# Preparing for "Diastole": Advanced Training Opportunities for Academic Hospitalists

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Academic hospital medicine can be described as comprising periods of "systole," during which hospitalists provide clinical care, and periods of "diastole," the portion of a hospitalist's time spent in nonclinical activities. Far from being a period of relaxation, diastole is an active component of a hospitalist's work, the time devoted to the pursuit of career advancement. This period is a critical opportunity for career development in terms of medical research, education, quality improvement, or administration. An appropriate balance of systole and diastole may potentially prevent burnout and allow hospitalists opportunities to focus on academic advancement. Although an increasing number of residency graduates opt for a career in academic hospital medicine, few are prepared for the period of diastole. This article describes several career options in academic hospital medicine, specifically, opportunities in education, research, quality improvement, and administrative opportunities. By informing future hospitalists about the career opportunities within academic hospital medicine possible through managing their diastolic time, we hope that future generations of trainees will be better prepared to enter this field. Journal of Hospital Medicine 2006;1:368-377. © 2006 Society of Hospital Medicine.

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here is a growing demand for hospitalists in the United States. In academic settings, hospitalists are called on to perform a variety of duties, from leading quality improvement initiatives to serving on hospital committees to helping to offset restrictions on work hours of the house staff. Although hospitalists may be well positioned to take on these roles, obtaining adequate protected time and recognition for such contributions remains a challenge. The existing promotion and tenure processes at academic institutions may not give adequate consideration to such responsibilities. Hospitalists who do not meet the traditional benchmarks of teaching and research may suffer in their career advancement and, ultimately, in their desire to remain in academics. Developing a sustainable and long-term career in hospital medicine is important not only from a professional developmental standpoint, but also because it may lead to better patient care; evidence from a large multicenter hospitalist study suggests that physician experience is linked to improved patient care and outcomes.<sup>2</sup> Thus, it behooves academic medical centers that employ hospitalists to create rewarding hospitalist career paths.

Goldman described academic hospital medicine as comprising periods of "systole," during which hospitalists provide clinical care, and periods of "diastole," the portion of a hospitalist's time

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spent in nonclinical activities.3 Far from being a period of relaxation, diastole is an active component of a hospitalist's work, the time devoted to the pursuit of complementary interests, career advancement, and job diversity. A well-thought-out plan for the diastolic phase of a hospitalist job description can lead to significant improvement in quality, education, research, and outcomes for an academic medical center.4 A good balance of systole and diastole allows for focus on career development and advancement and has the potential to be very helpful in preventing burnout. This is of particular concern to academic hospitalists, who report working longer hours, feeling more stress, and worrying more about burnout than their nonhospitalist colleagues.<sup>5</sup> This suggests the diastolic phase is an important part of creating a sustainable hospitalist job and should be funded as part of an academic hospitalist position.

Although the optimal balance of systole and diastole to prevent burnout is not known, outlining clear expectations is an important strategy for preparing physicians for a sustainable academic hospitalist career. This is an important issue, given the increasing number of residency graduates who are choosing careers in hospital medicine.<sup>6</sup> Based on the reported career plans of residents taking internal medicine in-training exams from 2002 through 2006, the number of residents going into hospital medicine has more than doubled, from 3% (in 2002) to 6.5% (in 2006). The goal of this article is to compare and contrast several career paths that balance systole and diastole in academic hospital medicine. Specifically, we review training opportunities for becoming a successful hospitalist-educator, hospitalist-quality expert, hospitalist-investigator, and hospitalist-administrator.

#### **EDUCATION (THE HOSPITALIST-EDUCATOR)**

Hospitalists in academic centers often play central roles as teachers and leaders in medical education. This is not surprising given that most teaching of medical trainees occurs in the inpatient setting. Furthermore, several studies have consistently demonstrated that trainee satisfaction with teaching by hospitalists is high, and hospitalists are rated as more effective teachers than traditional subspecialist ward attendings. 8-10

A typical hospitalist-educator position is 80%-90% clinical time, with 10%-20% set aside for teaching. However, academic hospitalists are often expected to teach medical trainees concurrently with

their clinical care activities, rather than during a separate, protected time. 11 Thus, most hospitalisteducator responsibilities do not occur during diastole, as may be conceived, but instead are add to the systole. Small amounts of protected diastolic time for a hospitalist-educator can be used for related administrative activities, such as writing letters of recommendation, mentoring students and residents, doing creative thinking and curriculum development, and conducting educational research, such as evaluating a new educational program or curriculum. Some hospitalist-educator positions, such as director of the residency program or internal medicine clerkship, are exceptions in that they generally include a greater amount of protected time, which may be earmarked for administrative activities and hands-on teaching.

