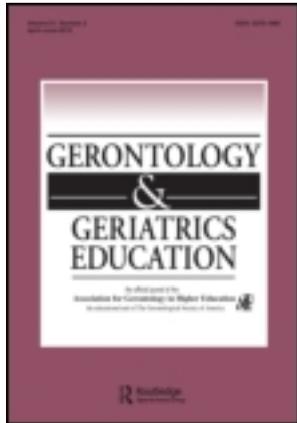


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## Gerontology & Geriatrics Education

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/wgge20>

### Positioning Medical Students for the Geriatric Imperative: Using Geriatrics to Effectively Teach Medicine

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Accepted author version posted online: 03 Jul 2013. Published online: 25 Aug 2013.

To cite this article: Annie L. Nguyen, Elizabeth A. Duthie, Kathryn M. Denson, Jose Franco & Edmund H. Duthie (2013) Positioning Medical Students for the Geriatric Imperative: Using Geriatrics to Effectively Teach Medicine, *Gerontology & Geriatrics Education*, 34:4, 342-353, DOI: [10.1080/02701960.2013.809714](https://doi.org/10.1080/02701960.2013.809714)

To link to this article: <http://dx.doi.org/10.1080/02701960.2013.809714>

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## **Positioning Medical Students for the Geriatric Imperative: Using Geriatrics to Effectively Teach Medicine**

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*Medical schools must consider innovative ways to ensure that graduates are prepared to care for the aging population. One way is to offer a geriatrics clerkship as an option for the fulfillment of a medical school's internal medicine rotation requirement. The authors' purpose was to evaluate the geriatrics clerkship's impact on*

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The authors thank G. Richard Olds, MD, James Sebastian, MD, and Dario Torre MD, PhD, for supporting the creation of this geriatrics option. We thank Kerrie Quirk, Robert Treat, PhD, Dean Deborah Simpson, PhD, and Dean Richard Holloway, PhD, for their help with aspects of this study. We appreciate the interest of the students of the Medical College of Wisconsin in learning internal and geriatric medicine, as well as assessing the outcomes of these education innovations. This work was funded in part by the D.W. Reynolds Foundation, HRSA Geriatric Academic Career Award, and The Department of Veterans Affairs.

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*internal medicine knowledge and medical student attitudes toward older adults. Mean National Board of Medical Examiners (NBME) internal medicine subject exam scores from geriatrics and internal medicine students who matriculated from 2005 to 2011 were compared using student's t-tests. Academic performance was controlled for using the United States Medical Licensing Exam Step 1 exam scores. Focus groups were conducted to explore student attitudes. Geriatrics students performed just as well on the NBME exam as their internal medicine colleagues, but reported greater comfort with elder care. Geriatrics students also reported more positive attitudes toward older adults. Completing an internal medicine requirement using a geriatrics clerkship is an innovation for medical school curriculum structure.*

*KEYWORDS* clerkship, geriatrics, internal medicine, undergraduate medical education

## BACKGROUND

The rapid growth of the elderly population has created a geriatric imperative. Older adults are projected to represent nearly 20% of the United States population by the year 2030. Health care providers need to be prepared to care for older adults as the use of Medicare-covered physician and home health care visits is on the rise (Federal Interagency Forum on Aging-Related Statistics, 2010). Physicians who are trained in geriatric medicine are especially equipped to deal with the complex health needs of older adults, but there is a shortage of geriatricians (Hirth, Eleazer, & Dever-Bumba, 2008). However, most physicians will likely encounter older adults in their practices, and regardless of specialty all physicians must be able to provide age-appropriate care for their patients and reflect the appropriate attitudes to their patients' unique attributes (Eleazer & Brummel-Smith, 2009; Leipzig et al., 2009; Leipzig, Hall, & Fried, 2012).

In the United States, medical school graduates complete their education with varying degrees of geriatrics training (McCrystle, Murray, & Pinheiro, 2010; Oates et al., 2009). Although many medical schools have incorporated geriatrics training into their educational curriculum, only a few schools offer it as a stand-alone rotation, as part of another clerkship, or as an elective (Roscoe, Schonwetter, & Wallach, 2005). The number of students pursuing geriatric specialties remains low (Voogt, Mickus, Santiago, & Herman, 2008). Numerous factors have been cited for this lack of interest including financial disincentives, the overwhelming complexity of medical problems in older adults, uncertainty about the difference between geriatrics and primary care, and perceived lack of prestige (Album & Westin, 2008; Bagri & Tiberius, 2010; Golden et al., 2010; LeCouteur, Bansal, & Price, 1997; Weeks & Wallace,

2004). In addition, students also show unfavorable attitudes toward geriatric patients and show a preference to care for younger patients (Roscoe et al., 2005). Negative attitudes toward older adults can become normalized among students during their medical education, and the resulting negative stereotyping of older adults can complicate diagnoses, treatment, and communication in the clinical encounter (Gonzales, Morrow-Howell, & Gilbert, 2010; Shue, McNeley, & Arnold, 2005).

