

# Assessing Effectiveness of a Geriatrics Rotation for Second-Year Internal Medicine Residents

EUGENIA L. SIEGLER, MD  
CATHY JALALI, MD  
EMILY FINKELSTEIN, MD  
SHARDA RAMSAROOP, MD  
KARIN OUCHIDA, MD  
TESSA DEL CARMEN, MD  
LIA LOGGIO, MD

## Abstract

**Background** Residents need to acquire an understanding of the biopsychosocial aspects of caring for older adults with chronic illness, along with effective use of interdisciplinary services inside and outside of the hospital.

**Objective** We expanded the geriatric medicine experience for second-year internal medicine residents and present the results of the first year's experience.

**Methods** We paired a mandatory rotation for postgraduate year-2 internal medicine residents (2 weeks of day and 1 week of night inpatient experience in the Acute Care for Elders Unit), and a 1-week outpatient systems-based practice experience with online modules and readings. Evaluation included a case presentation, an oral examination, a written questionnaire for all residents, and a global assessment of the residents'

performance on the geriatrics portion of the 2012 In-Training Examination (ITE).

**Results** All residents passed their oral examination; there was little difference between classes in systems-based practice knowledge. More than 90% (21 of 23) of the residents who took the rotation reported that it left a lasting impression on how they would care for their patients. Mean ITE scores in geriatrics for all residents increased from 53% (versus 61% overall) in 2010 to 87% (versus 81%) in 2012, although they dropped to 69% (versus 82%) in 2013.

**Conclusions** A rotation in geriatrics that is highly rated and covers both acute care and systems-based practice concepts is feasible for internal medicine residents. Residents did not learn detailed knowledge about specific programs for older adults, but clinical geriatrics knowledge improved.

*Editor's Note: The online version of this article contains a handout describing each activity in the module.*

## Introduction

Geriatrics training is mandatory for internal medicine (IM) residents.<sup>1</sup> Despite curricula and guidelines, creating a

learning experience that meets residents' needs remains a challenge. Equally difficult is measuring the effectiveness of this rotation; in addition to knowledge, impact on attitude is a high priority.<sup>2</sup>

Resident-level assessments of geriatrics knowledge are few, limited in scope, and often outdated. The University of Michigan Geriatrics Clinical Decision-Making Assessment Instrument,<sup>3</sup> although well-crafted, includes palliative care content and dates back to 2006. Attitudinal scales<sup>4-6</sup> may not elicit honest answers.<sup>7</sup> A recent academic geriatric and palliative care curriculum was associated with enhanced geriatric knowledge but not enhanced attitudes<sup>8</sup>; it is unclear whether the true effect of the program was being measured.

The Accreditation Council for Graduate Medical Education's promotion of competency in systems-based practice (SBP) dovetails well with geriatrics content, but a hospital-based experience provides residents with little practical exposure. The challenges of incorporating SBP into resident education have been described.<sup>9,10</sup> In geriatrics, experiences outside the usual care sites are essential, and this requires planning and cooperation with community partners.<sup>11,12</sup>

Since 2003, the New York Presbyterian Hospital Weill Cornell Campus (NYPH-WCC) has had an Acute Care of Elders (ACE) Unit<sup>13</sup> serving as the site for IM resident

All authors are with the Department of Medicine, Weill Cornell Medical College. **Eugenia L. Siegler, MD**, is Mason Adams Professor of Geriatric Medicine, Division of Geriatrics and Palliative Medicine; **Cathy Jalali, MD**, is Education Specialist, Division of Education; **Emily Finkelstein, MD**, is Assistant Professor of Medicine, Division of Geriatrics and Palliative Medicine; **Sharda Ramsaroop, MD**, is Associate Professor of Clinical Medicine, Division of Geriatrics and Palliative Medicine; **Karin Ouchida, MD**, is Assistant Professor of Medicine, Division of Geriatrics and Palliative Medicine; **Tessa Del Carmen, MD**, is Assistant Professor of Medicine, Division of Geriatrics and Palliative Medicine; and **Lia Loggio, MD**, is Herbert J. and Ann L. Siegel Distinguished Professor of Medicine, Division of Education.

Funding: Drs Finkelstein and Ouchida are John A. Hartford Foundation Center of Excellence Scholars; Dr Ramsaroop is supported by a Geriatric Academic Career Award (K01HP20477).

Conflict of Interest: The authors declare they have no competing interests.

Presented in part at the 2012 Annual Meeting of the American Geriatrics Society, Seattle, WA.