#### **Education and Training**

One possibility for advanced training in education is the addition of a chief resident year, either at a physician's own institution or at another academic center. Such a year provides an opportunity to consolidate knowledge, build a teaching portfolio, and accumulate expertise in an area such as evidence-based medicine or perioperative care. Serving as a chief resident can enhance subsequent applications by being able to demonstrate the ability to teach and, more importantly, to assume a leadership role within an organization. These skills can be applied to a number of activities in an academic hospitalist program, such as heading a committee, teaching during inpatient service time, or developing a new course for students, residents, or faculty.

An advanced training program in medical education is also an option (Table 1). Offerings include medical education fellowship training, formal degree-granting programs (such as a master's in health professions education), or short-term intensive coursework. Fellowships and degree-granting programs are generally 2-year programs designed for health professionals who want to better prepare for educational leadership roles. Core topics include curriculum development, program evaluation, instruction, student assessment, current educational issues, research methods, and leadership. An alternative option for busy clinician-educators is online or distance learning courses in medical education, which cover similar topics and skill sets. In early 2006 the Society of Hospital Medicine released the Core Competencies in Hospital Medicine, which can serve as a useful framework for developing

TABLE 1 Medical Education

Description	Length of time	Cost	Source/website
Degrees/fellowships Master's in health professional education (MHPE): Preparation for educational leadership roles. Typical coursework in curriculum development, program evaluation, instruction, student assessment, current educational issues, research methods, and leadership.	Varies according to program	Tuition ranges from approximately \$1500-\$4300	Example: University of Illinois — http://www.uic.edu/com/mcme/mhpeweb/Home.html
Fellowship in medical education: Prepares faculty to pursue scholarship in medical education or educational leadership or to become effective teachers through workshops, coursework, and/or a mentored project. Often affiliated with a department of medical education.	Varies according to program. Generally 1 year.	Varies. May be subsidized in certain institutions as part of internal faculty development.	Example: University of Michigan — http://www.med.umich.edu/meded/MESP/
Short-term coursework  Harvard Macy Institute: Programs designed to promote leadership and scholarship in medical education	1- or 2-week programs	Fees for the year 2006 are \$4500 USD.	http://www.harvardmacy.org
Stanford Faculty Development Center (SFDC): Train-the-trainer approach for clinical teaching and professionalism in contemporary practice	4-week training sessions	The institutions of faculty selected for the monthlong training programs are asked to pay a fee of \$5000. Transportation, housing and food are not included.	http://sfdc.stanford.edu/

novel inpatient curricula for faculty, residents, and students. 12,13

Short-term extramural courses offered by institutions such as the Harvard Macy Institute for Medical Educators and the Stanford Faculty Development Program in Teaching can also provide advanced instruction to hospitalist-educators. <sup>14,15</sup> In addition to these training programs, the Society of General Internal Medicine, along with other professional societies, offers career development workshops for clinician educators on topics such as curriculum development and teaching skills.

Regardless of the type of training, adequate mentorship and resources are critical to the successful application of new skills to the design or evaluation of hospital-based curricula. Mentorship may be available from institutional leaders in medical education, even those not formally affiliated with the hospitalist program. For instance, medical school leaders, such as deans, division chiefs, chairpersons, program directors, and clerkship directors, can often be helpful in guiding junior faculty in obtaining skills and time for teaching.

We encourage those interested in a career in

medical education to begin volunteering at their institution early on. Volunteering to directly teach residents and students (eg, assisting in introduction to clinical medicine, giving lectures to third-year clerks) can be a valuable way of becoming distinguished as a qualified teacher. Likewise, joining a professional medical society of individuals with similar interests can facilitate mentorship and skill acquisition. Certain professional medical societies, such as the American College of Physicians, promote national recognition through awarding fellowships, an honor for those physicians who have demonstrated superior competence in internal medicine, professional accomplishment, and scholarship.<sup>16</sup> Developing concrete examples of expertise in the field, such as through the publication of abstracts and articles on medical education and development of curricula, help lead to advancement in the educational track. Clear focus on a career path, development of an intellectual product, positive learner evaluation of educational activities, and national recognition can all be used by an academic institution to evaluate suitability for promotion.

