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## Use of Seniors as Mentors to Medical Students: A Collaboration between the University of South Carolina School of Medicine and the Medical University of South Carolina

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A recent innovation in undergraduate medical education has been the use of older people as mentors to students.<sup>1</sup> The objectives of Senior Mentor Programs (SMPs) include building positive attitudes toward aging and older people, and providing out-of-classroom experiences to convey curriculum on essential topics concerning aging and geriatrics. Most successful SMPs select highly engaged older volunteers who are relatively healthy (i.e., coping well with chronic conditions). These senior mentors are neither patients nor teachers per se, but partners with students in pursuing learning objectives, related to models of positive aging, which may be useful to students in their future medical careers.

Better preparation of the health professional workforce for aging patients is a top national and state priority. Americans

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aged 65 and older will double between 2010 and 2030, with those > 85 increasing five-fold.<sup>2</sup> By 2030, South Carolina will rank 15th in the proportion of elderly residents,<sup>3</sup> with more than 1.1 million, many of whom will have chronic conditions for which South Carolinians are at high risk--Alzheimer's disease, obesity, diabetes, and stroke. The Institute of Medicine [IOM] highlights the need for a "retooling of the workforce":

In general, the health care workforce receives very little geriatric training and is not prepared to deliver the best possible care to older patients. Since virtually all health professionals care for older adults to some degree, geriatric competence needs to be improved through significant enhancements in educational curricula and training programs.<sup>4</sup>

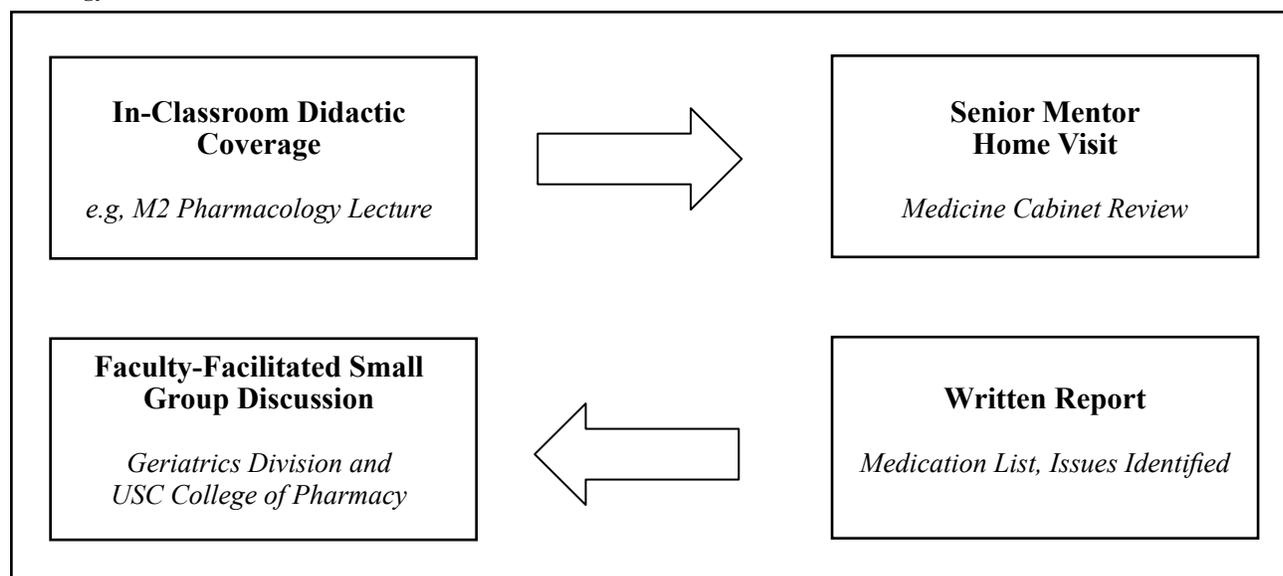
South Carolina's medical schools, together with the state legislature, have begun to address these needs in various ways, including a loan forgiveness program for physicians pursuing fellowship training in geriatrics.<sup>5</sup> But, as the IOM notes, all graduating medical students must be well-trained to care for older adults. Both the University of South Carolina School of Medicine (USCSOM) and the Medical University of South Carolina (MUSC) have had curriculum content related to the care of older adults for many years. Both schools have been able to expand curricula considerably with grant funded initiatives. This paper describes one program element common to both, the Senior Mentor Program (SMP).