Corresponding author: Eugenia L. Siegler, MD, 525 East 68th Street, Box 39, New York, NY 10065, 212.746.1729, els2006@med.cornell.edu

Received September 24, 2013; revision received December 9, 2013; accepted January 6, 2014.

DOI: <http://dx.doi.org/10.4300/JGME-D-13-00344.1>

learning along with physician assistant students, nursing students, social work interns, and medical students. When the IM geriatrics rotation began a decade ago, extra administrative support enabled interns to make 1 posthospital visit during their 4-week block. Over time, the service became busier and the interns were unable and unwilling to leave, despite growing educational emphasis on transitions and ambulatory care.

Changes in duty hour regulations in 2011 necessitated restructuring of resident training. The IM geriatrics rotation was modified to include a dedicated 1-week SBP module whose goals were to facilitate residents' exposure to non-acutely ill elderly patients and the community-based programs that help maintain their physical and emotional health. This article describes the rotation and the initial evaluation of its effectiveness.

Methods

Rotation Description

A 4-week geriatrics rotation is required for all IM postgraduate year (PGY)–2 residents at NYPH-WCC. Each resident has 3 weeks of inpatient geriatrics (2 weeks of day coverage and 1 week of night coverage providing direct care for 8 to 10 patients with medical illnesses from the community and nursing homes) and 1 week (5 weekdays) in an outpatient SBP module (SBP-OM). The PGY-1 residents do not participate, while PGY-3 residents are assigned to the rotation to ensure adequate coverage, but do not repeat the SBP experience. The inpatient team is led by a faculty geriatrician. The home base is the 19-bed ACE unit, but the unit is not closed and the team is not strictly geographic.

The SBP-OM represents a multicomponent intervention with exposures to different sites of care and resources available to older adults. These exposures include

**What was known**

Residents need to understand the medical and biopsychosocial aspects of caring for older adults.

**What is new**

An expanded geriatric medicine experience for second-year internal medicine residents explored inpatient and ambulatory care, and provided a systems-based practice module.

**Limitations**

Single institution study and small sample reduce generalizability; knowledge gains were not sustained in the postimplementation year.

**Bottom line**

A focused geriatrics rotation is feasible, was highly rated by learners, and improved clinical geriatrics knowledge. Assessing geriatrics competencies remains challenging.

observation, direct patient care, team meetings, and private tutorials. Residents have opportunities for self-directed learning through readings and an online module. TABLE 1 outlines the weeklong SBP-OM, and the 2011–2012 handout describing each activity is provided as online supplemental material.

Evaluation Methods

On the final day of the SBP-OM, residents complete a 10-item survey unique to the rotation, rating the educational value of each component on a 5-point Likert scale along with space for qualitative feedback via open-ended comments. Residents also are evaluated via a case presentation during the weekly geriatrics division meeting, and with an oral examination.

A member of the geriatrics faculty (T.D.C. 75% of the time) administers an oral examination. The examination is designed to ensure residents read, contemplate, and integrate their experiences, and is graded pass/fail. It

| TABLE 1      SYSTEMS-BASED PRACTICE (OUTPATIENT) WEEK SCHEDULE |                                                                                                                                                                              |                                                                                                                               |                                        |                                               |                                                                        |
|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|
|                                                                | Monday                                                                                                                                                                       | Tuesday                                                                                                                       | Wednesday                              | Thursday                                      | Friday                                                                 |
| Morning                                                        | PACE <sup>a</sup>                                                                                                                                                            | Long-term care (home care, senior housing, adult day care, subacute rehabilitation, long-term nursing home care, elder abuse) | Geriatric care management <sup>b</sup> | Resident case presentation to geriatrics team | Transitional care clinic <sup>c</sup>                                  |
| Afternoon                                                      | Hospice home visits                                                                                                                                                          |                                                                                                                               |                                        | Home visits with geriatrics team <sup>c</sup> | Geriatric urgent visits <sup>c</sup><br>Oral examination<br>Evaluation |
|                                                                | Self-directed learning: Online module on environmental geriatrics and selected readings in geriatrics (elder abuse online module was discontinued midway through the course) |                                                                                                                               |                                        |                                               |                                                                        |

Abbreviation: PACE, Program of All-Inclusive Care for the Elderly.

<sup>a</sup> Team meeting, tour of facility, and detailed discussion of PACE programs.

<sup>b</sup> Morning “standup” rounds, followed by house calls.

<sup>c</sup> Involves direct patient care.