#### **Rewards and Challenges**

One of the rewards of a hospitalist-educator career is being able to meaningfully interact with a variety of trainees, including medical students and residents. As teaching attendings, hospitalist-educators are likely to engage students and residents for short-term but intensive periods, resulting in the ability to influence career choice and professional growth as a physician. Hospitalists may be called on by trainees to serve as mentors or advisers and to write letters of recommendation. In addition, with experience, hospitalist-educators are well positioned to serve in administrative roles in medical education, such as clerkship director or program director.

Burnout is a particular concern for hospitalist-educators, given the heavy clinical demands of inpatient academic service combined with the additional pressure to be academically productive.<sup>5</sup> Because of this, it is important to design academic hospitalist-educator positions with a diastole that contains time to recover from the heavy clinical demands of inpatient service, in addition to providing time for career development activities.

Successful career development as an educator can be difficult. There are relatively few venues at which educational work can be peer-evaluated and published, which are keys to successful academic promotion.<sup>18</sup> Because some educational journals are highly competitive, one possibility way to get educational work disseminated is through the MedEd Portal, sponsored by the Association of American Medical Colleges, which allows peer review of medical educational materials, including innovative curricula.19 In addition to original research contributions, many scientific meetings and medical education journals also accept descriptions of interesting clinical vignettes and innovations in medical education. New online education journals, such as BMC Medical Education and Seminars in Medical Practice, have expanded publication opportunities.<sup>20</sup>

Limited opportunities are available to help fund research in medical education. Although funding may be more readily available to educators who focus on a particular clinical entity or patient population, most medical education research is conducted with inadequate funding and requires extensive donated time by committed faculty.<sup>21</sup> For this reason, securing advanced training in medical education and having protected time will allow

hospitalists on the educator track to compete more successfully for limited educational research dollars and to have sufficient time to produce and publish scholarly work, thus improving their chances of academic success and career satisfaction.

## CLINICAL QUALITY AND OPERATIONS IMPROVEMENT (THE HOSPITALIST-QUALITY EXPERT)

Hospitalists are increasingly being called on to lead clinical quality and operations improvement at academic teaching hospitals. Benefits to the institution include the consistent presence of a committed physician who is able to plan and execute change in the context of clinical care. This is in contrast to the transient nature of residents and nonhospitalist attending physicians, whose ability to participate in such initiatives is impaired by the scheduling of their rotations. Hospitalists, however, are often able to cultivate long-standing relationships with nurses, case managers, and hospital administrators, thereby building the institutional clout to lead such initiatives while considering views from all the necessary stakeholders.<sup>22</sup> Thus, they are in a good position to serve as physician champions and expedite the adoption of new innovations within hospitalist groups and among other physician groups and clinical staff.23,24

#### **Education and Training**

Being a successful agent of change requires knowledge of the science of quality improvement coupled with the skills necessary to make such changes, such as the ability to perform a needs assessment, to develop measures of performance, to negotiate and motivate others to change behaviors, to adopt new tools and practices, and to implement and test interventions designed to improve care. It is possible for residents or junior faculty members to gain this experience through designing and implementing a quality improvement project during residency training under the direction of a mentor.<sup>25,26</sup> However, given the likely variability in such experience, there is no substitute for formal training in these core areas of hospital medicine.

A broad range of opportunities for advanced training in quality and operations improvement are available (Table 2). Choosing the correct program may depend on baseline expertise, availability, and the desired level of involvement. For example, introductions to these skills can be obtained through precourses or workshops at medical conferences

TABLE 2 Quality Improvement

Description	Length of time	Cost	Source/website
Degrees/fellowships			
Veterans Association National Quality Scholars: Fellowship to learn and apply knowledge for improvement of health care	2 years	No cost, application to fellowship program required	http://www.dartmouth.edu/~cecs/ fellowships/vaqs.html
George W. Merck Fellowship: Mentored research or improvement project at Institute of Healthcare Improvement with a plan to return to home institution to execute change	1 year	No cost, application to fellowship program required	http://www.ihi.org/IHI/About/Fellowships/
Short-term coursework Intermountain Health Care: Designed to give executives and quality improvement leaders the necessary tools to conduct clinical practice improvement projects.	20- and 12-day training programs in Salt Lake City, UT	Tuition for the 20-day program:  • \$8500 for the first person from each clinical team or organization  • \$8000 for the second person attending the same session  • \$7500 for the third person attending the same session	http://cme.ihc.com/xp/ihe/institute/ education/

