

Original Publication

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Geriatrics 5Ms for Primary Care Workshop

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Abstract

Introduction: The Geriatrics 5Ms provide a novel framework for caring for older adults that directly maps to the current Accreditation Council for Graduate Medical Education (ACGME) core competencies in geriatrics for internal and family medicine residents. Using the 5Ms framework of Mobility, Medications, Mind, Multicomplexity, and Matters Most, we conducted a workshop for residents in a primary care clinic to improve care of older adults. **Methods:** Through Kern's six-step approach to curriculum development, we used our needs assessment and stakeholder interviews to guide development of a half-day Geriatrics 5Ms workshop for residents in primary care. The workshop was piloted with 33 internal medicine residents and included interactive modules and point-of-care tools for each of the Geriatrics 5Ms centered on a longitudinal primary care patient case. **Results:** Initial evaluation of the workshop showed high satisfaction and indicated residents appreciated learning about point-of-care tools for primary care, particularly for cognitive assessment, prognosticating, and deprescribing. Of the learners completing the workshop, 75% reported high self-efficacy ratings (score > 3.5) on the Geriatrics 5Ms domains, compared to only 40% of control learners and 20% of learners completing the preworkshop needs assessment. **Discussion:** A longitudinal, interactive, case-based workshop using the Geriatrics 5Ms framework improved primary care residents' self-efficacy and knowledge of tools in the care of older adults and geriatric competencies outlined by the ACGME. The workshop offers an innovative and efficient method to teach geriatrics to residents in primary care and prepare them to care for an aging population.

Keywords

Dementia, Geriatrics, Elderly, Prognosis, Falls, Primary Care, Deprescribing

Educational Objectives

By the end of this workshop, learners will be able to:

1. Apply the Geriatrics 5Ms framework (Mobility, Medications, Mind, Multicomplexity, and Matters Most) to care for older adults.
2. List five modifiable falls risk factors that can be addressed through an interprofessional management plan for falls risk reduction (Mobility).
3. Apply a five-step deprescribing plan to identify potentially inappropriate medications for older adults (Medications).
4. List dementia warning signs and components of the diagnostic workup for cognitive impairment (Mind).
5. Demonstrate use of an evidence-based, patient-centered framework to make cancer screening recommendations for a medically complex older adult patient in order to better align care with goals and prognosis (Multicomplexity and Matters Most).

Introduction

As people live longer and healthier lives, it is critical for the nation's physicians to gain skills to help patients thrive as they age. The Institute of Medicine has advocated for enhanced geriatric competence of the entire workforce to achieve this goal.¹ The Accreditation Council for Graduate Medical Education (ACGME) defines 26 geriatrics competencies for family and internal medicine residents.² Internal and

Appendices

- A. Welcome Module.pptx
- B. Mobility Module.pptx
- C. Medication Module.pptx
- D. Mind Module.pptx
- E. Multicomplexity and Matters Most Module.pptx
- F. Medication Module Learner Handout.docx
- G. Deprescribing Algorithm .pdf
- H. Geriatrics 5Ms Summary and EMR Template.pdf
- I. Checklist for Lead Facilitator.docx
- J. Needs Assessment for Learners.docx
- K. Preworkshop Evaluation for Learners.docx
- L. Postworkshop Formative Feedback for Learners .docx
- M. Delayed Postworkshop Evaluation for Learners .docx
- N. Answer Guide for Pre- and Postevaluations.docx

All appendices are peer reviewed as integral parts of the Original Publication.

family medicine residency programs have the unique opportunity to train physicians to meet the care needs of an aging population.

Resident physicians have traditionally received variable training in geriatrics despite recommendations.³ Residency programs have been making strides toward improving education for the care of older adults since the advent of the ACGME core geriatrics competencies. However, competing factors, including crowded curricula and lack of longitudinal outpatient care experiences, continue to affect resident education in geriatrics.^{2,4}

In 2017, Tinetti, Huang, and Molnar debuted the Geriatrics 5Ms: Mobility, Medications, Mind, Multicomplexity, and what Matters Most to patients.^{5,6} The Geriatrics 5Ms, which align with the goals for the age-friendly health system imperative,⁷ concisely communicate the core competencies related to issues of aging. This framework also directly maps to the current ACGME core domains and competencies in geriatrics for all internal and family medicine residents, making it an exciting tool for structuring resident education. In the following tabulation, the Geriatrics 5Ms on the left are mapped to ACGME internal medicine–family medicine core competency domains in geriatrics on the right:

