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# Scholarship in Emergency Medicine in an Environment of Increasing Clinical Demand: Proceedings from the 2007 Association of American Medical Colleges Annual Meeting

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## Abstract

Academic emergency medicine can benefit by broadening the way in which scholarship is defined to include teaching, integration of knowledge, application of knowledge to practical clinical problems and as discovery of new knowledge. A broad view of scholarship will help foster innovation and may lead to new areas of expertise. The creation of a scholarly environment in emergency medicine faces the continued challenge of an increasing clinical demand. The solution to this dilemma will likely require a mix of clinical staff physicians and academic faculty who are appreciated, nurtured and rewarded in different ways, for the unique contributions they make to the overall success of the academic program.

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**T**he Accreditation Council for Graduate Medical Education (ACGME) mandates that core faculty demonstrate scholarly activity and resident physicians, during the course of their residency, participate in scholarly activity. Falling short of a specific mandate, the ACGME makes it the responsibility of all academic departments to contribute to the advancement in resident knowledge through completion of a scholarly activity with the allocation of funds to support scholarship goals. However, traditionally in emergency medicine (EM), the limitations of financial resources,<sup>1</sup> lack of non-clinical faculty, and the burdens of increased clinical demands<sup>2</sup> adversely affect productivity in scholarly activity.

Although historically faced with these burdens, academicians in EM have long sought to continue to advance the specialty through its scholarly endeavors.

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Although a narrow definition of equating scholarship to research publication was a barrier for many departments, a newer definition of scholarship promoted by the Carnegie Foundation's Ernest Boyer presents new challenges and opportunities.<sup>3</sup> This new definition classifies scholarship into discovery, integration, application, and teaching. Scholarship of discovery involves the research of new knowledge (e.g., basic science, translational, and epidemiologic research) and its communication to others. Scholarship of integration describes the ability to glean new insight from original research and involves its diffusion across various disciplines. Scholarship of application involves the translation of new knowledge into practical use while demonstrating its effectiveness. Last, scholarship of teaching distinguishes the difference between quality teaching and the demonstration of the quality and effectiveness of teaching.

Modern academic institutions evaluate scholarship with different criteria, often tying tenure and promotion to traditional research publication. Clinician educator tracks are vital to the education of residents and, particularly in EM, academic departments that still see large numbers of patients. Academic EM is at a crossroads where it must decide whether it will accept Boyer's definition of scholarship and be willing to challenge traditional models and demonstrate scholarly productivity in new ways, or maintain a more limited definition that could discourage innovation.

## **RESOURCES AND SCHOLARSHIP IN EM**

Emergency medicine has, as a specialty, historically emphasized clinical service and teaching activities. In this context, the increasing clinical demands facing most departments and divisions of EM, along with limited human and financial resources, make it difficult to adequately support the academic development of faculty members.

Long-term academic success, especially success in research endeavors, requires advanced research training, a long-term relationship with an experienced mentor, sufficient protected time (e.g., at least 40% time protected from all clinical and administrative responsibility), and a period of financial support free from pressures to obtain extramural funding. This level of investment in young academic faculty is rare in EM and, moreover, some common approaches to managing scarce resources run counter to the goal of furthering academic development and productivity.

The “management” of academic personnel in many departments and divisions of EM is characterized by 1) a heavy clinical load, especially for junior faculty and those without additional administrative responsibilities or substantial extramural support; 2) a relatively even distribution of available protected time, leaving each faculty member with insufficient protected time to truly support a research career; 3) the hiring of junior faculty members without substantial prior academic or research fellowship training, furthering the illusion that one can learn to be an academician “on the job”; and 4) the persistent belief, expressed more through practice than policy, that being an excellent clinician and clinical educator is sufficient to be considered a success in an academic career. Regarding this last point, being an excellent clinician and clinical educator is necessary in all clinical specialties, but rarely sufficient to be considered a meaningful contributor to an academic department, unless the faculty member is a key educational administrator (e.g., residency director, assistant dean) in the institution.

If, as a specialty, we are truly committed to the development of a core of productive investigators in EM, then we should be committed to the following steps:

1. We should require fellowship-level training, and/or advanced degrees in all new faculty members, as a demonstration both of the candidate’s commitment to an academic career and that the candidate has sufficient training to be successful.
2. We should reduce the clinical and administrative responsibilities for junior faculty members, with a minimum protected time of 40% for clinical investigators and a target of greater than 60% protected time for those intending a basic science or laboratory-based research career. Achieving this will require greater clinical loads for more senior clinician educators who have chosen non-research-oriented career paths.
3. We should be clear in our discussions with residents considering academic careers, and junior faculty, that being an excellent clinician and clinical educator is necessary, but not sufficient, for

success in an academic career (these skills should be considered “a given”).