such as the Institute of Healthcare Improvement or the Society of Hospital Medicine. For more indepth training, the Advanced Training Program (ATP) in Health Care Delivery Improvement, sponsored by Intermountain Healthcare, offers 12- to 21-day in-depth minicourses designed to train individuals for leadership positions in quality and safety.<sup>27</sup> Lastly, more structured fellowships, such as the Veterans Affairs Quality Scholars Program or the George W. Merck Fellowships in Health Care Improvement, offer junior and midcareer faculty the opportunity to obtain formal training in the science of quality improvement.<sup>28,29</sup> Because earlycareer hospitalists may face geographic and financial restrictions, exploration of local or institutional opportunities for advanced education in quality improvement can be particularly important.

#### **Rewards and Challenges**

Engaging in successful clinical or process improvement can be very rewarding, both professionally and personally. Professional gains include building new interdisciplinary relationships and infrastructure to continually monitor and improve key performance measures. In addition, a rigorous evaluation of this type of work can result in being able to make presentations at national meetings or to be published in a variety of peer-reviewed medical journals, including specialty journals for quality improvement work, such as *Quality and Safety in* 

Healthcare and the Joint Commission Journal on Quality Improvement. Many national medical meetings, such as the Institute for Healthcare Improvement, the Society of Hospital Medicine and other subspecialty society meetings, also provide an opportunity to showcase innovations in practice.

Despite the potential rewards, it can also be challenging for academic hospitalists to participate in or lead quality improvement projects. One major challenge is ensuring that hospitalists are engaged in improvement work that is aligned with the interests of the hospital. Because most hospital administrators and frontline staff are employed by the hospital, whereas those comprising the academic faculty are employed by the university, this alignment is not always guaranteed. For example, an area of interest to a hospitalist that also could lead to academic productivity and career advancement might not be considered a priority area of improvement for the hospital because of competing clinical or operations improvements. In this scenario, it can be extremely difficult to engage other stakeholders such as nurses or administrative support staff in order to make a meaningful, sustainable change or improvement. To avoid this situation, it can be helpful from the outset to partner with hospital quality leaders in discussing priority areas, with attention to any potential interface in which hospitalist expertise is needed. In the event a potential

TABLE 3 Research

Description	Length of time	Cost	Source/website
Degrees/fellowships			
Hospital or General Medicine Fellowships: Designed to provide clinical research training through mentored projects and coursework with possible master's degree	Generally 2-year programs	No cost, application to program is required. Stipends vary. No cost, application to program is required	Hospital Medicine: http://www.hospitalmedicine.org/ Content/NavigationMenu/Education/Hospital MedicinePrograms/Hospital_Medicine_Pr.htm General Medicine: http://www.sgim.org/fellowshipdir.cfm
Robert Wood Johnson Clinical-Scholars Program: Training in health services research with an emphasis on community-based research and leadership training. Short-term coursework	2 years	Stipends currently range from \$48,000 to \$50,000 per year, depending on the training site.	Robert Wood Johnson: http://rwjcsp.stanford.edu/
University-based summer programs in clinical research (eg, Harvard University Summer Session for Public Health Studies which features graduate courses in epidemiology, biostatistics, economics, health care management, etc.)	Intensive 3-week courses in Harvard University Summer Session	2004 tuition for each 2.5-credit course was \$1830. There is a nonrefundable deposit/registration fee of \$125. These fees do not include certain course materials (ie, texts estimated at \$60 per course).	Example: Harvard School of Public Health — http://www.hsph.harvard.edu/summer/brochure/

project or area is identified, a hospitalist is particularly well positioned to serve as a physician champion, which is often key to the success of any hospitalwide initiative. In some cases, hospital funding may be available for these types of initiatives, increasing the likelihood of resource development for sustainable change.

