

A Hospitalist Postgraduate Training Program for Physician Assistants

Kristen K. Will, MHPE, PA-C
Adriane I. Budavari, MD
James A. Wilkens, MD
Kenneth Mishark, MD
Zachary C. Hartsell, MPAS, PA-C

Division of Hospital Internal Medicine, Department of Medicine, Mayo Clinic, Phoenix, Arizona.

Disclosure: Nothing to report.

Many hospitalist groups are hiring physician assistants (PAs) to augment their physician services. Finding PAs with hospitalist experience is difficult. Employers often have to recruit PAs from other specialties or hire new graduates who have limited hospital experience. Furthermore, entry-level PA training focuses on primary care, with more clinical rotations centered in the outpatient setting. In light of these challenges, our institution created a 12-month postgraduate training program in Hospital Medicine for 1 PA per year. It is the first reported postgraduate PA hospitalist fellowship to offer a certificate of completion. The program's curriculum is based on the Society of Hospital Medicine (SHM) "Core Competencies," and is comprised of 12 one-month rotations in different aspects of hospital medicine supplemented by formal didactic instruction. In addition, the PA fellow completes "teaching modules" on various topics not directly covered in their rotations. Furthermore, this postgraduate physician assistant training program represents a model that can be utilized at almost any institution, academic or community-based. As the need for hospitalists increases, so will the need for trained physician assistants in hospital medicine. *Journal of Hospital Medicine* 2010;5:94–98. © 2010 Society of Hospital Medicine.

KEYWORDS: graduate education, hospitalists, physician assistants.

Additional Supporting Information may be found in the online version of this article.

In recent years, the demand for hospitalists has outstripped the supply, creating a national shortage.^{1,2} A recent Society of Hospital Medicine (SHM) survey found that in the last 2 years there has been a 31% mean growth increase in the number of hospitalist groups.³ As hospitalists are becoming more difficult to recruit, many practices are utilizing physician assistants (PAs) and nurse practitioners (NPs), collectively referred to as nonphysician providers (NPPs) to help offset the workload.⁴ The SHM survey also noted that the number of hospitalist groups utilizing NPPs increased from 29% to 38%.³ The exact number of NPPs working for hospitalist groups is unknown.

Hospitalist NPPs are in demand for reasons other than just physician shortages. NPPs have been utilized to fill the gap in many institutions where the workforce was impacted by the 2002 Accreditation Council for Graduate Medical Education (ACGME) ruling to restrict resident work hours. Several studies have documented NPPs' ability to assist with the compliance of ACGME resident work-hour restrictions while maintaining patient continuity of care, improving length of stays, and reducing health care costs on various hospital services.^{5–9} Dresselhaus et al.¹⁰ found that 56% of medical resident's time on service was delegated to tasks not related to direct patient care. They proposed that these tasks can be delegated to the NPPs, leaving more time for the residents to focus on direct patient care. In a recent study performed at a Pennsylvania hospital, patients presenting to the emergency department with low-risk chest pain (based upon thrombolysis in myocardial infarction [TIMI] risk score) were admitted to a nonteaching service

staffed with NPPs and attending physicians. Simultaneously, a similar group of low-risk chest pain patients were admitted to a traditional internal medicine resident service. The results demonstrated lower median length of stay and hospital charges on the nonteaching service. This study suggested that NPPs can offset the workload volume for medical residents, allowing them to focus on patients with higher acuity and greater learning value.¹¹

Barriers to Finding Experienced NPPs in Hospital Medicine

Although many hospitalist groups are interested in hiring NPPs, there can be significant obstacles to recruitment. For example, most experienced PAs and NPs have clinical backgrounds in either surgical or medical subspecialties and therefore typically need extensive on-the-job training in hospital medicine, which can often take at least 6 to 12 months to acquire the basic skill set.¹² Hiring new graduates may require even longer training periods.