4. We must no longer confuse educational activities and the writing of book chapters with the creation of new knowledge, which is, fundamentally, the goal of academic pursuits.

In other words, we must be willing to acknowledge that our goal is not to reproduce the career paths and training that characterize current leaders in EM but, rather, to create a generation of faculty members in academic departments of EM who truly deserve to be called “academicians” and who earn the respect of their colleagues across all medical and scientific fields.

## **SCHOLARSHIP OF DISCOVERY AND INTEGRATION**

Scholarship of discovery involves the research of new knowledge and its communication to others. Traditionally, measures of success of academic research include developing a system and expertise to make research part of the standard of patient care, while often times furthering the prestige of the academic department. Despite these admirable ambitions of academic departments, it is often extramural funding of research endeavors that remain at the core of an academic clinician’s evaluation and promotion. Nevertheless, measurable scholarly successes can occur despite lack of significant extramural funding and may, in fact, be in opposition to the financial goals of the institutions at which we conduct our research.

To illustrate, we can look at experiences with early work on patients presenting with cocaine-induced chest pain that began with a review article summarizing the clinical course of 91 patients.<sup>4</sup> It was followed by a series of clinical studies including the Cocaine Associated Chest Pain (COCHPA) study of 246 patients at six sites<sup>5</sup> and the Retrococ study of 136 patients with cocaine-associated acute myocardial infarction patients at 29 sites.<sup>6</sup> The subsequent R01 submission to the National Institutes of Health (NIH) to define optimal management of this cohort was not funded; however, it was conducted without extramural funding several years later. Fortunately, Dr. Jim Weber was developing a new chest pain observation unit, and the proposed grant was able to be incorporated into the observation unit design. It was successfully completed and yielded results consistent with our primary hypothesis. The study was published in *The New England Journal of Medicine*.<sup>7</sup> From the perspective of the scholarship of discovery, this was a fruitful line of investigation, furthering new knowledge, but it did not come with funding and may not be considered quite as successful by the institutions of the investigators.

Historically, institutions and investigators alike desire outside funding to finance research endeavors, but emergency care research does not have significant funding sources. Although industry, private foundations, and federal agency grant opportunities were available for specific projects, EM was largely relegated

to depending on grants within its own community for the training of new investigators. In the past, the Emergency Medicine Foundation and the Society for Academic Emergency Medicine (SAEM) have been among the largest contributors to academic clinicians, but have limited funding to \$75,000.

However, there has been a recent emphasis on emergency care, as brought to the public forefront by the Institute of Medicine's (IOM) Committee on the Future of Emergency Care in the United States Health System, who stated there should be "consideration of training of new investigators, development of multi-center research networks, funding of General Clinical Research Centers that specifically include an emergency and trauma care component ...."<sup>8</sup> The opportunity now exists for EM research to explore funding options that might not have been as accessible previously. In fact, the IOM goes on to recommend "involvement of emergency and trauma care researchers in the grant review and research advisory process,"<sup>8</sup> therefore allowing input into the decision-making process of funding research activities.

These recommendations by the IOM may be available, in part, through Clinical and Translational Science Awards (CTSA) by the NIH who desire translation of clinical research into everyday practice. Nevertheless, despite this opportunity to incorporate emergency care research, few CTSA training sites have already integrated emergency care into their training curriculum.

Emergency medicine must take advantage of the opportunity that exists to establish translational and clinical research as an academic discipline through this new funding opportunity. This allows significant collaborative opportunities with peers in other specialties and access to patients and key populations unique to emergency departments (EDs). Promising fellows and junior faculty should apply to CTSA training programs to develop theoretical and practical training being mentored in their desired area of research. CTSA sites have internal seed grant programs that could stimulate exploratory and innovative studies (allowing for acquisition of preliminary data, demonstration of ability to perform research, and financial discipline), all of which are generally required prior to successful applications for extramural funding.

Nationally, there are several disease-specific and discipline-specific research networks that duplicate key infrastructure support to conduct within emergency care research. Within the CTSA program there is potential to form an emergency care research "subnetwork" that would build on an existing infrastructure at each CTSA site and allow a more cost-effective means of collaboration.