#### RESEARCH (THE HOSPITALIST-INVESTIGATOR)

Few hospitalists devote most of their time to clinical research. Having a strong research base is essential for the field of hospital medicine to gain credibility as a distinct specialty. 4 Although the initial research in hospital medicine sought to prove the value of the field itself, hospitalists have now begun to focus on quality improvement and outcomes research.<sup>30–32</sup> Because of their unique position in clinical care, hospitalists are well situated to oversee inpatient data collection and perform research on a variety of conditions ranging from acute coronary syndromes to venous thromboembolism. Another potential area of research for hospitalists is participation in clinical trials focused on the inpatient setting. Although the proportion of time spent in research can vary widely, to become an independently successful clinical researcher typically requires a substantial amount of time be devoted to research. In general, at least 50% protected time, greater if possible, is recommended.

#### **Education and Training**

To develop a career around research generally requires advanced training in research methods. The most frequently used option for obtaining such training is through completing a clinical research fellowship in general internal medicine or an equivalent program, such as the fellowships administered by the Robert Wood Johnson Clinical Scholars Program (Table 3).33 Several academic centers also have developed such hospital medicine fellowships, which often can be tailored to provide the desired experience in research ethics, methodology, and statistical analysis.34,35 In selecting a training program, prospective hospitalist-researchers should consider the availability of suitable research mentors. Because hospital medicine as a field is relatively new, research mentors within the group of hospitalists may be scarce; if so, researchers should seek appropriate mentorship from established investigators in other programs or departments. Effective mentorship is a strong predictor of future research success.36

Negotiating protected time can be challenging for new investigators, particularly when hospitalist salaries are generated by clinical activity. Some academic programs are willing to provide a few years of departmental support to promising young investigators in order to allow them to develop their research program and obtain additional funding. Several career development awards are available through the National Institutes of Health and through non–federally funded sources.<sup>37,38</sup> These awards generally protect 3-5 years of a researcher's time for research and require that a substantial proportion of time be devoted to that purpose, often at least 75%.

To gain visibility as a researcher, it is advantageous to present original findings at national meetings, such as those of the Society of Hospital Medicine, the Society of General Internal Medicine, and other subspecialty meetings. These meetings not only increase awareness of a hospitalist's research but also provide opportunities for networking and developing collaboration on research. Many societies, including the Society of Hospital Medicine, have research abstract competitions and offer research grants for investigators that can help to fund projects and support protected time.

#### **Rewards and Challenges**

There are many rewards and opportunities for a hospitalist investigator, particularly because the field is young and there are many unanswered research questions related to inpatient medicine. There are also the intrinsic rewards of being devoted to scientific inquiry and having greater autonomy over how time is spent. A hospitalist's schedule can be well suited to research. Although attending on the wards can be very time-consuming, time off the wards is often free of outpatient duties and can be entirely devoted to research.

There are also several challenges to becoming a successful researcher. The pressure to obtain grant funding and publish high-quality scientific manuscripts is high. Obtaining sufficient protected time may be difficult in busy clinical departments, and applying for grant funding is both time-consuming and highly competitive. It is very important to be familiar with the specific criteria for academic promotion at one's institution. Understanding these expectations can help to effectively prioritize activities. Standard requirements generally include number and quality of articles published in peerreviewed journals, successful application for research funding, national recognition in the field, service to the institution and research community, and evidence of research independence. One significant challenge is the lack of a single large funding source for hospital-related research. Although the Agency for Healthcare Research and Quality funds studies related to hospital care, such as on the quality of care or cost effectiveness of various system-based hospital care interventions, their budget for investigator-initiated proposals is limited. 41 One promising funding source for research in hospital care is from agencies and foundations dedicated to the aging population, such as the National Institute for Aging (NIA), the Hartford Foundation, and the Aetna Foundation, to name a few. 42,43 Yet research on hospital care alone, without detailed attention to issues unique to geriatric-specific conditions or populations, is unlikely to be funded by these avenues. With few federal grant programs directly suited to the emerging research agenda in hospital medicine, hospitalist-investigators may be at a disadvantage for obtaining tenure-track positions, compared with their subspecialist colleagues, who may receive funding from NIH agencies or foundations dedicated to their own field.

### ADMINISTRATION (THE HOSPITALIST-ADMINISTRATOR)

Physician leaders in hospital administration are not new. Many hospitals already include physicians in senior management positions, such as chief medical officer. Atturally, a career in hospital administration is another potential path for "diastole" in academic medical centers.

