INTERNAL MEDICINE RESIDENCY REFORM: TASK FORCE REPORT

# Reforming Internal Medicine Residency Training

## A Report from the Society of General Internal Medicine's Task Force for Residency Reform

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The structure, process, and outcomes of internal medicine residency training have concerned the profession for over 20 years.[1–9] Over the last decade the initiative to move to outcomes-based education redefined the competencies physicians should obtain during training.[10,11] The core principle of outcomes-based education is the objective demonstration that a graduating trainee, whether from medical school or a residency, possesses the knowledge, skills, and attitudes necessary to progress to the next stage of his or her professional career.[12,13] The Accreditation Council for Graduate Medical Education (ACGME) and the Institute of Medicine (IOM) have defined core competencies for physicians shown in Table 1.[10,14] While both the ACGME and IOM provide a framework for the desired outcomes, medical educators bear the burden of designing the structures and processes to achieve them.[15]

Educators face several key challenges in redesigning residency programs. First, residency programs must prepare trainees for a variety of general internal medicine and subspecialty careers. Second, the settings and resources for residency training are highly heterogeneous. Third, an aging and increasingly diverse population, combined with rapidly expanding medical information and procedural technology, challenges all internists to acquire and maintain the knowledge, skills, attitudes, and performance necessary to provide high-quality care within their chosen discipline.[16,17] Finally, growing public dissatisfaction, substantial health care disparities, increased acuity but shorter lengths of stay for hospitalized patients, new work hour requirements, increasing medical student debt, and changing student demographics and lifestyle concerns further complicate residency reform.[18–25]

To provide recommendations for residency reform. The Society of General Internal Medicine (SGIM) convened a task force consisting of physicians representing a broad range of views within general medicine, expertise and experience in clinical education, and who represented internal medicine organizations outside of SGIM (Appendix 1). The task force focused on reform in 5 specific areas: ambulatory education, inpatient education, residency curriculum, health disparities, and life-long learning skills. To prepare this report, 4 subcommittees performed literature reviews that guided a prospective, systematic process to develop the final recommendations. The guiding principles, task force timeline, and the specific findings of the 4 subcommittees can be viewed at www.sgim.org. We acknowledge this report cannot cover all important aspects of residency training. The task force enthusiastically welcomes comments from other educators and internal medicine specialty organizations. Only through active collaboration and serious dialogue can we improve residency training.

## TRAINING IN THE AMBULATORY SETTING

Recognizing the need for greater emphasis in outpatient training is not new.[1,5,26–29] The outpatient setting is where patients now receive most of their acute, chronic disease, and preventive care. Hospitalized patients are often discharged before many conditions have been fully evaluated or treated. Ambulatory settings, particularly continuity clinic settings, provide the ideal location for training in several key IOM competencies: learning to provide care based on continuous healing relationships, patient-centered care based on patient needs and values with the patient as the source of control, learning and designing systems of care that anticipate patients' needs, and learning to work in teams that model cooperation among clinicians (and nonclinician team members), including collaboration, coordination, and exemplary communication.[14] Although they are the essence of General Internal Medicine, these competencies apply equally for all internists.[14,17]

Two different types of ambulatory training occur in internal medicine residency programs: continuity clinic, where residents care for a panel of patients over time, and concentrated ambulatory block rotations. The learning in continuity clinic is experiential and is often augmented by case-based teaching conferences before or after clinics.[30,31] The ambulatory block rotations provide a venue for developing competence in managing the transitions and coordination of care within internal medicine, and experience with nonmedicine specialty care such as office orthopedics, gynecology, urology, ophthalmology, dermatology, and otolaryngology. Teaching strategies used in ambulatory blocks include didactic seminars teaching the principles of ambulatory medicine, case-based teaching sessions, and experiential learning with patients in other specialty clinics such as rheumatology, adolescent medicine, geriatrics, and women's health.[32–34]

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**Table 1. Comparison of the IOM and ACGME Competencies**

| IOM Competencies | ACGME Competencies |
|---|---|
| Provide patient-centered care | Patient care, professionalism, interpersonal skills, and communication |
| Work in interdisciplinary teams | Professionalism, interpersonal skills and communication, systems-based practice |
| Utilize informatics | Patient care, practice-based learning and improvement, systems-based practice |
| Employ evidence-based medicine | Patient care, medical knowledge, practice-based learning and improvement |
| Apply quality improvement | Practice-based learning and improvement, systems-based practice |