The inexperience of new graduates has become an even more pertinent issue due to recent changes in PA education. Traditionally, PA programs attracted older students with prior healthcare experience, who wished to return to school for additional training. However, in 2005 a major shift occurred in PA education: programs began transitioning from graduating trainees with a bachelor's degree to now requiring a master's level degree for completion of the PA program.¹³ The acquisition of more advanced degrees has changed the demographics of the students matriculating

into PA programs, attracting younger students, straight from undergraduate institutions, with less prior healthcare experience.¹⁴ As a result, not only are new PA graduates less experienced overall, but they are particularly lacking in exposure to hospital medicine. After PA students complete their first 12 months of PA school in the basic sciences and didactic coursework, they embark on 12 to 15 months of clinical rotations, which are largely rooted in primary care. In fact, many PA programs find it difficult to offer hospital-based rotations while fulfilling the required rotations in primary care. These factors have resulted in the need for more extensive on-the-job training particularly for those new graduates interested in hospital medicine. In light of these challenges, our institution created a 12-month postgraduate PA fellowship program in Hospital Medicine.

Postgraduate PA Training Programs

Postgraduate PA fellowships, interchangeably called residencies, are voluntary 1-year training programs that provide both didactic instruction and clinical experience in a medical or surgical subspecialty, thereby lessening the need for on-the-job training. These programs are recognized by the Association of Postgraduate Physician Assistant Programs.¹⁵ Currently, there are 44 postgraduate training programs in the United States, in a wide range of medical and surgical specialties. At the end of these 1-year postgraduate PA programs, most graduates receive a certificate of completion. Until now, the only postgraduate education option for PAs interested in Hospital Medicine was a master's completion program only available to PAs who were already employed by a hospitalist group.¹⁵ This work reviews the first reported postgraduate hospitalist training program for PAs. Specifically, the program's background, curriculum, anticipated program outcomes, and future plans are discussed.

Background for A Hospitalist Postgraduate PA Fellowship

Mayo Clinic Arizona is a multispecialty private group comprised of both outpatient services and a tertiary care hospital medical center, located in the metropolitan Phoenix, AZ, area. The Mayo Clinic Hospital is a 7-story facility with 244 licensed beds, 18 operating rooms, and a Level II emergency department. The Mayo Hospitalist group is composed of 15 full time hospitalists and 6 part-time hospitalists, all of whom are salaried Mayo employees. The group provides 24-hour in-house staffing, covering both resident services (teams composed of interns and residents supervised by a staff hospitalist) and nonresident services (staff hospitalists). Over the years there has been steady growth in the number of nonresident services, in part due to resident work-hour restrictions. To support the physicians working on these nonresident services, the first PA was hired in 2001. Since then, the number of NPPs in our Hospitalist group has increased to 9.35 full-time equivalents (FTEs), including 1 nurse practitioner. However, one of the greatest challenges

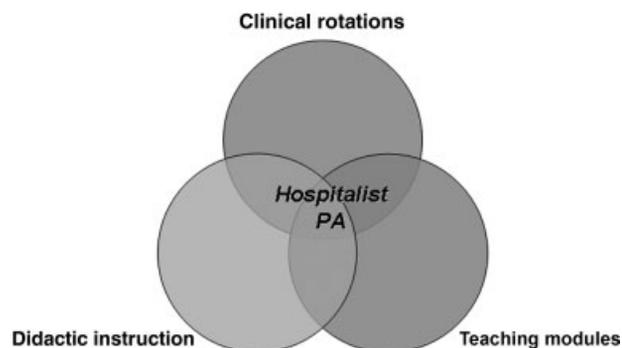


FIGURE 1. The hospitalist PA fellowship is comprised of 3 main components: didactic instruction, clinical rotations, and teaching modules. **Abbreviation:** PA, physician assistant.

in expanding the NPP service was the difficulty finding candidates with experience in hospital internal medicine. This need inspired the creation of a PA fellowship in Hospital Medicine. At the time, there were 2 other postgraduate PA training programs at the Mayo Clinic Arizona in Hepatology and Otolaryngology/Ear, Nose, and Throat (ENT) Surgery.

Program Description

The Mayo Clinic Arizona PA fellowship in Hospital Medicine began in October 2007 and currently accepts 1 fellow per year. Applicants must be graduates of an Accreditation Review Commission in Education for the Physician Assistant (ARC-PA)-accredited PA program and be certified through the National Commission on Certification of Physician Assistants (NCCPA). Furthermore, they must be licensed to work as a PA in the state of Arizona. The program is 12 months in duration, and is comprised of both didactic and clinical components. Upon graduation, the fellow earns a certificate of completion from the Mayo Clinic College of Medicine. The program has received recognition with the Association of Postgraduate Physician Assistant Programs (APPAP).