Mobility	Ambulatory Care
Medications	Medication Management, Hospital Patient Safety
Mind	Cognitive, Affective, and Behavioral Health; Hospital Patient Safety
Multicomplexity	Complex or Chronic Illness(es) in Older Adults, Transitions of Care
Matters Most	Palliative and End-of-Life Care, Complex or Chronic Illness(es) in Older Adults, Ambulatory Care

Using the Geriatrics 5Ms as a unifying framework, we designed an innovative, half-day workshop focusing on core geriatric topics for primary care. The workshop was piloted in the outpatient primary care clinics at the VA Boston Healthcare System (VABHS), a large urban medical center that serves as a teaching institution for internal medicine residents from three separate hospital systems. The target learners had varying exposure to and experience with geriatric medicine; however, they were responsible for providing comprehensive primary care for the aging veteran population. All learners had formal geriatrics rotations as part of their residency programs. However, their experiences differed depending on the training program and may not have focused specifically on geriatric primary care issues.

The workshop's main goal was to provide residents with evidence-based, point-of-care tools and resources that could be easily integrated into primary care of older patients. We hypothesized that workshop participation would result in increased self-efficacy and knowledge in core geriatric principles. A secondary goal of the workshop was to increase use of geriatric resources among residents in primary care.

This is the first workshop structured under the Geriatrics 5Ms framework, making it a novel teaching tool for learners. Other *MedEdPORTAL* resources are available to teach polypharmacy,^{8,9} falls prevention,¹⁰ and goals of care conversations.¹¹ In contrast to our workshop, those resources are stand-alone publications and are not integrated around a longitudinal patient case. Our workshop is the first to combine these concepts as well as additional high-yield geriatric primary care principles into a unified, interactive, unfolding, case-based, half-day educational session.

Methods

The aim of this workshop was to provide learners with primary care tools to improve care of older patients, structured under the Geriatrics 5Ms framework. This project was reviewed according to VABHS procedures and was determined to be nonresearch; thus, oversight by VABHS Research Committees was not required.

The target audience for this workshop was resident physicians in the clinical years of training in a primary care setting. While nurse practitioner and physician assistant students were not present for the workshop, they are additional learners who could benefit from this educational resource.

The ideal site for implementation is a residency clinical site, such as an ambulatory clinic. Faculty facilitators should be physicians with experience in primary care of older adults, geriatric medicine fellows, and/or clinical pharmacists. This workshop can be implemented by one to four facilitators.

Workshop Development

We used Kern's six-step approach to curriculum development to guide workshop development.¹² Initial stakeholder interviews were held with primary care attending physicians and resident physicians. Key themes that emerged included the need for increased primary care–focused education in geriatrics and tools for managing common geriatric conditions. Subsequently, a brief needs assessment was distributed to resident physicians in primary care didactic sessions (Appendix J). The needs assessment addressed self-efficacy and knowledge in the Geriatrics 5Ms as well as learner self-perceived deficiencies in geriatric education. The needs assessment questions were adapted from multiple validated sources,¹³ including the UCLA Geriatric Knowledge Test for Primary Care Residents¹⁴ and the Aging Q3 initiative.^{15,16} While learners reported high self-efficacy in the Multicomplexity and Matters Most Geriatrics 5Ms domains, open-ended responses cited these issues as common challenges when caring for older patients. Results on knowledge items were mixed, averaging 50% correct responses. The needs assessment data were then used to guide workshop goals and objectives. The workshop educational strategy included a longitudinal patient case with unfolding information, allowing each subsequent module to build upon prior module content. Learner-centered educational strategies promoted learner engagement in the workshop content.¹⁷ Module workshop implementation and evaluation are described below.

Logistics

Our session was held during a 2.5-hour time block with a range of six to 14 resident learners per session. To ensure maximal attendance and to account for the differing resident schedules (i.e., 3+1, weekly continuity clinic), the workshop was held on three separate dates. Faculty varied by session but included three geriatricians, one geriatric fellow, one PGY 3 medical resident, and two pharmacists. There was a lead facilitator for each session. Faculty recruitment was done using email and word of mouth.

Resident primary care clinics were closed to permit session attendance. Clinics were closed approximately 12 weeks prior to the sessions, per VA primary care clinic policy. In addition to the medical resident learners, clinic attending physicians were invited by email to attend the sessions. Learners were not required to complete any prework.

