ORIGINAL ARTICLES

A National Survey on the Current Status of General Internal Medicine Residency Education in Geriatric Medicine

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OBJECTIVES: The dramatic increase in the U.S. elderly population expected over the coming decades will place a heavy strain on the current health care system. General internal medicine (GIM) residents need to be prepared to take care of this population. In this study, we document the current and future trends in geriatric education in GIM residency programs.

DESIGN, SETTING, PARTICIPANTS: An original survey was mailed to all the GIM residency directors in the United States ($N = 390$).

RESULTS: A 53% response rate was achieved ($n = 206$). Ninety-three percent of GIM residencies had a required geriatrics curriculum. Seventy one percent of the programs required 13 to 36 half days of geriatric medicine clinical training during the 3-year residency, and 29% required 12 half days or less of clinical training. Nursing homes, outpatient geriatric assessment centers, and nongeriatric ambulatory settings were the predominant training sites for geriatrics in GIM. Training was most often offered in a block format. The average number of physician faculty available to teach geriatrics was 6.4 per program (2.8 full-time equivalents). Conflicting time demands with other curricula was ranked as the most significant barrier to geriatric education.

CONCLUSIONS: A required geriatric medicine curriculum is now included in most GIM residency programs. Variability in the amount of time devoted to geriatrics exists across GIM residencies. Residents in some programs spend very little time in specific, required geriatric medicine clinical experiences. The results of this survey can guide the development of future curricular content and structure. Emphasizing geriatrics in GIM residencies helps ensure that these residents are equipped to care for the expanding aging population.

KEY WORDS: geriatric medicine education; general internal medicine; graduate medical education.

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Our nation faces a potential crisis in physician expertise to care for our aging population. By 2030, 20% (70 million) of the U.S. population will be older than 65 years, up from 12.4% in 2000.¹ Those over 85 are expected to increase 220% in the 40 years from 2010 (5.7 million) to 2050 (18.2 million).² Although Americans are living longer, they also bear the burden of increased chronic diseases such as arthritis, atherosclerotic vascular disease, cancer, hearing and visual loss, and dementia. These illnesses may impair function and require ongoing expert management for optimal outcomes.³ Consequently, the elderly tend to utilize the health care system more than younger populations. For example, in 1999 people living in the United States age 65 and over averaged more contacts per person with doctors in all settings (6.8 contacts) than did persons of all ages (3.5 contacts).¹

Thirty-nine percent of general internists' practices in 1999 comprised ambulatory visits from adults age 65 and over.⁴ However, fewer than 10,000 of the 120,000 practicing general internists and family physicians in the United States have earned a certification of added qualifications (CAQ) in geriatric medicine.⁵ All general internists with and without geriatric certification will be needed to meet the future care needs of older patients.

Today's general internal medicine (GIM) residents will need focused training that imparts the attitudes, knowledge, and skills required to provide superior geriatric care. Reports that have documented the status of geriatrics training in GIM are either outdated or they have concentrated on only 1 aspect of geriatric education.^{6,7} This study addresses this gap by reporting the results of a comprehensive survey of current efforts and trends in geriatric education for GIM residencies.

METHODS

Study Participants

In March 2002, a survey was mailed to 390 GIM residency directors of each U.S. GIM categorical, combined,

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and primary care program included in the Association of Program Directors in Internal Medicine list of the Accreditation Council for Graduate Medical Education allopathic residency programs in general internal medicine.⁸

Survey Instrument

The survey instrument was developed on the basis of input from members of the Society of General Internal Medicine (SGIM) who have expertise in geriatrics. It was pretested by 5 directors of internal medicine residency programs. The self-administered survey was divided into 8 parts: general program information, required geriatric medicine experiences for primary care track residents, required geriatric medicine experiences for categorical/combined program residents, other geriatric medicine experiences, faculty resources, barriers to curriculum development and implementation, and assessment of overall GIM residency curriculum priorities. For most items, respondents were asked to use either a yes/no or 5-point Likert response scale. There was 1 open-ended request for best practices. Instructions to the residency directors defined geriatric experience "as a curriculum specifically structured to teach geriatric care principles and not simply a setting in which some older persons are seen."