TABLE 2 RESIDENT EVALUATION OF THE COMPONENTS OF THE SYSTEMS-BASED PRACTICE WEEK<sup>a</sup>

|                     | TCC  | PACE | GCM  | LTC  | House Call | Case Presentation | Home Hospice | Environmental Geriatric Online | Elder Abuse Online | Lit  | Overall |
|---------------------|------|------|------|------|------------|-------------------|--------------|--------------------------------|--------------------|------|---------|
| Mean score out of 5 | 4.68 | 4.43 | 4.53 | 4.64 | 4.73       | 4.78              | 4.39         | 4.2                            | 3.7                | 4.39 | 4.76    |

Abbreviations: TCC, transitional care clinic; PACE, visit to a Program of All-Inclusive Care of the Elderly (PACE) site; GCM, day with a Geriatric Care Management Company, both in the office and on home visits; LTC, day at a site that provides long-term care service, including subacute rehabilitation, independent living, assisted living, geriatric care management services, day care, night care, elder mistreatment shelter services; house call, house calls with the geriatrics faculty/staff; case presentation (eg, residents present the case of one of their patients at geriatric team meeting); home hospice, house calls with hospice nurse (elder abuse online ratings were low and this was discontinued); Lit, literature packet provided as a zip file to the resident.

<sup>a</sup> At the end of their systems-based practice week, residents were asked to rate the individual components of the week on their education value on a scale from 1 (poor) to 5 (excellent).

consists of a written case the resident is asked to analyze; the resident's case presentation of a patient whom the resident evaluated during the week; and the answers to 2 questions integrating SBP topics.

A written examination testing knowledge of services and programs available to older adults was administered in June 2012 to IM residents of all levels, independent of the geriatrics rotation. It asked residents about their interest in geriatrics and whether those exposed to the SBP-OM had applied what they had learned. This was scored and analyzed with standard statistical methods using SPSS version 19 (IBM Corp).

The American College of Physicians administers an In-Training Examination (ITE) each fall. We tabulated average ITE percentile for overall and geriatrics content for 2010–2013, the years for which the residency program had summary statistics.

Approval to analyze data for study purposes was obtained from the Weill Cornell Medical College Institutional Review Board.

## Results

### Residents' Evaluation of the SBP-OM

In 2011–2012, 49 residents rotated through geriatrics, and 47 residents took the examination and completed the evaluation. The mean scores for the evaluation of the SBP-OM are shown in TABLE 2. All components except the online elder abuse self-study achieved scores of greater than 4 out of 5. The self-study discontinued halfway through the year, and residents learned about elder abuse through their long-term care experience. A modification for the 2012–2013 year included an experience at a community-based agency to give residents more exposure to healthy, community-dwelling older individuals.

The mean overall score was 4.76. The 2 highest-rated experiences were the case presentation at team meeting (4.78) and the geriatric home visits (4.73), with 1 resident commenting on the positive experience:

Overall, [I] very much appreciated seeing the aspects of care for geriatrics (or really any) patients such as care in a nonhospital setting, rehab and nursing facilities, and private care management, which we typically only see in acutely ill hospitalized patients. Enjoyed the home visits as well, very enlightening.

### Evaluation of the Residents' Performance

In advance, residents were provided 10 possible questions they might be asked during the oral examination; 2 were randomly chosen at the time of the examination. Topics included the following: (1) hospice: what it is, its levels of

| TABLE 3      COMPARATIVE IN-TRAINING EXAMINATION PERFORMANCE BY YEAR <sup>a</sup> |                  |                  |                  |                  |
|-----------------------------------------------------------------------------------|------------------|------------------|------------------|------------------|
| Class                                                                             | Mean Scores 2010 | Mean Scores 2011 | Mean Scores 2012 | Mean Scores 2013 |
| PGY-2 geriatrics                                                                  | 41               | 82               | 89               | 76               |
| PGY-2 overall                                                                     | 53               | 84               | 79               | 87               |
| PGY-3 geriatrics                                                                  | 47               | 63               | 76               | 43               |
| PGY-3 overall                                                                     | 44               | 49               | 62               | 69               |
| Program geriatrics                                                                | 53               | 75               | 87               | 67               |
| Program overall                                                                   | 61               | 75               | 81               | 82               |

Abbreviation: PGY, postgraduate year.  
<sup>a</sup> Percentile ranking compared to the national group of peer test takers. The geriatrics scores were provided as part of a subspecialty breakdown of the total examination. A PGY-2 class taking an examination in 2010 would be the PGY-3 class taking the examination in 2011.

care, and eligibility; (2) pharmacologic and nonpharmacologic (including hospice) care for someone actively dying at home; (3) what Program of All-Inclusive Care of the Elderly (PACE) is, how it works, and how it is funded; (4) differences and similarities between PACE and private geriatric care management services; (5) programs that enable the patient to remain at home and how they are accessed; (6) senior housing options and how they are paid for; (7) specific services a homebound patient can receive at home and how they are paid for; (8) how different programs manage care transitions; (9) benefits and barriers of doing house calls; and (10) environmental problems faced by older patients and how the home can be modified. All residents passed their oral examination.