Evidence that curriculum interventions can successfully change students' career choices is lacking, but interventions have been shown to be successful in increasing positive attitudes toward geriatric patients (Voogt et al., 2008). Some educators have suggested that didactics alone will not change student attitudes, but that onsite training, mentoring, and exposure to well and ill older adults may be a key to changing attitudes and increasing willingness to care for older adults in future practice (Fitzgerald, Wray, Halter, Williams, & Supiano, 2003; Golden et al., 2010; Wener, Foley, & Jaffe, 1991). Many interventions involve didactics and educational experiences external to required clinical rotations, such as mentoring programs with community-dwelling elders. However, clinical rotations provide an experience-based venue in which to deliver onsite training, mentoring, and exposure to older adults. Because clinical rotations are already a foundational part of the medical education experience, it is a particularly convenient way to build in geriatrics training. Although prior work has shown that that a geriatric rotation can affect student knowledge, skills, and attitudes, it is not known whether such an experience can be used to insure adequate student performance in internal medicine (IM).

We sought to evaluate the degree to which a geriatrics clerkship, in fulfillment of an IM rotation requirement, affected student perceptions of older adult patients while assuring no adverse impact on IM knowledge. All 3<sup>rd</sup>-year medical students (M3s) at the medical school are required to complete an 8-week rotation in IM. This rotation is divided into two 4-week periods where students may choose to complete a specialized inpatient-based geriatrics clerkship called the Geriatrics Evaluation and Management clerkship (GEM) for one of the 4-week periods. The GEM is an inpatient experience on a "subacute" unit located in a Veterans Affairs (VA) hospital building separate from the acute care medicine, surgery, and mental health units. Designated as a subacute unit, the GEM unit is surveyed under the Joint Commission Long Term Care standards. Patients are mainly referred from hospital acute services, though some are referred from the clinics. Care is comprehensive and interdisciplinary, with a focus on optimizing the patient's physical and cognitive health, as well as functional abilities to return them to the most appropriate, and hopefully, least restrictive environment at discharge. Students on the GEM care for geriatric patients who are age 65 and older, with geriatricians serving as attending faculty. The rotation includes clinical experiences as well as weekly interdisciplinary

team meetings and didactic educational series covering topics of geriatric medicine, psychology, and dentistry. The GEM rotation was initiated to allow interested students the opportunity to have a career preview of geriatrics and possibly spark interest in geriatrics as a career. More importantly, this option was meant to impart knowledge, skills, and attitudes to students so that upon entering residency, they would have an improved skill set to care for older adults.

The geriatrics option has been offered at the Medical College of Wisconsin since 2001 and, to date, approximately 240 medical students have elected to complete the geriatrics option. The structure of the rotation has been fairly constant over the years. Due to capacity limitations because of the limited number of geriatric faculty mentors, the GEM has not been able to accommodate more than two students per month though student demand often exceeds capacity. Interested students apply to participate in the GEM clerkship and if capacity is oversubscribed, the clerkship director decides on who will be assigned. Students who have been active in geriatrics student organizations and who selected earlier course offerings in geriatrics as M1s and M2s are given preference. Students who do not choose this elective rotate through the traditional 8 full weeks of hospital inpatient IM. IM students see geriatric patients in proportion to the hospital to which they are assigned, and these experiences can differ. For example, at a VA hospital there are high numbers of elderly patients, whereas at another adult hospital, the patient population skews younger.

At the end of the rotation, all students are required to take a standardized IM subject exam issued by the National Board of Medical Examiners (NBME). Although the use of this exam is not mandatory, the majority of U.S. medical schools utilize this exam to test the IM knowledge of students whom have just completed the clerkship. The shelf exam is written in a board-like style where a clinical vignette is provided and followed by multiple choice questions. The test has a total of 100 questions, and students are given 2 ½ hours to complete the exam. Students receive score reports that are generated by the NBME, but each institution uses a unique metric to determine the cutoff between a passing versus a failing grade. The NBME scales the subject exam score to a mean of 70 with a standard deviation of 8. As a result, the majority of individual scores range from 45 to 95.