Procedure

The survey was endorsed by the SGIM and a cover letter acknowledging this support was mailed along with the survey. On the same date, the survey was made available also on the Internet, housed on a secure server to prevent unauthorized access. GIM residency directors were requested to complete and return the mailed survey or to complete the on-line survey. For on-line access, residency directors (RDs) were provided a unique password. A reminder e-mail was sent to all nonresponding RDs 1 week after the first mailing, and again at 2 weeks. At 3 weeks, nonresponders were sent a postcard with a second copy of the survey. A final e-mail request for survey completion was sent to those still not responding 4 weeks after the initial mailing.

Statistical Methods

Data were described using the mean or median as measures of central tendency and standard deviations or interquartile range as measures of spread. Associations between variables were tested using Spearman's Rank correlation coefficient, ρ . Differences in proportions were tested using chi-square tests (χ^2), and differences in ranked or continuous data were tested using the Mann-Whitney U test. The acceptable Type I error rate was set at 5%. Analyses were performed using SPSS for Windows v10.1 (SPSS Inc., Chicago, Ill) and the SAS System Version 8e (SAS Institute Inc., Cary, NC).

RESULTS

Characteristics of Responding Residency Programs

Of the 390 surveys, 206 were returned, for a response rate of 53%. The size ($U = 15,166.5$, $P = .240$) and regional geographic location ($\chi^2 = 6.634$, $P = .675$) of the responding programs were similar to those of the nonresponders. The median number of residents per program in categorical, primary care and combined training was 42.5 (interquartile range, 27–78). Forty-one (20%) responding programs offered a primary care track. Among those 41 programs, 32 programs reported that the geriatrics curriculum for primary care and categorical residents was identical, 8 programs offered more geriatrics training, and 1 program offered less geriatrics training for their primary care residents. Sixty-five (34%) responding programs sponsored geriatric medicine fellowship training and 43 (23%) programs offered GIM fellowship training.

Geriatric Medicine Curriculum

Of the 206 residency directors responding to the survey, 191 (93%) required geriatric medicine training for residents (106 of these 191 programs also offered elective geriatrics training), 9 (4%) had an elective geriatric training experience only, and 6 (3%) had neither a required nor an elective geriatric experience. Among all programs offering elective geriatrics training, 109 (95%) reported 6 or fewer residents participating per year.

Seventy-five (40%) programs required 25 to 36 half-days of geriatric medicine clinical training during the 3-year residency. Fifty-seven (31%) required 13 to 24 half days, and 55 (29%) required 12 half days or less of clinical training (Fig. 1). Similarly, 43 (23%) programs required 25 to 36 hours of instruction, and 53 (28%) programs reported 12 hours or less of instruction (Fig. 2). Not surprisingly, programs requiring more half days of clinical instruction tended to provide more didactic training ($\rho = 0.385$, $P < .001$).

FIGURE 1. Required time (half days) devoted to clinical instruction in geriatric medicine during 3-year general internal medicine residency.

FIGURE 2. Required time (hours) devoted to didactic instruction in geriatric medicine during a 3-year general internal medicine residency.

General internal medicine programs depended on nursing home (67%), outpatient geriatric assessment centers (62%), as well as geriatric preceptors in non-geriatric ambulatory settings (53%) for training experiences. However, training also occurred at a variety of other sites including hospices (49%), hospital-based skilled nursing facilities (38%), home care (44%), and inpatient consultation (42%; Table 1). Except for the experience of geriatric preceptors in nongeriatric ambulatory settings, all experiences were most frequently offered in a block format (Table 1).

Faculty Resources

The mean number of faculty dedicated to teaching geriatric medicine in GIM is 2.8 full-time equivalents (range, 0–20). These include internists (74%), family physicians (5%), and other health care professionals (21%). There is a mean of 4.2 individual physician faculty (range, 0–39) who had obtained a CAQ in geriatrics per program and an additional 2.2 individual physician faculty

(range, 0–40) having an interest in geriatrics. This indicates that on average, there are 6.4 available physician faculty to teach geriatrics per program. In 28 programs (14%) none of the faculty had a CAQ. Of those who had obtained a CAQ, 51% had received it through the practice pathway; the remaining 49% received it after completing a geriatric fellowship. Most programs ($n = 177$, 88%) use a multidisciplinary approach (i.e., a team of physicians and other nonphysician health care workers such as nurses, social workers, physical therapists, and/or pharmacists) to teach geriatrics. One-half of the programs ($n = 104$) include nonphysician geriatric specialists as teaching faculty with the residents.