### Development of the Senior Mentor Program at the USCSOM

Introduced in 2001, the USCSOM SMP matches medical students with relatively healthy, community dwelling older adult volunteers, most of whom are recruited from the Medicare practice of the USCSOM/Palmetto Health faculty. Students, usually in pairs, complete assignments linked to ongoing didactic course work throughout all 4 years of the undergraduate experience.<sup>6-9</sup> The SMP provides students with out-of-classroom learning experiences, linked with and managed through the vertical curriculum in geriatrics that had been inserted throughout the existing course syllabus and clerkships over prior years.<sup>7</sup>

Integration of the SMP in the vertical curriculum is illustrated in Figure 1. The Medication Review module of the SMP is linked with the second year Pharmacology course. In the didactic portion, students are taught the importance of age-related physiological changes that alter pharmacodynamics, how older adults are more likely to be harmed by adverse drug reactions, the importance of medication management and avoidance of polypharmacy. Students then complete a medication review with the mentor, usually in the mentor's home, including review of all medications--prescriptions, over the counter medications, herbals, and supplements. Students note how and where medications are stored, how they are taken, the indications, potential side effects, and medication costs. Students then complete an

**Figure 1. Integration of the Senior Mentor Program in the Vertical Curriculum in Geriatrics—the Pharmacology/Medication Review Module at USCSOM**



**Table 1. Senior Mentor Assignments**

Module	Year	USCSOM	MUSC
	*** Orientation to Program ***		
Myths and Stereotypes of Aging			
Physiology of Aging	M1	X	X
Medical History/Mental Status Exam		X	X
Intimacy and Aging	M1	X	
Behavior Change (3 modules)	M2	X	
Nutrition (and Exercise @ MUSC)	M2	X	X
Home Environment/Fall Assessment	M2	X	
Physical Examination	M2	X	
Pharmacology/Medication Review	M2	X	X
Falls Risk Assessment	M3		X
Functional Assessment	M3	X	
Life Reminiscence/Review	M3	X	X
Advanced Directives	M3	X	X (M4)
Patient-Provider Relationship	M1-4	X	
Saying Good-Bye	M4	X	

online analysis of potential drug-drug interactions, write reports, and debrief in small groups jointly run by faculty from the Geriatrics Division and the South Carolina College of Pharmacy. This integrated process is adapted for each of the topics listed in Table 1.

Training outcomes have been evaluated for all graduating medical students and

graduates well into their diverse residency experiences.<sup>7,10</sup> USCSOM graduates of the SMP rate their geriatrics preparation higher than other US medical school graduates both at graduation and in post-graduate training (Table 2). Consistent with findings of SMPs nationally,<sup>1</sup> the USCSOM program is popular with students and mentors alike,<sup>9</sup> and has received national attention with segments

on national news and publications.<sup>11-12</sup>

### Replication and Adaptation: the Senior Mentor Program at MUSC

In 2005, MUSC adapted the longitudinal four-year Senior Mentor Program developed at USCSOM. The goal was to ensure that medical students graduating from MUSC would be able to demonstrate the basic recommended AAMC/American Geriatric Society (AGS) core competencies in the evaluation and treatment of older adults.<sup>13</sup>

MUSC introduced the SMP in December 2005 to the Class of 2009--150 first-year medical students. Two hundred and fifty-four medical students have completed the program in the classes of 2009 and 2010; and 486 students are presently enrolled. As in the USCSOM program, mentors are 65 and older, generally healthy, living in the community, not cognitively impaired, and willing to participate in all activities. They are recruited from retirement communities, assisted living facilities, and at home living independently; some have been recruited at the Senior Expo, a yearly "Senior Fair" held in Charleston. Mentors commit to pairs of medical students for the four-year dura-

**Table 2. Responses of Graduating Medical Students and PGY-2/3 Residents to Selected Questions from the AAMC Graduation Questionnaire<sup>7</sup> and the USCSOM/MUSC Resident Follow-up Survey<sup>10</sup> by Exposure to the Senior Mentor Program**

	Class of 2003		Class of 2004		MUSC Classes of 2003 and 2004 ‡ (n=145)
	US Medical Schools (n=13,691)	USCSOM (n=73)	US Medical Schools (n=10,826)	USCSOM † (n=67)	
<b>On Graduation:</b>					
a. “Geriatrics/gerontology was part of all four years of my medical education.” (percent agree or strongly agree)	39.6%	75.3%	45.3%	94.0% †	
b. “I learned about the health care needs of healthy older adults during my medical training.” (percent agree or strongly agree)	76.6%	90.4%	80.3%	98.5% †	69.0% ‡
<b>After at least two years of residency training:</b>					
c. “How well did your undergraduate medical education prepare you for dealing with older adults you see in your residency training?” (percent fairly or very well)		76.7%		95.0%	52.3% ‡

† USCSOM Class of 2004 was the first to graduate under the SMP. Respondents of USCSOM Classes of 2003 and 2004 were in significantly greater agreement with the two statements than other 2003 and 2004 medical school graduates ( $p < .001$ ). Further, the increase in agreement between 2003 and 2004 graduates—associated with the first SMP graduation year—was greater for USCSOM respondents than those of other schools ( $p < .001$ ).

‡ The first graduating MUSC students to participate in the SMP were members of the Class of 2009. Significantly fewer MUSC respondents from the Classes of 2003 and 2004 agreed with statement (b) than either USCSOM graduating class ( $p < .01$ ; results for statement [a] is unavailable). After at least two years in residency, significantly fewer MUSC graduates than 2004 USC graduates ( $p < .01$ ) rated themselves fairly or very well prepared by their undergraduate medical education to be dealing with older adults seen in their residency programs (question c).

tion of students’ medical school experience, and “graduate” with their students. The MUSC replication has followed the original USCSOM model relatively closely, with changes reflecting differences between the curricula (Table 1). For example, the MUSC program is more fully integrated into the Fundamentals of Patient Care course, “housing” the 3rd year assignments in appropriate core rotations and integrated with rotation activities, and incorporating the M4 assignment into the Senior Internal Medicine core rotation.