The overall goal of this article was to compare empirical knowledge and self-assessed outcomes between students in the two clerkship experiences (GEM vs. traditional IM). The objectives were (a) to compare mean NBME IM subject exam scores between students in the two options and (b) to evaluate, through focus groups, the impact of the GEM curriculum on self-reported attitudes toward and comfort with caring for older adult patients.

## METHOD

### Study Design and Analyses

All research activities were approved by the Medical College of Wisconsin Institutional Review Board. Statistical analyses of NBME IM subject exam scores were performed to compare the mean scores between GEM and IM students. Although the GEM option has been offered at the Medical College of Wisconsin since 2001, the study team did not have access to student test records prior to 2005 because of student confidentiality restrictions. Therefore, only student test scores from 2005 to 2011 were included in the analyses. Independent *t*-tests were used to compare the mean NBME scores between groups. ANOVA was also performed after controlling for the United States Medical Licensing Exam (USMLE) Step One exam scores as a variable to account for general level of academic performance.

Separate focus groups were conducted with GEM and IM students to evaluate their rotation experiences and to explore the ways in which the rotation affected attitudes and desire to work with older adult patients. The focus group format was appropriate as it allows use of open-ended questions and permits student perspectives to be clarified through peer group dynamics (Drickamer, Levy, Irwin, & Rohrbaugh, 2006). Because the goal of qualitative work is to discover rather than to test variables, results from the focus groups are not meant to achieve generalizability (Corbin & Strauss, 2008). Rather, these findings offer a contextual understanding of students' experiences, adding richness to quantitative findings. Focus group findings should be interpreted in conjunction with the quantitative results presented in this study, as well as in the literature, as foundational data to build upon for future inquiry into student experiences.

All focus group sessions were audio-recorded and promptly transcribed verbatim without name-identifying information. Data were analyzed for emergent themes using the principles of grounded theory analysis by two independent coders. Transcripts were first examined to identify primary coding categories and themes. Identified categories and themes were then organized into a formal codebook. Next, transcripts were formally content coded. New themes that did not appear to fit into the original codebook were discussed and modifications were made when appropriate. Any inter-rater discrepancy in the coding was discussed until consensus was obtained by both coders. This was done for all transcripts so that there was 100% agreement between the coders on assigned codes.

### Data Collection

The Office of Educational Services, with permission from the Dean's Office, was contacted for access to student examination scores. All quantitative

**TABLE 1** Focus Group Questions

- 
1. What did you like most about the medicine/GEM rotation? What did you like the least?
  2. How well did the curriculum and patient care experience prepare you for the internal medicine shelf exam?
  3. On your medicine rotation, how much experience did you gain in treating older adult patients?  
Probes: How frequent were your interactions with older adult patients?  
What did you learn from those interactions?
  4. What is your level of comfort with performing assessments and differential diagnosis on older adults?
  5. What do you think are some of the rewards of caring for older adult patients?  
What are some of the challenges of caring for older adult patients?
  6. What kind of communication or professionalism skills did you learn from interacting with your patients?
  7. How enjoyable were your interactions with patients?
  8. What did you wish you had learned, but did not?
  9. To what extent do you feel prepared to treat geriatric patients in your future practice?
  10. How have your career goals changed because of your experience on the medicine/GEM rotation?
  11. Is there anything else you would like to add to the discussion?
- 

analyses were performed by the Office of Educational Services so that the study team was blinded to individual student test scores, and student academic confidentiality was maintained. Only aggregated results were provided to the study team.

Potential participants for focus groups were identified through course enrollment information obtained from the Internal Medicine clerkship office. Only students who had completed the IM rotation requirement and were still enrolled at the school during the 2010 to 2011 academic year were contacted. This functionally limited the recruitment pool to currently enrolled 3<sup>rd</sup>- and 4<sup>th</sup>-year medical students. Students were contacted via a recruitment e-mail, and all students who responded with interest were given further details about the study. Those who remained interested in participating in a focus group were assigned to a focus group, and informed consent was obtained from those who agreed to participate. A doctoral student assistant with research experience and qualitative training facilitated the focus groups and omitted all personal identifiers from transcripts before sharing data with study team faculty members, thus ensuring student anonymity and minimizing the potential for coercion. Two focus groups were conducted, and each session lasted approximately one hour. Four students participated in the IM focus group, and six students participated in the GEM focus group. Attempts were made to recruit similar number of participants for each group but participation was limited by student interest. See Table 1 for the question guide.