The workshop was held in a large conference room with computer audiovisual connectivity.

The following list describes the items used in the sessions. Those who would like to implement the Geriatrics 5Ms workshop without an evaluation component may exclude items 7-10. An optional needs assessment of learners may be conducted in the weeks prior to workshop implementation (Appendix J), as discussed under Workshop Development, above.

1. Computer and projector for didactics, pointer/clicker (optional).
2. PowerPoint slides (Appendices A-E).
3. Checklist for lead facilitator (Appendix I), which includes detailed instructions regarding setup, necessary materials, handouts, and several optional resources for learners.
4. Whiteboard or large plain poster board, sticky notes, markers.
5. Learner handouts as outlined in the lead facilitator checklist (Appendix I), including those in Appendices F-H. Optional handouts may be distributed at the discretion of the lead facilitator.
6. Optional snacks.

7. Preworkshop evaluation for learners (Appendix K).
8. Immediate postworkshop feedback form for learners (Appendix L).
9. Delayed postworkshop evaluation for learners (Appendix M).
10. Answer guide for pre- and postworkshop evaluations (Appendix N).

Below is an overview of the session, which had a total class time of 2 hours and 45 minutes.

- 30 minutes prior to workshop start time: setup according to the lead facilitator checklist (Appendix I) and faculty orientation. The lead facilitator primed the module facilitators on the order of activities, timing, and materials available, as well as answering any questions. The module PowerPoint presentations (Appendices A-E) were opened on the computer to allow for smooth transitions within the workshop.
- 20 minutes: welcome and introduction (Appendix A). This portion of the session was delivered by the lead facilitator, who reviewed the purpose and structure of the workshop and the broad learning objectives, as well as introducing faculty members and learners. Upon arrival, learners were asked to sign in and provide their training year, training institution, and email address. The Geriatrics 5Ms summary and electronic medical record (EMR) template (Appendix H) were introduced and distributed to learners; these provided a summary of the workshop and could be used for optional note taking by learners. The preworkshop evaluation for learners (Appendix K) was distributed, and learners were given approximately 10 minutes to complete it. Finally, the postworkshop formative feedback form (Appendix L) was distributed. Learners were instructed to complete the relevant section of the feedback form at the end of each module.
- 30 minutes: Mobility Module (Appendix B). A physician facilitator led this 30-minute module with an interactive group exercise that focused on falls risk factors and risk factor modification. Optional handouts are detailed in the lead facilitator checklist (Appendix I). At the end of this module, learners were provided 2-3 minutes to complete the Mobility portion of Appendix L.
- 30 minutes: Medications Module (Appendix C). A physician or pharmacist facilitator led this 30-minute module with an interactive group exercise that focused on polypharmacy and deprescribing. Learner handouts included Appendices F and G; it is optional to distribute the American Geriatrics Society's Beers Criteria list.¹⁸ At the end of this module, learners were provided 2-3 minutes to complete the Medications portion of Appendix L.
- 15 minutes: break.
- 30 minutes: Mind Module (Appendix D). A physician led this 30-minute module with an interactive discussion that focused on primary care evaluation of cognitive impairment. At the end of this module, learners were provided 2-3 minutes to complete the Mind portion of Appendix L.
- 30 minutes: Multicomplexity and Matters Most Module (Appendix E). A physician led this 30-minute module that focused on prognostication and cancer screening. The module included an optional internet-based interactive exercise using the ePrognosis website.¹⁹ At the end of this module, learners were provided 2-3 minutes to complete the Multicomplexity and Matters Most portion of Appendix L.
- 10 minutes: wrap-up by lead facilitator, during which learners were instructed to complete the remainder of the postworkshop formative feedback form (Appendix L). The lead facilitator collected the completed formative feedback forms (Appendix L). Learner attention was again drawn to the Geriatrics 5Ms summary and EMR template (Appendix H), as they provided a summary of the workshop and a copy of the EMR template that could be used for note taking.

Approximately 1-2 days after the workshop, the lead facilitator sent a follow-up email to learners. They were thanked for their participation and provided with a PDF of the Geriatrics 5Ms summary and EMR template (Appendix L). Appendices A-H were provided via email to learners on request.