For emergency care researchers not at a CTSA site, emphasis should be in participation in the grant writing process for these awards and identification of promising junior faculty who can participate both in short research training courses and in the opportunity to obtain Masters-level degrees in clinical and translational research. It is by building the framework for EM research, through adequate training and research experience, that we will begin to nurture talented young physicians into successful academic clinicians.

## THE ROLE OF HEALTH SERVICES RESEARCH IN EM AND THE ROLE OF EM IN HEALTH SERVICES RESEARCH

Health services research (HSR) is an area of scholarship that has a great deal to contribute to the discovery, integration, and application of knowledge in EM. Moreover, because of the unique position of the ED in the health care system, EM is a vitally important contributor to the field of HSR.

Health services research is defined by the IOM as "a multi-disciplinary field of inquiry, both basic and applied, that examines access to, and the use, costs, quality, delivery, organization, financing and outcomes of health care services to produce new knowledge about the structure, processes, and effects of health services for individuals and populations."<sup>9</sup> While clinical research focuses on the efficacy of a treatment under *optimal* conditions, HSR focuses on the delivery of a treatment and its effectiveness under *usual* conditions. It attempts to answer questions such as "How much does it cost?," "How well does it work?," and "Does it work for everyone?"

Health services research is a field with many disciplines (e.g., medicine, biostatistics, sociology) and many stakeholders (e.g., clinicians, managers, policy-makers, consumers). Steadily increasing funding for HSR comes from various governmental agencies, including the Agency for Healthcare Research and Quality (AHRQ), NIH, Centers for Disease Control and Prevention (CDC), and Centers for Medicare and Medicaid Services (CMS). While AHRQ is the lead federal agency for HSR, most of their budget is earmarked for specific programs; only a small amount is available for investigator-initiated research. The HSR expenditures of the NIH are almost three times those of AHRQ, although the individual institutes and centers of NIH vary significantly in their level of investment in HSR. Additionally, private foundations such as Robert Wood Johnson, Commonwealth Fund, Kellogg, and the Kaiser Family Foundation play a significant role in funding HSR.

Health services researchers use both quantitative and qualitative methods. HSR tools include a range of techniques, from sophisticated analyses of large databases to development of complex cost models to focus groups and surveys; all are used to help us understand "how we do what we do." Many important issues within EM require the use of HSR methods: ED crowding, out-of-hospital care, trauma systems, ultrasound, clinical pathways, and simulation training.

Emergency medicine health services researchers view the health care system from the important perspective offered by the ED. Access and barriers to both primary care and specialty care, practice patterns of community physicians, mandated quality directives, and the consequences of systems issues such as primary care capacity, lack of insurance, nurse shortages, and undocumented immigrants—all of these play out in the ED. Emergency physician health services researchers conduct high-impact, policy-relevant, research on important and complex issues.

Health services research is a valuable component of any academic department. HSR investigators have a

solid and growing funding stream, require a small initial investment, bring useful methodologic and analytical expertise, and have a collaborative approach to problems. HSR methods can be used to improve clinical practice in the ED, evaluate educational interventions, or assess cost effectiveness of programs. A well-trained health services researcher can aid a department in its clinical, administrative, educational, and research activities.

### **DEVELOPING AND SUSTAINING THE SCHOLARSHIP OF EDUCATION IN ACADEMIC EM**

Serious educational scholarship is no different from other forms of serious scholarship. The effort requires dedicated training, time, funding, mentorship, and institutional collaboration. While residency training imparts familiarity with a rigorous process of teaching and learning, it does not typically provide the skill set required for serious educational investigation. It is often assumed that young faculty can generate educational scholarship simply as a by-product of their teaching role in a residency program; such assumptions often prove frustrating, not because of lack of talent, but because the faculty do not have the background and support required to translate clinical teaching into academic productivity. One of the most powerful ways to foster the development of educational scholarship is to encourage dedicated periods of fellowship or junior faculty development in the learning sciences and to provide a similar environment of support for the educational scholar (funds, time, mentorship) as for the bench or clinical researcher.