Trends

During the past 3 years, required lecture and seminar time dedicated to geriatric medicine were reported to have remained stable in 123 (60%) programs, to have increased in 68 (33%) programs, and to have declined in only 9 (4%) programs (3% of programs did not require geriatric lectures or seminars). When asked to project whether the geriatric education curriculum time (clinical or didactic) would change over the next 3 years (July 2002–June 2005), directors anticipated either a substantial (7.8%) or modest (45.6%) increase, or no change (44.6%) or a decrease (2%).

Barriers to Implementing a Geriatrics Curriculum

When asked to rate potential barriers to implementing a geriatric medicine curricula, conflicting time demands with other curricula was most frequently cited (46%) by residency directors, followed by faculty time at 41% (Fig. 3).

Residency directors also were asked to rate the importance of 7 areas of residency curricula using a 5-point Likert scale from 1 (not at all important) to 5 (extremely important). Ninety percent of directors rated intensive care unit/coronary care unit a 4 or greater, 85% rated both geriatrics and palliative care training 4 or

Table 1. Required Geriatric Experiences in General Internal Medicine Residency Programs, July 2001–June 2002 ($N = 190$)

	Programs Requiring Experience, %	Block Experience*, %	Longitudinal Experience*, %
Geriatric inpatient consultation team	41.6	92.4	19.0
ACE unit or other geriatric inpatient unit	35.3	88.1	13.4
Hospital-based SNF	37.9	84.7	12.5
Outpatient geriatric assessment center	61.6	93.2	6.0
Geriatric preceptors in ambulatory setting (non-geriatric clinical)	53.2	41.6	59.4
Nursing home	66.7	83.3	12.7
Assisted living	22.6	81.4	16.3
Home care [†]	43.9	74.7	19.3
Hospice care [†]	49.2	69.9	24.7
Senior centers [†]	20.0	81.6	10.5

* Due to missing data, block and longitudinal formats may not add up to 100%. However, since some programs may offer the required experience in both the block and longitudinal format, some percentages may total greater than 100%.

[†] One less response.

ACE, all-inclusive care for the elderly; SNF, skilled nursing facility.

FIGURE 3. Significant barriers to implementing a geriatric medicine curriculum as reported by general internal medicine program directors. Program directors were asked to rate each item on a scale of 1 to 5, where 1 = never a barrier and 5 = always a barrier.

greater, and 81% rated women's health 4 or greater. Comparatively, only 65% rated community medicine, 23% occupational environmental medicine, and 17% rated genetics a 4 or greater.

Best Practices

Directors also were asked to describe the best aspects of their geriatrics curriculum. Results show that program directors are most enthusiastic about their faculty, as well as the outpatient and geriatric community-based experiences their residents receive.

DISCUSSION

Curriculum

Fourteen years have passed since the last comprehensive survey of geriatric medicine education in GIM residency programs. In 1988, Reuben et al. found that 36% of GIM programs had a geriatrics curriculum.⁶ Our survey found that this number had increased to 93%. One potential catalyst for this increase was that the Internal Medicine Residency Review Committee (RRC) began requiring geriatrics content in GIM residency programs in October of 1989, although full implementation was not mandatory until 1995. The RRC requirements state that: 1) residents must have formal instruction and regular, supervised clinical experience in geriatric medicine; 2) the written curriculum must include experiences in the care of a broad range of elderly patients; and, 3) geriatric clinical experiences must be offered at 1 or more specifically designated geriatric inpatient units, geriatric consultation services, long-term care facilities, geriatric ambulatory clinics, and/or home care settings. In addition, facilities and resources must include geriatric patients, and residents should

receive instruction on end-of-life care, hospice and home care, and elder abuse.^{5,9}

Our study results suggest variability in geriatric education across GIM residencies. Residents in some programs spend very little time in specific, required geriatric medicine clinical experiences. Although curriculum time is not the only measure of quality, it may be that many GIM residents fail to obtain the skills necessary to successfully care for older adults simply because of having inadequate exposure to geriatrics clinical and didactic experiences.^{10–12} The fact that most programs are anticipating stable or increased geriatrics curricula over the next 3 years is encouraging.