Faculty Preparation

Approximately 1 week prior to the workshop, the PowerPoints with facilitator notes for each module were emailed to participating faculty members. The faculty members were instructed to review the PowerPoint

material, learning objectives, and supplemental handouts independently to prepare to lead assigned sessions. The lead facilitator had all module PowerPoints, any necessary supplies, and learner handouts available for faculty at the faculty orientation immediately preceding the workshop. Appendix I (the lead facilitator checklist) details the necessary faculty preparation, including handouts for printing and other materials. While we utilized multiple facilitators, this is not mandatory. The workshop can be implemented by a single faculty member.

Evaluation

Three evaluation tools were utilized: a preworkshop evaluation, an immediate postworkshop evaluation, and a delayed postworkshop evaluation (Appendices K, L, & M, respectively).

The pre- and delayed postworkshop evaluations included self-efficacy and knowledge questions corresponding to the Geriatrics 5Ms. The immediate postworkshop evaluation solicited comments on workshop structure and content, as well as workshop quality ratings. As discussed above, the preworkshop evaluation (Appendix K) was completed during the workshop introduction. The immediate postworkshop evaluation (Appendix L) was completed during the conclusion of the workshop. The delayed postworkshop evaluation (Appendix M) was completed approximately 3 months after the workshop. The lead facilitator distributed the delayed postworkshop evaluation during learners' regularly scheduled didactic time and via email. To serve as a control group, an additional 10 learners who did not participate in the workshop completed the delayed postworkshop evaluation.

Self-efficacy questions were based on McClure, Mohler, and Tomasa's Geriatrics Gerontology Knowledge and Skills Survey for Residents.¹³ Geriatric knowledge questions were based on the validated UCLA Geriatric Knowledge Test for Primary Care Residents¹⁴ as well as on previously published curricula on falls and medications.^{15,16} Basic demographic questions within the evaluation included postgraduate year, home training institution, and prior geriatrics education. These questions were included on the needs assessment and preworkshop evaluation tool. The pre- and postworkshop evaluation tools included an optional unique identifier code to allow for matching of responses.

Results

We conducted three unique pilot sessions of the workshop over a period of 4 weeks. There were a total of 33 learners from three internal medicine residency programs (designated IMR A, IMR B, and IMR C). Individual sessions ranged from six to 14 learners. The characteristics of learners are shown in Table 1. Additionally, four attending physicians and two pharmacists attended the workshops. Facilitator characteristics have been previously described in the Methods section. As shown in Table 1, learners were predominantly in year 2 or 3 of training.

Table 1. Characteristics of Medical Resident Learners (N = 27)

Training Year and Program	N
PGY 1	
IMR A	3
IMR B	0
IMR C	1
Total	4
PGY 2	
IMR A	0
IMR B	5
IMR C	4
Total	9
PGY 3	
IMR A	5
IMR B	4
IMR C	5
Total	14

Abbreviations: IMR, internal medicine residency; PGY, postgraduate year.

We evaluated learners on self-efficacy and knowledge of core geriatric principles corresponding to the Geriatrics 5Ms through the pre- and delayed postworkshop evaluations. As described in the Methods section, we administered the delayed postworkshop evaluation approximately 3 months after the workshop. For learners who attended the workshop, the matching of participant data from the pre- and postworkshop evaluation tools via the unique identifier code was incomplete. This resulted in 12 delayed postworkshop evaluations completed by workshop attendees and 10 controls.

We asked learners to rate self-efficacy in the Geriatrics 5Ms domains on a 5-point Likert scale. Among learners who participated in the workshop, self-efficacy in all five domains increased (Figure 1). Compared to control learners, higher self-efficacy ratings were seen among workshop participants in all domains except mobility (Figure 2). Of the learners who completed the workshop, 75% had high self-efficacy ratings (score > 3.5) compared to only 40% of control learners. These trends in self-efficacy ratings were not statistically significant.