#### **Education and Training**

Although a master of business, health administration, or medical management is not a prerequisite for the physician who wants to move into management, it is an increasingly important credential for senior administrative positions (Table 4). Primarily, it serves as a signal that a physician is committed to management and has a working knowledge of strategic planning, business models, human resources, leadership, and clinical operations. For physicians without formal business training who are interested in management, exploring internal opportunities is a necessary first step. Likewise, getting a business degree is not as important as management experience. The successful application of business skills requires practice, mentoring, and on-the-job experience. For hospitalists, this experience could be obtained by volunteering to serve on committees such as utilization review, quality assurance, credentialing, or medical staff executive committees. In lieu of a graduate degree, physicians may wish to participate in one of the many fellowships in health services administration. These programs generally

TABLE 4 Leadership/Administration

Description	Length of time	Cost	Source/website
Degrees/fellowships			
Master's in business administration (MBA): General management core with option for courses specializing in health care.	Generally 2-year program	Varies in accordance with each institution.	Directory websites (MBA): http://mba.gradschools.com/
Master's in health administration (MHA): Studies in analytic and management needs of health care.	Generally 2-year program	Varies in accordance with each institution.	Directory websites (MHA): http://www.aupha.org/i4a/pages/index.cfm?pageid=3359
Fellowship in health services administration: Preceptor-directed program that provides practical learning experience in a health care organization beyond graduate-level academic instruction.	Usually lasts 1-2 years.	Compensation varies. Median reported as \$39,055.	Directory (American College of Healthcare Executives): http://www.ache.org/pgfd/guidelines_cont3.cfm
Short-term coursework			
Society of Hospital Medicine Leadership Academy: Instruction for hospitalists in leading change, communicating effectively, handling conflict and negotiation, doing strategic planning, and interpreting hospital business drivers. Held biannually.	3- to 4-day program	\$1400-\$1600. Discounted rate for members of Society of Hospital Medicine	http://www.hospitalmedicine.org/AM/Template.cfm? Section=Home&TEMPLATE=/CM/HTMLDisplay. cfm&CONTENTID=5340

aim to provide practical mentored learning experience in a health care organization and may last up to 2 years. $^{45}$ 

For hospitalists and trainees considering a career as an executive, the American College of Physician Executives can serve as a valuable resource. 46 This organization, founded in 1975, offers educational resources, including publications, comprehensive CD-ROM products, and 1-day courses and master's degree programs in conjunction with several leading business schools in medical management. In addition, the Society of Hospital Medicine offers a Leadership Academy designed to assist practicing hospitalists in evaluating their leadership strengths and applying them to everyday management challenges.<sup>47</sup> Such a program also can facilitate the development of a peer network and the mentoring relationships needed to achieve these goals.

#### **Rewards and Challenges**

The life of the physician executive can be rewarding, but making the transition may prove challenging. However, if physicians can navigate this transition successfully, they will likely find a wide array of opportunities, as demand for physician-executives remains high.

One major challenge to becoming a physicianexecutive is reconciling the administrative role with

the initial desire to enter a career in clinical medicine.48 Physician-executives who continue to see patients are more likely to be satisfied with their jobs than physician-executives who do not. 49 Physician-executives also may feel they are being criticized by their purely clinical colleagues for working in the business or management of medicine.<sup>50</sup> Actual or perceived lack of support may promote isolation and burnout.<sup>51</sup> In addition, the constantly shifting landscape of health care administration results in a much more unstable environment than that found in clinical medicine. For example, the risk of termination for a physician-executive is 20-40 times higher than that for a practicing physician.<sup>50</sup> The reasons for this higher risk include personal conflict with a boss, reorganization (ie, downsizing, merging, etc.), and immediate departure of a supervisor. Access to mentors, support groups, and the option to practice part time are all potential mechanisms to ensure long-term success as a physician-administrator.

#### **CONCLUSIONS**

As hospital medicine continues to grow and evolve, designing sustainable and rewarding academic careers will be crucial to the success of the field. Being able to balance clinical "systole" time with obtaining the skills to support nonclinical "diastole" time is important to ensuring a suc-

cessful career as an academic hospitalist. We have described several possible career paths in teaching, research, quality improvement, and administration. By preparing future hospitalists with the knowledge and skills required to assume a variety of roles during their diastolic time, we hope to encourage the growth of hospitalist leaders with well-developed skill sets. If hospitalists adequately prepare themselves, academic hospital medicine will likely remain sustainable and rewarding, and future generations of trainees will be inspired and prepared to enter the field.