Evaluation of SBP Knowledge

A written questionnaire, based on the assigned readings, was administered in June 2012 to residents from all 3 years (the complete questionnaire is available from the authors). At the time, the PGY-2 residents were the only residents who had been exposed to the SBP-OM. The PGY-3 and PGY-1 residents who had not participated in the intervention were used as comparison groups. Responses from incoming interns (starting June 2012) were used to determine baseline knowledge of geriatrics before residency. There were a few statistically significant differences among the 4 classes, but none reflected a training effect.

Self-Assessment About Geriatrics

Residents were asked to rate interest in geriatrics before and after participating in the SBP-OM. Only 1 reported lower interest, and 13 (56%) reported an improved interest ( $Z = -2.952$ ;  $P = .003$ ; Wilcoxon signed rank test). Residents also were asked if they had applied what they had learned about systems of care clinically outside the geriatrics rotation. Of 23 PGY-2 residents who answered, 18 (78%) said yes; 22 of 25 PGY-2 residents (88%)

reported they learned from other residents or taught other residents about their own geriatrics experiences. The third set of questions asked if the SBP-OM had a lasting impact. More than 90% (21 of 23) of participating residents reported the module left a lasting impression on how they care for their patients, and nearly 95% (22 of 23) reported their knowledge of geriatrics was enhanced.

Standardized Measure of Geriatrics Knowledge

We examined the aggregate ITE scores (by percentile) for the PGY-2 and PGY-3 classes during the past 3 years to assess whether there was an impact on geriatrics knowledge. These scores are presented in TABLE 3. The PGY-2 residents in 2010, before the initiation of the new rotation, scored in the 41st percentile in geriatrics and the 53rd percentile overall. In 2011 (approximately halfway through the first year of the new rotation), the same cohort scored in the 63rd percentile in geriatrics (49th percentile overall). The PGY-2 residents in 2011 scored in the 82nd percentile in geriatrics in 2011 (84th percentile overall), and as PGY-3 residents in 2012 they scored in the 76th percentile in geriatrics (62nd percentile overall). Current PGY-2 residents scored in the 89th percentile in geriatrics and 79th percentile overall in 2012. The improvement was not sustained in 2013, where PGY-3 performance dropped markedly in geriatrics, although not to prerotation levels.

Discussion

A geriatrics rotation must do many things, including conveying to residents that older patients are different and demonstrating the impact of these differences on diagnostic and management approaches. It also must teach teamwork, counseling, and assessment skills, and show that outside the hospital there is a world that may determine their patients' health, happiness, and survival. No examination can test all of these aspects. Our attempts to measure impact of our

new geriatrics rotation evaluated some components, but by no means all.

Residents often have difficulty conceptualizing SBP; we designed the rotation to provide exposure not only to clinical geriatrics but also to its psychosocial components, identifying SBP in a concrete way by offering the resident an opportunity to witness and provide care outside of the hospital. Three Milestones created for the Next Accreditation System—involving interprofessional care, cost-effective care, and transitions—also map well onto the SBP-OM.<sup>14</sup>

### Feasibility

Faculty time to develop the curriculum, including visiting the out-of-hospital sites, was approximately 0.5 full-time equivalent once a week. Coordinating schedules and managing the evaluations require 5% effort with additional concentrated effort (another 20 hours) at the end of the year for program assessment and improvement. The outside agencies received no reimbursement; they valued the relationship and the potential for patient referrals.

Our 4-week mandatory geriatrics rotation for PGY-2 residents has had a positive impact by a variety of measures. The SBP-OM was highly rated; residents were able to answer questions in an oral examination based on its content, and reported that their experience enhanced their awareness of geriatrics and left a lasting impression on how they would care for older patients.

Our intervention has limitations. It was implemented at a single institution, and the results may not generalize. To capture knowledge about clinical geriatrics, we used ITE scores, and improvements may also have been due to changes in rotation structure or a cohort effect.