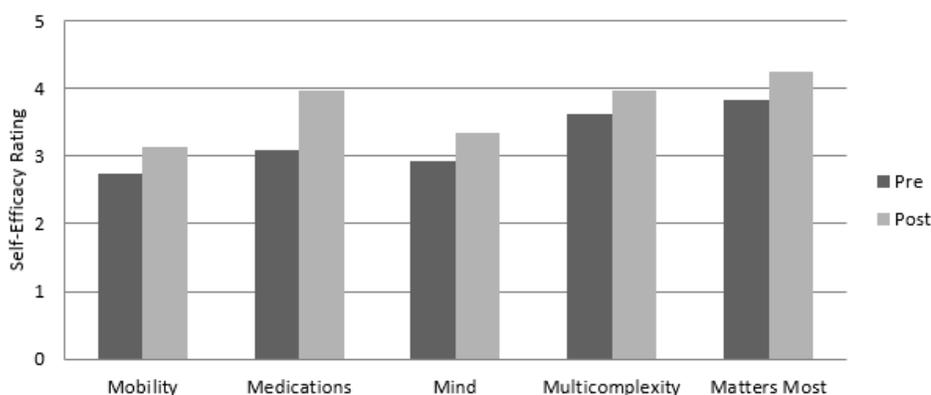


Figure 1. Pre- versus postworkshop self-efficacy ratings on a 5-point Likert scale (1 = low self-efficacy, 5 = high self-efficacy).

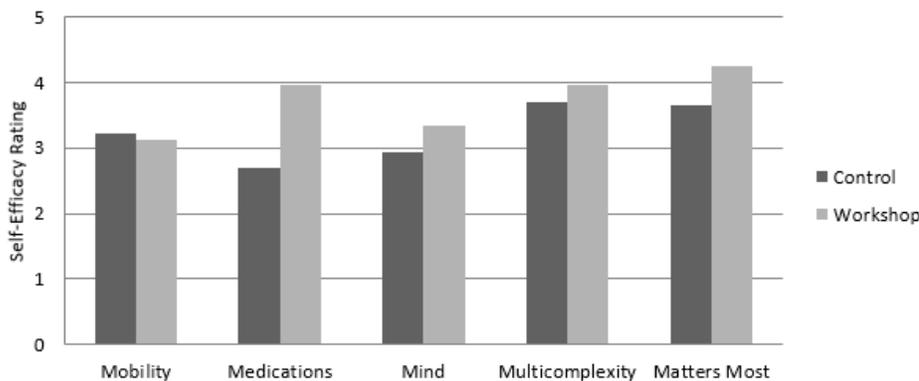


Figure 2. Self-efficacy ratings for workshop learners ($N = 27$) versus control learners ($N = 10$) on a 5-point Likert scale (1 = low self-efficacy, 5 = high self-efficacy).

Learners answered six knowledge questions corresponding to each of the Geriatrics 5Ms. Learners scored very highly on the knowledge questions before and after the workshop, with an average score of 82% correct on both the pre- and postworkshop assessments. Control learners also scored very high on the knowledge questions, with 78% correct responses. Thus, there were no trends or statistically significant differences in knowledge scores.

At the conclusion of the workshop, 20 of the 27 learners provided optional formative workshop feedback in the immediate postworkshop evaluation. Learners praised the interactive, case-based format and

appreciated the handouts. Several common themes emerged in this feedback; these responses are displayed below. These comments were in response to prompts asking for “Comments on each module” and “One thing you should keep doing.”

- Mobility:
 - “Good overview of fall causes and prevention” (*N* = 3).
 - “Good to know about ‘life alert’ service” (*N* = 2).
 - “Liked illustration of systematic approach . . . and EMR template” (*N* = 1).
- Medications:
 - “Great tools for de-prescribing” (*N* = 2).
 - “Useful overview of high risk meds” (*N* = 2).
- Mind:
 - “Useful info on screening and indications for dementia meds” (*N* = 2).
 - “Good demonstration of resources and referrals” (*N* = 1).
- Multicomplexity and Matters Most:
 - “Prognostic tools . . . were resources that I did not know existed” (*N* = 2).
 - “Liked integration of ePrognosis . . . with the patient” (*N* = 1).
- Overall workshop:
 - “Like how interactive it is” (*N* = 5).
 - “Interesting patient case” (*N* = 3).
 - “Liked the short individual modules and overall framework” (*N* = 3).
 - “Handouts are great” (*N* = 3).

In both the immediate and delayed postworkshop evaluations, common themes emerged regarding the workshop tools. Immediately after the workshop, learners anticipated using several tools from the workshop in clinical practice. Learner use of these tools was then assessed through the delayed postworkshop assessment. The most frequently used tools included the Mini-Cog²⁰ and pharmacy resources (Table 2).