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#### **REFERENCES**

- Fletcher KE, Saint S, Mangrulkar RS. Balancing continuity of care with residents' limited work hours: defining the implications. *Acad Med.* 2005;80:39-43.
- Meltzer D, Arora V, Zhang J, et al. Effects of inpatient experience on outcomes and costs in a multicenter trial of academic hospitalists. *J Gen Intern Med.* 2005;20(s1):141-142.
- Goldman L. The hospitalist movement. Ann Intern Med. 1999;131:545.
- Williams MV. The future of hospital medicine: evolution or revolution? Am J Med. 2004;117:446-450.
- Wetterneck TB, Linzer M, Halls JJ, et al. Satisfaction and worklife of academic hospitalist and non-hospitalist attendings on general medical inpatient rotations. *J Gen Intern Med.* 2006;21(s4):128.
- Garibaldi RA, Popkave C, Bylsma W. Career plans for trainees in internal medicine residency programs. *Acad Med.* 2005;80:507-512.
- Arora V, Guardiano S, Donaldson D, Storch I, Hemstreet P. Closing the gap between internal medicine training and practice: recommendations from recent graduates. *Amer J Med.* 2005;118:680-687.
- 8. Kripalani S, Pope AC, Rask K, et al.. Hospitalists as teachers. *J Gen Intern Med.* 2004;19(1):8-15.
- Hauer KE, Wachter RM. Implications of the hospitalist model for medical students' education. *Acad Med.* 2001;76: 324-330.
- Chung P, Morrison J, Jin L, Levinson W, Humphrey H, Meltzer D. Resident satisfaction on an academic hospitalist service: time to teach. *Am J Med.* 2002;112:597-601.
- Jones RF, Gold JS. The present and future of appointment, tenure, and compensation policies for medical school clinical faculty. *Acad Med.* 2001;76:993-1004.
- Dressler DD, Pistoria MJ, Budnitz, TL, McKean SC, Amin AN. Core competencies in hospital medicine: development and methodology. *J Hosp Med.* 2006;1(1):48-56.

- Pistoria MJ, Amin AN, Dressler DD, McKean SC, Budnitz TL.
   The core competencies in hospital medicine. *J Hosp Med*. 2006;1(1).
- Harvard Macy Institute. Harvard College. Available at: http:// www.harvardmacy.org/programs.asp?DocumentID=1. Accessed October 3, 2005.
- Stanford Faculty Development Center. Stanford University. Available at http://sfdc.stanford.edu/. Accessed January 23, 2006
- American College of Physicians. Available at: http://www.acponline.org/college/membership/classes.htm#fellow. Accessed June 10, 2006
- Arora V, Wetterneck TB, Schnipper JL, et al. Effect of the inpatient general medicine rotation on student pursuit of a generalist career. *J Gen Intern Med.* 2006;21:471-475.
- Lim JK, Golub RM. Graduate medical education research in the 21st century and JAMA on call. *JAMA*. 2004;292:2913-2915
- Association of American Medical Colleges. MedEd (POR-TAL); Providing Online Resources to Advance Learning in Medical Education. Available at: http://www.aamc.org/ meded/mededportal/start.htm. Accessed January 23, 2006.
- BioMed Central. BMC Medical Education. Available at: http://www.biomedcentral.com/bmcmededuc/. Accessed January 23, 2006.
- Reed DA, Kern DE, Levine RB, Wright SM. Costs and funding for published medical education research. *JAMA*. 2005;294(9):1052-7.
- 22. Dichter JR. Teamwork and hospital medicine. A vision for the future. *Crit Care Nurse*. 2003;23(3):8, 10-11.
- Rogers EM. (1995) Diffusion of Innovations. 4th ed. The Free Press:, Toronto.
- 24. Thompson GN, Estabrooks CA, Degner LF. Clarifying the concepts in knowledge transfer: a literature review. *J Adv Nurs*. 2006;53:691-701.
- Weingart SN, Tess A, Driver J, Aronson MD, Sands K. Creating a quality improvement elective for medical house officers. *J Gen Intern Med.* 2004;19:861-867.
- Djuricich AM, Ciccarelli M, Swigonski NL. A continuous quality improvement curriculum for residents: addressing core competency, improving systems. *Acad Med.* 2004;79(10 Suppl):S65–7.
- Institute for Healthcare Delivery Research. Advanced Training Program in Health Care Delivery Improvement (ATP). Available at: http://www.ihc.com/xp/ihc/institute/education/atp/. Accessed October 3, 2005.
- Veterans Health Administration. VA Quality Scholars Program. Available at: http://www.dartmouth.edu/~cecs/fellowships/vaqs.html
- Institute for Healthcare Improvement. George W. Merck Fellowships. Available at: http://www.ihi.org/ihi. Accessed October 3, 2005.
- 30. Meltzer D, Manning WG, Morrison J, et al. Effects of physician experience on costs and outcomes on an academic general medicine service: results of a trial of hospitalists. *Ann Intern Med.* 2002; 137: 866-874.
- Auerbach A, Wachter R, Katz P, Showstack J, Baron R, Goldman L. Implementation of a voluntary hospitalist service at a community teaching hospital: improved clinical efficiency and patient outcomes. *Ann Intern Med.* 2002;137:859-865.
- 32. Wachter RM, Goldman L. The hospitalist movement 5 years later. *JAMA*. 2002;287:487-494.