One relatively new field of educational scholarship presents a unique leadership opportunity for academic EM. Medical simulation (the use of robot-mannequins for teaching and assessing individual and team-based skills) has emerged as one of the fastest growing areas of educational practice and research in academic medicine. Only 10 years ago, dedicated programs in medical simulation were found in a relatively small number of academic medical centers worldwide, often centered in departments of anesthesia where they were used to teach operative crisis management. Today, the interdisciplinary field is unified by a new Society for Simulation in Healthcare and the first academic journal in the field, *Simulation in Healthcare*. It is now rare to find an academic medical center that is not interested in incorporating medical simulation more fully into their education, quality, and safety initiatives across disciplines. Such work is now encouraged and supported by bodies as diverse as the IOM, the federal government, and even the insurance industry.

Emergency medicine faculty have been involved at all levels in the development of medical simulation as an emerging field of teaching and inquiry. The core skill set of emergency physicians, acute clinical care across disciplines, has allowed EDs to play an increasingly important role in helping medical schools and hospitals across the country to operationalize interdisciplinary simulation programs. This natural collaboration provides an unprecedented opportunity for the field of EM to assume a leadership role in helping

advance educational scholarship in an important new field.

In 2005, SAEM commissioned a Simulation Task Force to extend the work of its Simulation Interest Group, providing members with academic resources, including a consultation service to help in the establishment of new centers (<http://www.saem.org>; go to education/simulation). The Task Force published a research agenda for simulation in EM in 2007, paving the way for one of the first national research forums on the topic, the 2008 *Academic Emergency Medicine (AEM) Consensus Conference* entitled "The Science of Simulation in Healthcare: Defining and Developing Clinical Expertise."<sup>10</sup> Together with the Association of American Medical Colleges' online MedEdPORTAL, SAEM sponsors the first peer-reviewed collection of simulation-based educational material, providing academic credit for faculty and dissemination to the broader community of educators (<http://www.aamc.org/mededportal>; <http://www.emedu.org/simlibrary>). In addition, some of the first dedicated simulation fellowships in the country are being sponsored in collaboration with academic EDs.

In the near future, simulation will likely be a broad component of training and certification across disciplines. EM faculty are uniquely positioned to help foster and produce the scholarship that will support such work—work that will help fundamentally enhance training and practice across healthcare.

### **PROMOTING SCHOLARSHIP IN AN ACADEMIC DEPARTMENT**

An academic department must constantly balance between the missions of education, clinical care, research, and institutional service, and appropriately, the faculty of the department must be able to fulfill each role. These roles can be undertaken either by faculty who adequately perform multiple roles or by faculty who concentrate their efforts via specific training and development of scholarship. The balance between the missions will be different in different departments and should reflect the mission and balance of the institution as well as the department. It is important to distinguish that scholarship is not just gaining knowledge; it is sharing knowledge. While applying what you know and sharing it locally makes you a teacher, disseminating what you know in the medical literature makes you a scholar. While the balance of faculty varies within each department and institution, departmental goals should define faculty roles, and within those roles, all faculty should feel appreciated and clearly understand promotional tracks.

Development of scholarship requires faculty with a dedication to scholarship, but also a commitment from the department itself through financial support. The department demonstrates a commitment to the scholarship endeavors of a young researcher by providing start-up funds to advance early goals. In addition, the department supports the young academician by allowing protected research time. Protected time is a frequently misunderstood concept. It may mean less clinical shifts, or it may mean that the individual faculty member is not given any outside responsibilities other

than their scholarly activities or a combination of both. At least 20 hours per week or more of protected time is commonly required to develop scholarly projects.

Of vital importance is accessibility and productive feedback from experienced research mentors who, themselves, should be willing to have an apprentice. Last, expectations of all faculty should be clear and widely known, with issues such as publication and funding addressed on an annual basis.

### **EVOLUTION OF THE DEVELOPMENT OF SCHOLARSHIP: A DEPARTMENTAL CHAIR'S PROSPECTIVE**

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In recruiting new faculty members, the modern department chairperson is often faced with a dilemma. Many newly graduated physicians are attracted to academic medicine primarily because a faculty appointment offers them the opportunity to teach residents and medical students and keeps them near the excitement of an urban tertiary care hospital ED. However, these new faculty often express concerns regarding the requirements for scholarship. These concerns may take several forms. Often, they have had little exposure to clinical or basic science research and are uncertain that they will enjoy research or succeed as a scientist, or they may have had some exposure to research but feel that they lack the skills necessary for success. These cases are best handled through training and mentorship. The department wanting to grow its research program should be willing to invest the time necessary to give young investigators a solid foundation, even if that means accepting the fact they will be granted protected time to participate in research training and that they might not produce significant original research for 2 or 3 years.