## RESULTS

### NBME Exam Scores

From 2005 to 2011, a total of 124 students completed the GEM option and 1,318 students completed the traditional IM track. The mean NBME IM subject exam scores between GEM students ( $M = 73.66$ ,  $SD = 7.2$ ) and IM students ( $M = 73.6$ ,  $SD = 7.4$ ) were not statistically significant ( $p = .938$ ). The lack of difference in mean subject exam scores persisted after controlling for USMLE Step 1 scores ( $p = .371$ ).

### Focus Groups

The average age for students across both focus groups ( $N = 10$ ) was 26.3 years, 50% were male, 60% self-identified as White, 30% self-identified as Asian, and 10% self-identified as Latino/Hispanic. Residency and fellowship specialty intent varied widely. GEM students reported specialty intent including geriatrics ( $n = 2$ ), neurology, obstetrics/gynecology, radiology, and pediatrics. IM students reported interest in IM, pediatrics, primary care, and emergency medicine. The following themes emerged from the focus group data.

*Assessment and differential diagnosis in older adults.* Students were asked to describe their level of comfort with the assessment and differential diagnosis of older adults. Only GEM students reported feeling very comfortable with assessment and differential diagnosis in older adults. Specifically, they felt comfortable with the social aspects of the assessment and plan and expressed developing awareness for elder abuse and neglect issues. Some felt comfortable working with people with dementia, performing dementia assessments, neuropsychiatric exams, and mental status exams. IM students expressed limited confidence in compiling a differential diagnosis on a medically complicated geriatric patient and one male student expressed that he would “need some help with a very complicated person.”

*Preparation for the internal medicine shelf exam.* Both groups said that their respective rotations were not particularly advantageous nor were they detrimental to their preparation for the shelf exam. One female student summarized, “In general, clinical experiences do not prepare you for the shelf . . . since the shelf doesn’t have straightforward or basic stuff.” However, all GEM students reported performing well on the small subset of geriatric-related questions and some said that they performed well above average on the geriatrics questions.

*Comfort with family meetings and end-of-life discussions.* GEM students specifically reported comfort with approaching family meetings and engaging in discussions about end-of-life care and activating power of attorney.

In contrast, IM students expressed that end-of-life conversations were difficult to have with their older patients. They further expressed the desire to have more training on navigating conversations about issues related to end-of-life and palliative care. One female student said: “I really wish I had a little bit more exposure to that. I don’t want to see patients die but it’s important—it’s [going to] happen no matter what so it’s important to learn that side of the conversation.”

*Social aspects of care.* GEM students enjoyed the interdisciplinary nature of geriatrics and learning about the health care delivery system through focused lectures on topics such as Medicare, hospice, and home health. One male student reported:

You could learn a lot about the healthcare delivery system because there were a lot of lectures on Medicare, hospice, and home health and those things which you don’t learn in other rotations or at other times. And so, because there is time they can give you more focused lectures on that type of important aspect of care for geriatric patients.

Some GEM students said they enjoyed going on home visits and having exposure to the social aspects of caring for older patients such as navigating situations of homelessness or where the older adult is living alone without the help of a caretaker. However, IM students characterized the social aspects of care such as speaking with social workers, arranging for home health or home oxygen, and making follow-up appointments as “scut work,” which they defined as busy work that had no educational value.

*Challenges and rewards of caring for older adults.* Similar responses were given in both groups. Medical diversity was identified by both groups as a challenge because older patients tended to have longer medical histories, more medications, and different responses to treatment from younger patients. However, some GEM students said that they enjoyed the medically complicated nature of their patients. Many students in both groups said that another challenge is telling family members about the futility of care and end-of-life issues can be difficult to navigate. One male student explained: “As a doctor, you want to fix things, you don’t want to call it quits, but obviously that has to happen.” Students also identified the issue of compliance as a challenge when patients who have cognitive deficits or financial constraints are unable to follow specific care plans. Financial constraints of older adults may also make it difficult to navigate issues such as home nurse affordability.

One frequently cited reward of caring for older adults related to patient attitudes toward doctors and medical care. Both groups found their older adult patients to be interesting and enjoyable. Older patients were described as being grateful, appreciative, and accustomed to medical interventions, attitudes which “take the anxiety and stress away from the student.” Many

students reported a unique sense of satisfaction in seeing improvements in older patients because medical complexities made “solving the puzzle” feel more satisfying.

*Caring for geriatric patients in future practice.* When asked about the extent to which they felt prepared to treat geriatric patients in the future, both groups reported feeling confident. However, GEM students specifically said that they found interacting with older patients to be enjoyable and reported deriving satisfaction from being able to form good patient–provider relationships with their older adult patients. Some GEM students further stated that they felt ready to manage complex medical issues in older adults and felt more comfortable interacting with older adults in general. Though the GEM clerkship did not influence students’ subspecialty choice, they had praise for geriatricians. One female student said: “you don’t really go into geriatrics because it’s . . . the sexy thing to do, so they like their jobs.”