- 33. Robert Wood Johnson Clinical Scholars Program. Stanford University (Palo Alto, CA). Available at: http://rwjcsp.stanford.edu/. Accessed October 3, 2005.
- Sumant R, Rosenman D. Hospital Medicine Fellowship Update. Society of Hospital Medicine. *The Hospitalist*. 2004; 8(5):38.
- Ranji SR, Rosenman DJ, Amin AN, Kripalani S. Hospital medicine fellowships: works in progress. *Am J Med.* 2006; 119(1):72.e1–e7.
- 36. Luckhaupt S, Chin M, Mangione C, et al. Mentorship in Academic General Internal Medicine. *J Gen Intern Med.* 2005; 2(34):1-5.
- 37. Gill TM, McDermott MM, Ibrahim SA, Petersen LA, Doebbeling BN. Getting funded. Career development awards for aspiring clinical investigators. *J Gen Intern Med.* 2004;19(5 Pt 1):472-478.
- 38. K Kiosk—Information about NIH Career Development Awards. Available at: http://grants.nih.gov/training/career-developmentawards.htm. Accessed March 20, 2006.
- Research Career Development Awards for Junior Faculty and Fellows in General Internal Medicine. Available at: http://www.sgim.org/careerdevelopment.cfm. Accessed March 24, 2006.
- 40. Society of Hospital Medicine. Available at: http://www.hospitalmedicine.org//AM/Template.cfm?Section=Home. Accessed October 4, 2005.
- Levison W, Linzer M. What is an academic general internist? Career options and training pathways. *JAMA*. 2002;288:2045-2048

- U.S. National Institutes of Health. National Institute on Aging. Available at: http://www.nia.nih.gov/. Accessed January 25, 2006
- 43. John A. Hartford Foundation. Available from: http://www.jhartfound.org/. Accessed January 25, 2006.
- 44. Weil TP. Why will physicians in this new environment replace MHAs? *Physician Exec.* 1996;22(2):5-10.
- Directory of Fellowships in Health Services Administration.
   Available at: http://www.ache.org/pgfd/purpose.cfm. Accessed March 24, 2006.
- 46. American College of Physician Executives. Available at: http://www.acpe.org/. Accessed October 3, 2005.
- 47. Society of Hospital Medicine. Leadership Academy statement. Available at: http://www.hospitalmedicine.org/AM/Template.cfm?Section=Search\_Advanced\_Search&CONTENTID=5340&TEMPLATE=/CM/HTMLDisplay.cfm. Accessed October 3, 2005.
- Thomason S. Becoming a physician executive: where to look before making the leap. Fam Pract Manag. 1999;6(7):37-40.
- O'Connor JP, Nash DB, Buehler ML, Bard M. Satisfaction higher for physician executives who treat patients, survey finds. *Physician Exec*. 2002;28(3):17-21.
- 50. Lazarus A. Physician executives don't have to go it alone. *Managed Care* Magazine. 2003. Available at: http://www.managedcaremag.com/archives/0307/0307. viewpoint\_lazarus.html. Accessed January 25, 2006.
- 51. Broffman G. Controlled burn! Physician executives must be ready to handle job burnout, career stress. *Physician Exec.* 2001;27(4):42-45.