Not surprisingly, GIM residency programs depend on nursing home facilities for their geriatrics training. Our survey identified 67% programs requiring nursing home facilities compared to 58% in Reuben's 1988 survey.⁶ A subsequent survey in 1992 found that 86% of family practice programs had required nursing home experiences.⁷ Although clearly using long-term care settings as teaching sites is necessary, it is of concern that some programs may regard the resident's sometimes limited nursing home experience as sufficient exposure to geriatric medicine. By exposing residents to a variety of sites and a range of older adults, they come to appreciate the diversity of these patients' functional problems and health care needs. Our results are encouraging in that many GIM programs report including home care training, hospice experiences and geriatrics training in the hospital.

In the surveys by Reuben et al. and Counsell et al., the most frequently cited major obstacle to implementing a geriatrics curriculum was lack of faculty.^{6,7} Our study suggests that rather than the issue of limited faculty, it is currently a crowded curriculum that is the most challenging obstacle preventing program directors from expanding geriatrics training. This complaint is not surprising, given the breadth of internal medicine training and the increase in RRC requirements. Program directors remain critical in determining the extent of geriatric medicine training for GIM residents. It does seem that longitudinal geriatric medicine experiences remain under-utilized in GIM training programs.

Faculty

It appears that the number of physician faculty available to teach geriatric medicine in GIM programs has increased significantly over the past 13 years. Our results suggest an average of 6.4 individual geriatrics physician faculty available per GIM training program compared to a mean of 2.8 available physician faculty to teach geriatrics found in Reuben et al.'s 1988 study.⁶ Indeed, when asked to explain the best aspects of geriatric medicine in their residency program, directors most often mentioned the faculty. Comments such as "dedicated faculty," "geriatric physician's complete dedication in teaching residents about geriatrics and building their

interest in this specialty," and "the opportunity to work one to one with a mentoring physician who is board certified in geriatrics" were written often. Further research is needed to ask the residents what they see as the best aspects of their geriatrics training.

Multidisciplinary teams are central to good geriatric medicine practice, and 88% of GIM residencies are currently using this approach. The unique perspectives of other health disciplines can help residents learn about clinical solutions to their complex patients' problems and health care needs as well as expand the base of expert geriatric faculty in each program.¹³

Limitations

The potential biases inherent in survey research must be noted. Although surveys were sent to all the GIM residencies in the United States, only 53% responded. Therefore, a selection bias remains. Those directors not responding may be less invested in their geriatrics programs and could have reported weaker geriatrics curriculum experiences, while the responders may have had a vested interest and reported stronger curriculum experiences. However, given the fact that we found no differences in the number of residents or the regional geographic location between the responders and nonresponders, and because considerable curriculum variation existed among the responders, we believe our results are generalizable to GIM residency training.

Summary

This survey documents the substantial progress that GIM residency training has made over the past decade in developing geriatric medicine faculty and curriculum. The results suggest that considerable variability exists in geriatrics education across GIM residencies. Program directors can compare their own geriatric medicine program against these survey results to determine how their geriatrics program measures up to other residency programs. GIM residency training will always be faced with balancing many educational objectives, although most GIM program directors appear to recognize the importance of geriatric medicine to the future of primary care practice.

Although expanding the number of fellowship-trained geriatric educators remains an important task, many existing GIM faculty can generate excitement for the field. Programs should support increased geriatric training for physicians who desire to improve their clinical skills. Supporting this strategy, The John A. Hartford Foundation of New York City is funding the Society of General Internal Medicine to enhance geriatrics curricula in GIM residency programs by developing collaborative centers for research and education in the care of older adults. Ten center grants were awarded in December 2002. Each center will provide a model for the collaboration of GIM and geriatrics in developing generalist leaders to improve the care of older Americans.

The following key questions remained to be answered in order to further develop graduate medical education in geriatric medicine.¹⁴

1. What geriatric competencies are appropriate for GIM residents upon completion of training?
2. Can residents develop an understanding for the unique nature of care of older adults in different settings, the subtleties of how living and receiving care in these settings influence medical care and the patient's experience of health and illness, if they do not participate in care at some of these sites?
3. How can programs increase trainees' openness to learning from other health care professions?
4. How can programs influence trainees' attitudes toward providing care to older adults?
5. Are geriatricians needed to teach? Do generalists, subspecialists, and other health care professionals currently have the skills and desire to teach medicine residents about geriatrics?

General internists, by virtue of their long-term patient relationships and their skills in the comprehensive care of acute and chronic illness, are well suited to provide primary care to the older adult. By promoting excellence in geriatric medicine education, GIM can make a substantial contribution to the quality of medical care provided to older adults.

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