*ACGME, Accreditation Council for Graduate Medical Education; IOM, Institute of Medicine.*

Research has shown that graduating residents feel uncomfortable in managing common chronic conditions such as diabetes in the ambulatory setting, suggesting that the quality of ambulatory education should be improved.[5,29,35,36] We identified several challenges to teaching and learning in ambulatory settings. First, there is often inadequate infrastructure to allow residents to provide high-quality, longitudinal care for complicated patients.[37–39] Residency clinics frequently lack the team structures needed to provide patient care when the primary resident is unavailable.[40–42] Also lacking are systems to monitor the quality of care provided to the residents' patients. The current approach to training in continuity care attenuates residents' growth toward independent practice and their ability to work in teams.[43–46]

Second, the residency clinics of academic medical centers typically attract a patient population with a disproportionate share of complex medical and psychosocial issues. The patient with multiple serious medical problems complicated by poverty, illiteracy, and substance abuse may overwhelm the clinical abilities of an internist in training, particularly in the absence of multidisciplinary resources. This is particularly true for interns. Too often they are assigned to care for a graduating senior's patient panel, containing patients whose conditions may be too complex for a novice to manage properly while they are learning the fundamentals of outpatient medicine.

Third, it is difficult for residents to develop expertise in continuity of care because they spend an insufficient amount of time in the outpatient arena. In most residency programs, residents attend their continuity clinic for only one half-day per week. Continuity clinic sessions are frequently cancelled when the resident is assigned to intensive care and night float rotations, limiting total continuity clinic exposure during training. To highlight the point, graduating residents starting a new outpatient practice will spend more time in the ambulatory setting in their first 3 months of practice than they do during an entire 3-year residency.

Finally, the quality and quantity of learning in ambulatory block rotations can be variable. Residents are often relegated to the role of observers during brief assignments in nonmedicine clinics, where programs rely on noninternal medicine specialists to donate teaching time. Residency programs also tend to use residents assigned to ambulatory block rotations as a workforce reservoir when unexpected vacancies on hospital services (e.g., the assigned resident is sick) require coverage. Vacations are frequently assigned during these rotations. Both factors contribute to a lack of consolidation of important skills. We found little information about ambulatory training during specialty consult rotations, that may be an important untapped resource for ambulatory skill development.

## TRAINING IN THE INPATIENT SETTING

The inpatient setting is essential for educating residents about the care of acutely and critically ill patients. The hospital inpatient service has been the predominant setting of internal medicine education for over 100 years.[47] It is not surprising, therefore, that graduates of internal medicine residency programs report feeling most prepared to care for the acutely ill hospitalized patient.[29] Multiple changes in the health care system are significantly affecting the inpatient training experience.

First, hospitalized patients are sicker yet spend increasingly shorter periods of time in the hospital.[19,48] Residents have little time to establish a healing relationship with their patients and only infrequently learn about patient outcomes such as final diagnoses, symptom resolution, functional status, and satisfaction with care after discharge.[49–52] Even more problematic is the observation that much of residents' time is spent in nonclinical or noneducational tasks.[53,54] Second, although the traditional physician-centric teaching model (attending, resident, intern, and student teams) predominates, the care model of hospitalized patients is now interdisciplinary with patients receiving care from teams consisting of physicians, nurses, dieticians, case managers, and others.[46,55,56]

Third, new work hour rules, while appropriate given the large body of evidence of the pernicious effects of fatigue, have greatly challenged the ability of residency programs to meet expected service needs.[57–64] Programs have coped with the need to provide continuous patient coverage (in most teaching hospitals the residents are the only internists in house overnight) in the setting of work hours restrictions by instituting night and/or day float services. The handoffs necessitated by these float services may be associated with higher rates of preventable adverse events.[65,66] Other solutions include the hiring of hospitalists and physician extenders.[67–70] We know little about the effects of these changes on patient care and resident education,[70–72] although early reports regarding teaching by hospitalists are encouraging.[68–71,73,74] Finally, recent research on medical errors suggests that there is a need for new approaches to supervision, evaluation, and teaching in the inpatient setting. Studies have documented substantial rates of clinical errors, many of which have immediate implications for patient care, committed by trainees in teaching hospitals for over 30 years.[75–84] Data have shown that resident findings and presentations are often at odds with the findings of more experienced attendings.[85,86] A recent systematic review suggested that better supervision was associated with better quality of care.[86] Despite this knowledge, the type and quality of supervision and evaluation by faculty has changed little. Research has shown that learners value direct observation, bedside teaching, and role modeling of clinical skills by faculty.[87–93] These activities are also well received by patients.