## DISCUSSION

A 2010 national survey of U.S. medical school academic geriatric medicine program directors found that 87% reported that their medical school had an elective geriatric clerkship, and 27% had a required clerkship. However, the survey also identified that though the initial generation of experienced geriatrics faculty is reaching the age of retirement, the recruitment of new geriatrics faculty has not been at a level necessary to sustain long-term academic programs (Bragg, Warshaw, Meganathan, & Brewer, 2012). Innovative ways of successfully incorporating geriatric training into existing curriculum structures may assist medical schools in taking advantage of existing curriculum, administrative, and faculty resources. Teaching geriatric medicine through modifying required rotations such as IM may accomplish this goal.

Our study analyses of student NBME subject exam scores showed no statistical differences between IM and GEM groups on performance. This similarity between NBME scores persisted when student data were adjusted for USMLE performance, suggesting that general level of student academic performance did not influence the mean difference of the NBME scores. Despite a shortened traditional IM experience, GEM students performed equally well as their IM student counterparts on the subject exam. Given that student performance was not hindered, a geriatrics clerkship may be an equally effective way for students to acquire IM knowledge while providing students with added exposure to aspects of geriatric patient care, particularly to the social aspects of medical care.

Other studies have shown that students with geriatric clinical exposure are more likely to practice learned skills in the clinical setting and acquire more geriatric knowledge and skills than students without geriatric clinical

exposure (Diachun, Van Bussel, Hansen, Charise, & Rieder, 2010; Strano-Paul, 2011). This study suggests that participation in a geriatrics clinical rotation may also foster positive attitudes and increased comfort in interacting and managing different aspects of care for older adults. GEM students consistently highlighted their exposure to the interdisciplinary aspects of patient care in the clinical setting as a positive learning point. They did not view social work as “scut” work in the same way as did students in the IM group. On the contrary, many GEM students enjoyed participating actively in the social aspects of patient care. The fact that the IM group acknowledged the social aspects of care as something that is an important part of patient care but yet irrelevant to medical training may speak to the ability of the geriatrics clerkship to foster a different perspective regarding a medical doctor’s purview and role in patient care. This is an arguably unique strength of the geriatrics clerkship and evidence of teaching systems-based practice in an experiential way. Further studies should examine the impact of Geriatrics training on the development of system-based practice.

Although the GEM rotation was not particularly swaying in influencing career goals, GEM students expressed confidence in their ability to treat geriatric patients in their future specialty. Many of the GEM students had heightened awareness for elder-specific issues such as elder abuse and neglect. It is also important to note that GEM students not only said that they were ready to manage the medical aspects of elder care but also felt comfortable interacting with older adults in general. This has important implications for interactions with not only patients but also caregivers and family members who may be of elder age.

### Limitations

These results may not be generalizable to other medical institutions due to differences in institutional culture, practices, and policies. Self-selection bias, in which students chose the geriatrics option due to greater prior interest in geriatrics, is possible. However, the intended residency specialties of the students who participated in the focus groups were diverse. Also, one of the goals of this study was to determine whether students who participated in the GEM rotation received adequate exposure to IM. This is an important question that is relevant regardless of student interest in geriatrics. Our results show this to be true based on the NBME shelf exam score analyses. The small sample size of the focus groups precludes generalizability, but the goal of qualitative work is to discover emergent themes on an exploratory level rather than generalize with precision. Therefore, these results are sufficient to add richness to the understanding of the unique added value of geriatrics training to medical education. The differences that we found between groups can be used to generate a hypothesis about the added benefits of participation in a geriatrics rotation for testing in a future study.

## CONCLUSION

Research has shown that didactics alone will not change student attitudes toward working with older adults (Fitzgerald et al., 2003). This analysis of the geriatrics option of an IM clerkship shows that on-site, hands-on training with older adult patients can have added value to a medical student's IM education by impacting self-assessed skills and attitudes about geriatric patients. Due to the need for future physicians to be adept in geriatric care, regardless of specialty, adding geriatrics training into standard medical education may be a means toward reaching minimum competencies (Golden, Silverman, & Mintzer, 2012). Geriatrics training may be an innovative curriculum venue through which the IM curriculum can be delivered, providing added value to IM training without sacrificing the accumulation of IM knowledge. This is an area for further research and educational innovation.

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