# Elderly Surgical Patients: Are There Gaps in Residency Education?

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**BACKGROUND:** Geriatric education is essential to ensure the competency of residents caring for the aging population. This study assesses and correlates resident and faculty perceptions of resident geriatric-related competencies to clinical care.

**METHODS:** A survey was sent to 40 general surgery residents and 57 faculty members. Five clinical care markers were identified for chart audit. A retrospective chart audit was performed of 22 injured elderly patients.

**RESULTS:** Among the respondents, 30 of 40 (75%) residents and 22 of 57 (39%) faculty completed the survey. Residents rated their competency higher than faculty on all competency-related questions ($p = 0.0002$). The following 4 questions had a mean faculty rating below acceptable: screening guidelines, delirium management, contraindicated medications, and medication adjustments. On chart review: code status was documented in 7 of 22 (32%) patients and goals of care in 1 of 22 (5%) patients. Pain control included rib block or epidural in 14 of 22 (64%) patients. Contraindicated medications were prescribed in 13 of 22 (59%) patients.

**CONCLUSION:** A competency-based needs assessment of geriatric training in a general surgery residency has identified educational "gaps." This needs assessment supports implementation of geriatric education initiatives in our general surgery program. (J Surg 71:825-828. ©2014 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

**KEY WORDS:** geriatrics, curriculum, needs assessment, residency

**COMPETENCIES:** Patient Care, Medical Knowledge, Practice-Based Learning and Improvement

## INTRODUCTION

The geriatric demographic is the fastest growing age group in the country. Current estimates from the 2010 U.S. census reveal that the population of individuals of 65 years and older will increase by more than 50% by 2025, whereas those older than 85 years will double in number by 2035.[1] Additionally, health care expenditures by patients older than 65 years accounted for more than one-third of all health care spending in 2004.[2] Among surgical procedures performed annually, more than 40% are for geriatric patients.[3]

Despite the increasing need for geriatric-specific care, physicians in general have not demonstrated adequate competency in geriatric medicine. Even with a recent emphasis on competency within geriatrics among medical students and postgraduate training programs, most medical schools and residency programs lack adequate curricula to effectively teach basic geriatric principles.[4] Only 30% of residents report having had formal geriatric-specific training and only 6.1% of these residents reported this training to have occurred during residency.[5] Additionally, the current educational environment of restricted duty hours and competing educational demands creates an educational gap in geriatrics that may be unfilled.

Several efforts have been documented to increase surgical residents' exposure to a geriatrics-based curriculum. In 2007, Klaristenfeld et al[6] published their experience with the successful integration of palliative care into a general surgery residency curriculum. In 2008, Webb and Duthie[7] developed a longitudinal geriatrics curriculum for general surgery residents based on the Association of Program Directors in Surgery geriatric-related objectives with the intention of increasing exposure to the principles of care for elderly surgical patients. However, in 2011, Duane et al[5] documented the implementation of an interventional trial that assessed residents' knowledge of polypharmacy, delirium, and end-of-life care and found poor results even after exposure to an educational intervention.

Such documented reports in the literature illustrate the interest and potential benefit of teaching geriatric principles within residency programs; however, none of these previous articles have clearly delineated which geriatric principles in such

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a vast topic need to be addressed. Our needs assessment was performed with the intention of identifying which topics related to geriatric care should be focused on to improve the quality of geriatric training within a general surgery residency program.

## METHODS

This project was performed with a local institutional review board approval. The participants included faculty and residents from the Department of Surgery at an urban academic medical center. A 3-part needs assessment to evaluate the state of geriatric care and training in our general surgery residency program with relevance to national expectations was implemented. A multimodal approach was chosen to improve the validity of our final results by triangulating the 3 separate areas of needs assessment.

The needs assessment began with a search for recommendations regarding geriatric training goals and objectives from national surgical organizations. This review included an analysis of the recommendations provided by the Association of Program Directors in Surgery curriculum, the American Board of Surgery (ABS), and the Surgical Council on Residency Education curriculum. ABS expectations were further verified by analyzing the local program's ABS In-Training Exam results to identify questions related to geriatric care principles. Four independent reviewers including 1 medical student, 1 general surgery resident, 1 surgical attending physician, and 1 geriatric medicine attending physician performed the analysis of the American Board of Surgery Inservice Exam topic results. Results from the independent analyses were collated and common themes identified.

The second stage of the needs assessment included an assessment of the perceived adequacy of the current geriatric care training in our program. This assessment was performed using a survey of general surgery faculty and residents within the institution. The survey was designed and developed after the initial literature review to address the major areas of focus identified by the national standards review. The survey consisted of 24 Likert-scaled questions, with 16 questions directly connected to Accreditation Council for Graduate Medical Education core competencies. The Likert scale included the following 5 points: 1 = unacceptable, 2 = marginal, 3 = acceptable, 4 = good, and 5 = excellent. An additional question allowed free-text comments to identify specific areas of perceived need.

The third stage of the needs assessment incorporated an evaluation of clinical outcomes. A chart audit was performed to identify patterns of geriatric care on the Trauma Surgery service. The Trauma service was chosen because the service has specific geriatric patient guidelines based on published data, locally agreed upon and available for resident review. The primary clinical markers are listed included documentation of goals of care or code status, identification of delirium, appropriate pain management based on our institutional policy, and appropriate medication management per hospital policy. Inclusion criteria included age $>65$ years, admission to the surgical intensive care unit under the management of the Trauma Surgery service, and at least 3 rib fractures. These criteria were selected to ensure the need for pain management and adequate patient acuity to initiate goals of care discussions. The clinical care markers were chosen based on their inclusion in the initial review of national curriculum recommendations, the survey results, and their incorporation in the Trauma Service guidelines for the management of the injured geriatric patient. These clinical markers were likewise felt to highlight specific issues related to and strongly impacting the care and outcomes of injured geriatric patients.

## RESULTS

The review of national standards revealed several common themes (Table 1). The proper use of medications was particularly emphasized, representing 3 of the 13 identified themes. The use of anticoagulation and benzodiazepine medications was specifically noted during the review. Four themes were identified on review of each organization's recommendations, including medication management, perioperative risk assessment, and nutrition requirements. In total, 13 themes were identified with 9 of 13 (69%) themes noted by at least 2 of the 3 organizations.

The competency assessment surveys were administered in electronic format to 52 faculty and 40 general surgery residents. The resident response rate was higher, 30 of 40 (75%) residents compared with 22 of 57 (39%) faculty members. The residents rated themselves higher on the competency scale than the faculty on each of the questions, although no statistical difference for an individual question was found. However, there was a significant difference in cumulative competency rating scores on rank sum analysis ($p = 0.002$).

**TABLE 1.** Themes Identified on National Organization Review

| Topic | ABSITE | SCORE | APDS |
|---|---|---|---|
| Medication | | X | X |
| Medications: anticoagulation | X | X | X |
| Medications: benzodiazepine | X | X | X |
| Perioperative risks | X | X | X |
| Cardiovascular disease | X | | |
| Measurements of metabolic rate | X | | |
| Nutrition and caloric requirements | X | X | X |
| Pulmonary disease in the elderly | X | | |
| Delirium | | X | X |
| Advance directives | | X | X |
| Palliative care | | X | X |
| Physiology of aging | | X | X |
| Wounds | X | | |

ABSITE, American Board of Surgery Inservice Exam; SCORE, Surgical Council on Resident Education; APDS, Association of Program Directors in Surgery.