The MUSC program has also been a laboratory for local innovation. A pilot study during the spring of 2009 brought second-year students from the MUSC College of Pharmacy together with M2’s the Medication Review/Pharmacology assignment (Table 1). Twenty teams, each comprised of one pharmacy student

and the medical student pairs, received a didactic lecture on geriatric pharmacology, and then visited their Senior Mentors to perform a thorough pharmacological inventory of their prescriptions and over the counter medications, using Micro-Medex for their drug inventory. Thereafter, they met in small groups with a geriatrician and a pharmacist specializing in geriatric pharmacy to discuss their findings. Because of the popularity and success of the pilot in meeting its learning objectives, the 2011 module will include all pharmacy students, and we are working with pharmacy faculty members to develop an independent SMP for the College of Pharmacy. Competence in interdisciplinary team training has not been an instructional objective in the education of medical students even though there is strong evidence of the effectiveness of this form of education.<sup>14</sup> The ability to work in interdisciplinary

healthcare teams is a key skill for professionals treating elderly patients. The SMP at MUSC College of Medicine has been a catalyst for development of interdisciplinary instruction and the teaching of teamwork skills at MUSC.

### Lessons Learned

Collaboration between USCSOM and MUSC in developing the geriatrics curriculum through use of senior mentors has proven feasible and effective. The initial challenge facing any educational innovation is adding new material to an already packed medical school curriculum. In addition to the work of program faculty, staff, and volunteer mentors, the support of the Deans, the Offices of Curricular Affairs, and the curriculum committees at both institutions has been critical to the success of the programs.

Student perceptions of the programs

are important success factors. From its inception, the USCSOM program was seen as replacing classroom time with out-of-class learning experiences. Thus, students formed positive attitudes to the program. A common misperception in the first class of MUSC students was that the program was a research study—not an integrated part of the curriculum. MUSC Class of 2009 students were therefore less receptive to the program in the first year. However, with time and positive experience, the MUSC students now largely view the program positively.

Mentor selection is also extremely important. Most mentors in the USCSOM program are selected from a pool of relatively healthy, educated, and engaged older patients in the geriatrics faculty practice. The initial mentor pool at MUSC was somewhat more diverse, including some who were less accessible to students or capable of fully participating. Presently, mentors at MUSC are more consistently providing positive experiences for students.

### Next Steps

As South Carolina prepares for increasing numbers of older adults, its medical schools are participating. The Senior Mentor Programs engage students in hands-on learning activities directly impacting their ability to provide care to older adults. Many students form meaningful relationships with their mentors, beneficial to both. The SMPs help dispel myths and stereotypes about aging with modules that train students to better care for older adults. This geriatric training should help our graduates in their future careers regardless of specialty. The long term impact of SMPs is yet to be determined, but the results to date are promising. The changing demands of curriculum at large, particularly the move towards competency-based medical education, and new medical student geriatric competencies developed by the Association of American Medical Colleges<sup>15</sup> will have an impact on how both

schools train our future health care professionals.

The success of the SMPs has given impetus to further collaborations between MUSC and USCSOM in geriatrics education. The Division of General Internal Medicine and Geriatrics at MUSC has recently received a grant from the Donald W. Reynolds Foundation to improve geriatrics education and knowledge for medical residents (<http://mcintranet.musc.edu/agingq3>). The goal is to “gerontologize” the medical school, further advancing teaching in geriatrics at every level. To assist in this effort, MUSC is contracting with the USCSOM Division of Geriatrics (a prior recipient of Reynolds support) as part of this Reynolds-supported training program. Finally, geriatrics faculty at USCSOM and MUSC have joined with faculty at Duke, Wake Forest and the University of North Carolina Schools of Medicine teams—funded by Reynolds and Fullerton Foundations—to explore education, research and service initiatives (the “Gerolina” collaborative). Among these initiatives is expansion of SMPs in North Carolina medical schools and in allied health professional schools.

### Conclusions

The aging of the population necessitates training of all medical students in the care of older adults. The Senior Mentor Programs at USCSOM and MUSC provide an innovative framework for delivering curriculum content in aging to our nation’s future physicians. Collaboration between USCSOM and MUSC provides effective ways of making improvements in curricula for both institutions.

### Acknowledgements

The Senior Mentor Program at the USC School of Medicine was developed under grants from the Association of American Medical Colleges, the John A. Hartford Foundation, and the Donald W. Reynolds Foundation. Replication at the Medical University of South Caro-

lina was supported by a grant from the Duke Endowment. The authors would like to thank Ms. Cynthia McGriff, Ms. Sherry Cannon, Ms. Lillie Brinson, Ms. Deronda Corbin, and Ms. Alyssia Barnes for their expert technical assistance with the programs. We also thank Ms. Cynthia McGriff for her help in preparing this manuscript.

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