The results of the 2012 written SBP test of knowledge, however, failed to support the SBP-OM effectiveness. This failure may be due to a variety of possibilities, alone or in combination. Although based on the SBP-OM, the test may have failed to capture what residents actually learn. Mediocre test performance may have reflected resident priorities; they may appreciate the acquaintance with programs and services but remain uninterested in the specific details that other professionals, such as social workers, know. We have eliminated testing of specific knowledge and instead plan to focus more on objective measures of behavioral change and translation into entrustable professional activities.

Overall, results suggest that the addition of the SBP-OM was a positive complement to our geriatric curriculum, even though the results of the 2012 written

SBP test of knowledge failed to support the SBP-OM effectiveness.

### Conclusion

We implemented a successful rotation that combines acute care of geriatric patients with an outpatient SBP module. It was well received by learners and coincided with an increase in ITE scores in geriatrics. Residents reported the SBP-OM had a lasting impression, with a trend toward higher levels of interest in geriatrics. Their written evaluations confirm that they greatly value opportunities to visit programs and places where they have transitioned patients and to see older individuals outside the hospital.

### References

- 1 Accreditation Council for Graduate Medical Education. ACGME Program Requirements for Graduate Medical Education in Internal Medicine. 2012. [http://www.acgme.org/acgmeweb/Portals/o/PFAssets/2013-PR-FAQ-PIF/140\\_internal\\_medicine\\_07012013.pdf](http://www.acgme.org/acgmeweb/Portals/o/PFAssets/2013-PR-FAQ-PIF/140_internal_medicine_07012013.pdf). Accessed August 6, 2013.
- 2 Leipzig RM, Granville L, Simpson D, Anderson MB, Sauvigné K, Soriano RP. Keeping granny safe on July 1: a consensus on minimum geriatrics competencies for graduating medical students. *Acad Med*. 2009;84(5):604–610.
- 3 Williams BC, Fitzgerald JT. Brief report: brief instrument to assess geriatrics knowledge of surgical and medical subspecialty house officers. *J Gen Intern Med*. 2006;21(5):490–493.
- 4 Reuben DB, Lee M, Davis JW Jr, Eslami MS, Osterweil DG, Melchione S, et al. Development and validation of a geriatrics attitudes scale for primary care residents. *J Am Geriatr Soc*. 1998;46(11):1425–1430.
- 5 Maxwell AJ, Sullivan N. Attitudes toward the geriatric patient among family practice residents. *J Am Geriatr Soc*. 1980;28(8):341–345.
- 6 Polizzi KG. Assessing attitudes toward the elderly: Polizzi's refined version of the Aging Semantic Differential Educational. *Gerontology*. 2003;29(3):197–216.
- 7 Stewart TJ, Roberts E, Eleazer P, Boland R, Wieland D. Reliability and validity issues for two common measures of medical students' attitudes toward older adults. *Educ Gerontol*. 2006;32(6):409–421.
- 8 Ahmed NN, Farnie M, Dyer CB. The effect of geriatric and palliative medicine education on the knowledge and attitudes of internal medicine residents. *J Am Geriatr Soc*. 2011;59(1):143–147.
- 9 Varkey P, Karlapudi S, Rose S, Nelson R, Warner M. A systems approach for implementing practice-based learning and improvement and systems-based practice in graduate medical education. *Acad Med*. 2009;84(3):335–339.
- 10 Johnson JK, Miller SH, Horowitz SD. Systems-based practice: improving the safety and quality of patient care by recognizing and improving the systems in which we work. In: Henriksen K, Battles JB, Keyes MA, Grady ML, eds. *Advances in Patient Safety: New Directions and Alternative Approaches*. Rockville, MD: Agency for Healthcare Research and Quality; 2010:321–330.
- 11 Clark PG. Service-learning education in community-academic partnerships: implications for interdisciplinary geriatric training in the health professions. *Educ Gerontol*. 1999;25(7):641–660.
- 12 Atkinson HH, Lambros A, Davis BR, Lawlor JS, Lovato J, Sink KM, et al. Teaching medical student geriatrics competencies in 1 week: an efficient model to teach and document selected competencies using clinical and community resources. *J Am Geriatr Soc*. 2013;61(7):1182–1187.
- 13 Siegler EL, Capello CF. Creating a teaching geriatric service: ten important lessons. *J Am Geriatr Soc*. 2005;53(2):327–330.
- 14 Accreditation Council for Graduate Medical Education and American Board of Internal Medicine. The Internal Medicine Milestone Project. 2012. <https://www.acgme.org/acgmeweb/Portals/o/PDFs/Milestones/InternalMedicineMilestones.pdf>. Accessed July 15, 2014.