## THE RESIDENCY CURRICULUM

The Federated Council on Internal Medicine curriculum helped to define the breadth of internal medicine,[94] but the curriculum has not achieved widespread adoption and programs may not be able to provide enough experiences to cover it.[95] Furthermore, as the body of biomedical knowledge expands, curricula will need to adapt. Internal Medicine needs to more clearly define the *core* content of the knowledge, skills, and attitudes that is required for all internists, regardless of their eventual career tracks. Programs must then identify how best to teach this content in the context of their institutional setting. Surprisingly little study has been performed on what aspects of the inpatient experience are most important for implementation of a successful residency curriculum and optimal patient care.[72] Finally, Internal Medicine must define the level of competency expected for each content area. It may no longer be feasible for residents to acquire "mastery" in all aspects of internal medicine, if indeed that ever was achieved.[96–99]

## TRAINING TO REDUCE HEALTH DISPARITIES

The 2000 census confirms the increasing ethnic diversity of inhabitants living in the United States, and ethnic minorities lag behind white Americans on nearly every health care indicator.[18] Residency programs care for a large proportion of patients from socioeconomically disadvantaged populations. Academic Health Centers (AHC) have assumed increasing responsibility for care of the underserved—between 1991 and 1996, AHC expenditures on uninsured patients rose 40%, and at a cost of nearly 4 billion dollars in 1999.[7] Given that one of the core reasons for public funding of graduate medical education (GME) is the social contract between residency programs and the care of underserved patients, a core tenet of patient-centered training should be to educate residents on how to address health disparities in order to reduce or eliminate these gaps.[47,100] All internists, regardless of their ultimate specialty, will encounter health disparities throughout their careers. In addition, lessons learned in addressing health disparities, such as skills from the social sciences, apply across all patient groups.[100–104]

Unfortunately, little data exist regarding the evaluation of curriculum in cultural competency and health disparities.[103,104] A recent systematic review concluded that educational interventions in cultural competence do produce changes in learner knowledge and perhaps some skills, but no study has examined important patient outcomes.[104] Some critics argue that training solely focused on cultural competency training may actually have a deleterious impact on patient care.[105] However, training in health disparities and the specific social science domains of physician roles and behavior, social and cultural issues in health care, and health policy and economics should be incorporated in residency training and involve actual patient care.[100] Compounding the problem is the insufficient number of minority faculty and medical students at academic medical centers and residency programs.[106]

## TRAINING FOR LIFE-LONG LEARNING

With the rapid production of new medical information, few would challenge Osler's assertion that medical education is "a life course, for which the work of a few years under teachers is but a preparation." Yet many physicians fail to meet their emerging information needs,[107] witness their up-to-date medical knowledge deteriorate over the years after their training,[108] and, ultimately, demonstrate wide practice variations for procedures with established efficacy.[109]

Self-directed learning (SDL) represents any study form in which individuals have primary responsibility for planning, implementing, and evaluating the effort.[110] Self-directed learners perform a sequence of tasks, including recognizing intrinsic information needs, seeking appropriate information, appraising the information, and applying the information to the triggering scenario. However, they will not engage in the process without sufficient motivation and will not construct personal meaning or sustain the process without reflecting on the learning process itself (metacognition).[111,112] In medicine, empiric studies demonstrate that physicians engage in SDL episodes in response to problems, which may be specific (an uncertainty arising from an encounter with a particular patient) or general (a need for an update in a skill or body of knowledge).[113]

Residency programs currently dedicate relatively little explicit curricular time to SDL, often in the forms of journal clubs, evidence-based medicine (EBM) curricula, and problem-based learning (PBL) conferences, all of which include training in some or all of SDL skills.[114,115] Studies involving journal clubs suffer from weak designs and outcome measures and have shown limited effectiveness.[116] Taking a lesson from undergraduate medical curricula, some programs replaced some of their didactic conferences with PBL sessions. In a controlled trial, pediatrics residents participating in PBL conferences exhibited more frequent SDL behaviors than controls, but the differences did not persist after the intervention ended.[117] In a surgery program, attendance at a basic science PBL conference correlated positively with in-training-examination scores.[118] Notably, this stands in contrast with an internal medicine program study that found no relationship between attendance at a traditional "noon conference" and ABIM certifying examination scores.[119]

From 1998[120] to 2003,[121] the number of programs offering EBM curricula increased from 37% to 71%. Several pre–post controlled studies with objective outcomes have demonstrated the effectiveness of these curricula in improving EBM knowledge and skills.[122–124] Studies of the impact on behaviors suffer from outcome measures lacking validation, such as retrospective self-reports or the frequency of their EBM "utterances" in audiotaped teaching interactions.