Sometimes, however, the faculty recruits seem convinced that a career as a researcher is not for them. They want to teach and take care of interesting patients, but for a host of reasons do not want to be a scientist. In addition, this individual is the source of the chairperson's dilemma. How can one build a rewarding academic career for a young faculty member, a career that includes the opportunity for academic promotion, without the inclusion of research?

There are probably several reasonable answers to the above question but a few of these are described below. However, before embarking upon these descriptions, a disclaimer is warranted: not all of the options described are available at every institution, and some individuals will not choose to accept any of the options even if they are available.

Many institutions recognize that most clinician faculty members will not produce the same level of scientific work as their basic science peers and, as such, have created special tracks that allow these faculty members to achieve academic promotion based upon criteria more relevant to their practice. Such tracks often include the word "clinical" before the words "assistant professor," "associate professor," or "professor" (although the modifying word might only be applied for internal purposes, allowing the faculty member to have the unmodified title on his or her busi-

ness cards and letterhead). At some institutions, scholarly work is still expected for promotion on this track, although the requirements can be met by publication of book chapters and monographs rather than peer-reviewed research papers.

More recently, some institutions have recognized that faculty members who "like" to teach may not do so effectively and have thus encouraged the growth of a clinical educator of a different sort. These individuals emphasize the "educator" portion of their title as much or more than the "clinical" portion. They often have aspirations of leadership roles in graduate or undergraduate medical education and so may hope to become program directors or educational deans. They are the faculty members who serve on departmental or institutional education committees and are course directors and facilitators for problem-based learning and similar courses. Many of these physicians ultimately choose to seek advanced training in medical education just as their physician-scientist peers often seek advanced training in scientific methods. Whereas the physician scientist's curriculum vitae includes the results of research projects, the physician-educator's lists the courses and curricula that he or she has designed and objective assessments of the effectiveness of these. In summary, these individuals embrace all aspects of Boyer's scholarship of education and most would agree that those who have been committed and successful deserve the same consideration for promotion as those who have been successful scientists. However, in some institutions, these clinician-educators can face the challenge of having their work appropriately understood and valued by more traditional promotion and tenure committees.

At all but the most stringent academic centers, physician educators like those previously described can generally expect academic promotion, if not tenure. However, what about the physician who truly wants only to teach residents at the bedside and perhaps give an occasional lecture? Should there be a role for a person like this? Many departments would, of necessity, answer this question in the affirmative. In addition to resident teaching responsibilities, they have service needs to meet and, with their core faculty members' clinical time limited, they must find qualified emergency physicians to fill the schedule. The needs of such individuals might be addressed in one of several ways. The institution could (and some have) create a clinical promotion track that allows those with recognized clinical skills and at least adequate teaching evaluations to be promoted. However, at many medical schools, such a program would be unacceptable to a significant portion of the faculty (particularly those who are scientists on the tenure track) and would be, therefore, difficult to implement. On the other hand, the individual faculty member might enjoy his or her role enough to accept the fact that he or she is unlikely to be promoted to the next academic rank. Many faculty members consciously or unconsciously make this decision at some point in their careers. If they receive enough personal satisfaction from the rest of their work, they may choose to remain on the faculty, but for many this realization is undoubtedly what

drives them into community practice. There might, however, be an alternative for these individuals. As academic EM programs struggle with the maintenance of their clinical obligations in the face of a restricted clinical work load for the “core” faculty members, it might be time to consider hiring nonfaculty clinicians whose only roles are the supervision and teaching of residents at the bedside and to see to provision of care to patients in the ED. Such individuals would not be expected to participate in other aspects of the program, with the possible exception of the resident evaluation process. Their reward would come in the form of somewhat higher compensation than their faculty member peers, and their job performance would be evaluated primarily upon their clinical productivity, the quality of care that they render, and the quality of their bedside teaching. Since they would hold no academic rank, they would not be eligible for or concerned with academic promotion.

Sooner or later, academic programs must find a solution to this dilemma. Slavish devotion to traditional promotion and tenure requirements is no longer possible in the modern era. Young faculty members have different expectations, and some who would enjoy many aspects of an academic career do not want to participate in research. If programs are to meet their clinical and teaching obligations and still allow time for their scientists to compete for a shrinking pool of research dollars, they must make room for physicians who can fill the clinical and teaching roles.

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