Table 2. Utilization of Workshop Tools

Tool	Postworkshop <i>N</i> (%)	
	Immediate	Delayed
Medication resources	5 (19%)	10 (83%)
Mini-Cog	2 (7%)	8 (67%)
ePrognosis	8 (30%)	3 (25%)
Institution-specific resources, including electronic medical record template	5 (19%)	8 (67%)

Discussion

The Geriatrics 5Ms workshop provided learners with a variety of evidence-based, point-of-care tools and resources that could easily be integrated into clinical practice to improve care for older adults. Through the use of a longitudinal patient case structured under the Geriatrics 5Ms framework, this workshop was an efficient and effective learning tool for increasing learner self-efficacy in the management of core geriatric primary care principles. Evaluations demonstrated that learners valued the module format, interactive case-based learning, and emphasis on practical tools for use in the primary care setting. Postworkshop evaluations showed that learners incorporated a variety of the resources and tools from the workshop into their clinical practice.

Based on the positive feedback from learners and faculty attendees, this resource may be a useful teaching tool for learners at other institutions. It can easily be adapted to different learner levels, including medical students, nurse practitioner or physician assistant trainees, or practicing clinicians wishing to expand their geriatrics knowledge. While we focused on internal medicine residents in the primary care setting, the modules and clinical tools are applicable to other subspecialties. This workshop was a pilot

study and could be expanded to additional learners, allowing for further evaluation similar to the work of Moriarty and colleagues.²¹

While feedback was overwhelmingly positive, evaluation was limited by our instrument. Our evaluation was not powered to detect statistically significant change due to the relatively small number of learners. In designing the pre- and postworkshop assessments, we wanted a brief tool that could be completed by learners in less than 5 minutes. The knowledge questions were drawn from a much longer, validated geriatric knowledge assessment.¹³ By using only a limited number of knowledge questions, our assessment was not sufficiently powered to detect changes in knowledge after the workshop. In addition, our learners were primarily upper level residents, who likely had a broader geriatric knowledge base at the onset. To be able to detect a change in knowledge due to the workshop, a longer and more robust knowledge assessment would be needed. It is important to note that we did see a trend toward increasing self-efficacy in all Geriatrics 5Ms domains, which supports the value of this educational intervention. While learners endorsed learning of new concepts, skills, and tools in the formative postworkshop evaluation, our evaluation was not designed to detect changes in behavior or clinical practice.

Other limitations of this workshop include time constraints and scheduling challenges for implementation, learners' varying educational and skill levels, and availability of a variety of instructors. Potential barriers to the long-term sustainability of this type of curriculum include institutional support, learner and instructor schedule limitations, and finding dedicated teaching time to complete the workshop. At our institution, learners had either longitudinal or 3+1 clinic schedules, which added an additional layer of complexity to scheduling. By targeting dates with maximal numbers of learners, we were able to reach 52% of potential learners. Clinic patient care sessions were blocked to allow for uninterrupted time for the workshops, and this is not feasible at all institutions.

A major challenge of the workshop is the amount of information presented in a short period of time. The workshop is not meant to be a comprehensive review of all topics included in the Geriatrics 5Ms. Instead, the main goal is to provide learners with evidence-based tools tied to the Geriatrics 5Ms. The workshop can serve as a unifying educational experience for learners and can be used to set institutional expectations for patient care.

Future directions include delivering the workshop modules as individual sessions as part of a longitudinal educational series. This could allow for further expansion of modules (i.e., distinct Multicomplexity and Matters Most Modules) and further patient-centered practical exercises (i.e., additional deprescribing exercises in the Medication Module). Thematic integration can be challenging, but the Geriatrics 5Ms are a unique organizing principle that can be easily applied to a spaced educational series and further promotion of clinical knowledge retention.²² As mentioned above, a more robust knowledge assessment is also necessary for further evaluation, as well as a deeper analysis of learners based on level of training. In the future, it would be prudent to examine patient-level data to assess the effect of the Geriatrics 5Ms workshop on behavior change in clinical practice and patient outcomes. During our routine clinical practice of reviewing geriatric clinic consults, we have anecdotally noted increased documentation of the Geriatrics 5Ms concepts in resident physician notes in the months after the workshop.

This workshop is an innovative and efficient method to teach geriatrics to internal medicine residents in primary care. The Geriatrics 5Ms framework addresses the core ACGME geriatric medicine competencies and is an effective organizing tool for education. Furthermore, this workshop concisely communicates the key issues that affect an aging population. By applying the Geriatrics 5Ms to a longitudinal primary care patient and illustrating evidenced-based tools for patient care, this workshop increased learner self-efficacy in core geriatric principles. The workshop is an exciting tool for readying learners to provide patient-aligned care for an aging population.

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Prior Presentations

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Ethical Approval

Reported as not applicable.

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