In addition to specific courses, we should consider residents' day-to-day experience with SDL on their clinical rotations. Too often programs and faculty fail to utilize the experiential learning through the integration and application of clinical skills, judgment, and EBM. Residents fail to take advantage of SDL opportunities due in part to barriers such as insufficient time, underdeveloped skills, limited access to resources, dysfunctional team dynamics, and an unsupportive institutional culture.[121–125] More recently, educators are exemplifying EBM in "real time" as part of the flow of clinical work, which confronts the logistical constraints faced by busy practitioners and leverages the imperative of immediate learning needs.[126–129] Reform measures should help residents to capitalize on the clinical questions that arise in the care of their patients.

## GME FINANCING

The biggest contributor to GME financing is the Center for Medicare and Medicaid Services (CMS). States, the Veterans Administration, and the Department of Defense provide the bulk of the rest of GME funding that totals nearly 15 billion dollars. Center for Medicare and Medicaid Services uses a complicated formula initially developed in 1982 to determine support for teaching hospitals based on the hospital's Medicare burden. However, payments go to the hospital and not directly to the residency program. Private insurances do not contribute direct financial support to GME and no longer support reimbursement at a higher rate for teaching hospitals.

There is consensus that the current system is flawed and that reform is needed. Multiple organizations or groups have proposed financing reform.[101,130–135] However, there is no consensus on what reforms should be enacted and the result is policy inertia. Policy experts argue that financing GME is a collateral duty of CMS, and if CMS is to continue to fund at least some portion of GME, then residency programs need to demonstrate their public good function more effectively.[101,136–138] The majority of recommendations include changing to an all payer system, distributing GME funds directly to the residency programs, and reducing the variation in GME payments among geographic regions.

Future reform efforts will require the involvement of a broader cross-section of all specialties. We concur with the recommendations to move to an all payer system and to distribute GME funds more directly to programs, but hold the programs accountable for how the funds are utilized. Dedicated funds for educational research are also desperately needed.

## SUMMARY OF TASK FORCE RECOMMENDATIONS

The task force offers the following recommendations for reforming internal medicine residency training. In sum, the task force believes we can no longer make changes at the margins of current program structures and that we should embrace bold and innovative reforms for the good of our patients and all trainees. This will require a combination of courage and innovation from all stakeholders.

1. *Residency programs must teach patient-centered care by providing the highest quality of care possible during the training process.*

Broadly defined, patient-centered residency education means providing developmentally appropriate training experiences integrated with interdisciplinary teams to provide coordinated, comprehensive, safe, and high-quality care that simultaneously meets the needs of residents and patients.

2. *There must be better balance between educational experiences in the ambulatory and hospital settings.*

Regardless of their ultimate career choice, all residents need a minimal level of competence in continuing care that focuses on relationships with patients and the community. Residents pursuing careers in specialties that are predominantly outpatient based will require greater time spent in ambulatory education settings.

3. *To honor the social contract and embrace our professional obligations, programs should explicitly address health disparities and incorporate teaching in the social sciences.*

To solve the problems of disadvantaged patients, institutions that sponsor residency programs will need to develop programs to address health disparities and residency programs will need to develop curricula so that residents can effectively participate in these programs. Attention to health disparities will strengthen the bond between the public and residency education.

4. *All stakeholders should work together to better define the ''core'' knowledge, skills, and attitudes of internal medicine training.*

This core curriculum should prepare all internal medicine residents for any career pathway they choose and include more attention to clinical skills. This work should be a collaborative effort among the programs, medical specialty societies, and the certification boards.

5. *SGIM and other stake-holders should work with regulatory organizations to permit greater flexibility to promote innovative approaches to training.*

Residents now have a broad array of career choices, including urban and rural primary care practice, hospitalist practice, subspecialty training for practice or academics, public health, academic general internal medicine, and others. A "one size fits all" approach to internal medicine training is no longer logical in this new environment.[139–144] The RRC's educational innovations project provides one opportunity to create more flexible, state-of-the-art programs.[139] SGIM should partner with other internal medicine organizations to discuss different approaches to certification, pathways to subspecialization, and new pathways to certification in hospitalism, geriatrics, and other areas of special concentration.

