

FACULTY USE ONLY

Falls Risk Referral Needed?     _____ Yes      _____ No
Reason:  ____ Hx of fall  _____ Fear of falling  _____ Other concerns (describe):
Home safety concerns (check all that apply):

_____ Poor lighting  _____ Throw rugs  _____ Loose stairs/ absent handrails

_____ Lack of grab bars in bathroom  _____ Uneven floor surface  _____ Pathways not clear

Name: 
Rotation Dates: 

Clock draw

Time given: 10:35