6. *Medical educators must improve the substantial and widespread inadequacies in the current evaluation practices by faculty and programs.*

Trainees must not be advanced to the next level of training without clear evidence they are ready.[145–149] A substantial number of tools and methods currently exist for effective evaluation. This is not an unfunded mandate; the public contributes billions of dollars a year to GME and educators have a moral and ethical responsibility to ensure the competence of graduating trainees.

7. *Clinical work and educational processes in teaching hospitals and clinics need substantial redesign.*

Residents should become learning members of high-functioning interdisciplinary teams without absolute reliance on the resident workforce to compensate for failures in the institution's infrastructure. Furthermore, evidence is accumulating quickly that team-based care leads to better patient outcomes. A growing number of programs have successfully incorporated residents in both inpatient and outpatient interdisciplinary teams.

8. *Internal medicine resident education must develop a more robust faculty supervision system.*

Patients have the right to expect safe and effective care in a training setting. Graduated responsibility and autonomy for clinical decision making will remain central to the educational experience. Residents must learn clinical reasoning skills through the actual care of patients and appropriate faculty supervision must be assured to avoid clinical errors too common in the current educational process. Faculty supervising

residents in the inpatient arena need to have protected time to supervise to ensure quality of care.

In the outpatient setting, patients should have a "primary" ambulatory attending and health care team to improve continuity and create a long-term healing relationship. New faculty-resident co-management strategies will be needed to ensure quality of care, patient safety, and resident learning. To accomplish these goals, faculty development will be needed in new supervision and observation skills, principles of microsystems and safety, chronic disease management, and quality improvement.

9. *SGIM should partner with others to approach CMS and policy makers to change how GME funds are allocated*

Without reform of the financial support for GME any large-scale reform in residency training will be more difficult. The push by CMS for quality and accountability among practitioners is an opportunity for residency programs to step up to the plate. Programs can leverage residency reform as part of a genuine effort to improve patient care to support a change in how funds are allocated. This will require a cohesive effort among organizations to work with CMS and policy makers.

10. *Residency programs must explicitly prepare residents for life-long learning.*

Training in life-long SDL deserves much more explicit emphasis in internal medicine residency training. Residents should be actively involved in answering clinical questions in "real time" and should work with clinical performance data to improve the systems of care in which they work. These skills will lay the groundwork for life-long SDL and improvement. Regardless of the length of training, no resident will attain mastery in all areas of internal medicine, and substantial learning will and must occur throughout a career. In terms of learning infrastructure, residents should have rapid, reliable, and continuously available access to electronic medical information resources at the point of care in every clinical setting. Internet-based portfolios, validated instruments for SDL knowledge and skills, and a SDL readiness scale all show promise as effective tools to improve SDL behaviors and evaluation.[150–152]

11. *Residency reform must also occur in the context of reforms in undergraduate and continuing medical education.*

Residency educators should work with medical student and fellowship educators, and continuing medical education organizations to define benchmarks of competence and coordinate training from undergraduate through graduate and post-GME. The current state of fragmentation among internal medicine educational organizations is counterproductive to effective reform.

12. *Redesign of internal medicine training must promote collaboration among residency programs for better education research and sharing of best educational practices.*

Many important questions about the interface of education and patient care need urgent answers. Questions for research include: how should we address health disparities in the context of a residency program? What is the ideal ambulatory training system? How do new models of continuity affect education and patient care? What are the optimal models of team learning in both the inpatient and outpatient settings? What are the actual costs of training a resident? How will new approaches to supervision affect learning? Finally, better research methodology is needed to address past limitations in residency education research, including cluster designs and combined qualitative–quantitative approaches.[153–156]

*The opinions reflected within this manuscript are solely those of the authors and do not represent the views of the Department of Defense, Department of the Army, the American Board of Internal Medicine, or the American College of Physicians. Portions of this work were supported by the Society of General Internal Medicine.*

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## Appendix 1

**SGIM Reforming Residency Task Force**

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**Supplementary Material**

The following supplementary material is available for this article online at www.blackwell-synergy.com:

**Appendix 2. Guiding Principles for Task Force Report.**