Two physician assistants act as co-program directors of the PA fellowship in hospital medicine. They are given 0.10 full-time equivalent (FTE) for management of the program, which includes day-to-day operations, curriculum development, and candidate selection. The program also has 2 volunteer physician medical directors, both of whom have previous medical residency experience. The physicians and NPPs in our hospitalist group volunteer their time to serve as faculty for the program, assisting with much of the didactic and clinical education. The program receives a budget of \$99,500 per year, which is funded by the organization's foundation through the department of education. This includes the fellow stipend of \$44,000 per 12 months and institutional malpractice insurance coverage. The fellow also receives health and dental insurance, 2 weeks of paid

Month 1	General Hospital Internal Medicine, Day service (Core Didactic Focus: GI and Pulmonary)
Month 2	General Hospital Internal Medicine, Day service (Core Didactic Focus: Nephrology and Neurology)
Month 3	General Medicine Consults
Month 4	Cardiology
Month 5	General Hospital Internal Medicine Night Service (Core Didactic Focus: Infectious Disease)
Month 6	Palliative Medicine – 2 wks. / Physical Medicine & Rehabilitation – 2 wks.
Month 7	Interventional Radiology (elective I) / Transplant Medicine (elective II) – both 2 wks.
Month 8	General Hospital Internal Medicine, Day service (Core Didactic Focus: Hematology/Oncology)
Month 9	General Hospital Internal Medicine, Night Service (Core Didactic Focus: Critical Care Medicine)
Month 10	Endocrinology & Nutrition
Month 11	Stroke Neurology (Elective III)
Month 12	General Hospital Internal Medicine, Day service

FIGURE 2. Example of PA fellowship yearly schedule. Clinical rotations 1 to 12 are listed in orange; didactic focus topics are listed under respective rotation in blue. **Abbreviation:** PA, physician assistant.

vacation, and \$500 stipend toward attendance of a continuing medical education (CME) conference.

CURRICULUM

The PA fellowship curriculum is designed in a diverse unique format that strives to accommodate all types of learners. It includes clinical rotations in various medicine/surgical subspecialties, didactic instruction, and “teaching modules” (Figure 1). The curriculum is based upon the SHM “Core Competencies.”¹⁵

Clinical Rotations

The PA fellow completes 12 to 14 general hospital medicine and medical specialty rotations, each 2 to 4 weeks in duration. The rotation calendar for the current fellow is given in Figure 2. These rotations are all inpatient-based and are supervised by either the hospitalist or the respective inpatient subspecialists. The PA fellow’s specific clinical responsibilities vary from rotation to rotation, and are designed to maximize the fellow’s exposure to that particular specialty. Each rotation has specific written objectives created by the program directors and reviewed by the rotation’s preceptor(s) (Figure 2). During the clinical rotations, complementary didactic lectures, coursework, and readings are provided to ensure the PA fellow receives a strong foundation. Didactic instruction is designed by the program directors, physician preceptors and staff NPPs, and is coordinated with the clinical rotation specialty. At the end of each rotation the fellow is evaluated by the preceptor and given direct feedback on their performance.

- Medical ethics
- Coding, billing and documentation
- Leadership and practice management
- Communication
- Case management and social services
- Medical decision making and evidence-based medicine
- Pharmacokinetics, drug safety, and pharmacoconomics
- Quality assurance and patient safety
- Stroke management
- Wound and ostomy care
- Infection control
- Risk management
- Writing and publication

*Adapted from: Dressler, et al. The core competencies in hospital medicine: Development and methodology. *Journal of Hospital Medicine*. 2006;1:48-56.

FIGURE 3. List of teaching module topics covered in the PA fellowship curriculum, which are based upon the “Core Competencies” from the Society of Hospital Medicine. **Abbreviation:** PA, physician assistant.

Didactic Instruction

The didactic instruction is organized in a system-based manner and occurs on a weekly basis during the Hospital Internal Medicine service and Medicine Consults rotations. Hospitalist NPPs and physician faculty are responsible for most of the teaching. This formal didactic instruction is supplemented by journal club presentations given by the PA fellow to faculty in the division of hospital internal medicine. The fellow is also required to attend daily medical resident lunchtime educational lectures, weekly medical grand rounds, and any lectures provided by the medicine subspecialties while the PA is on that particular rotation.

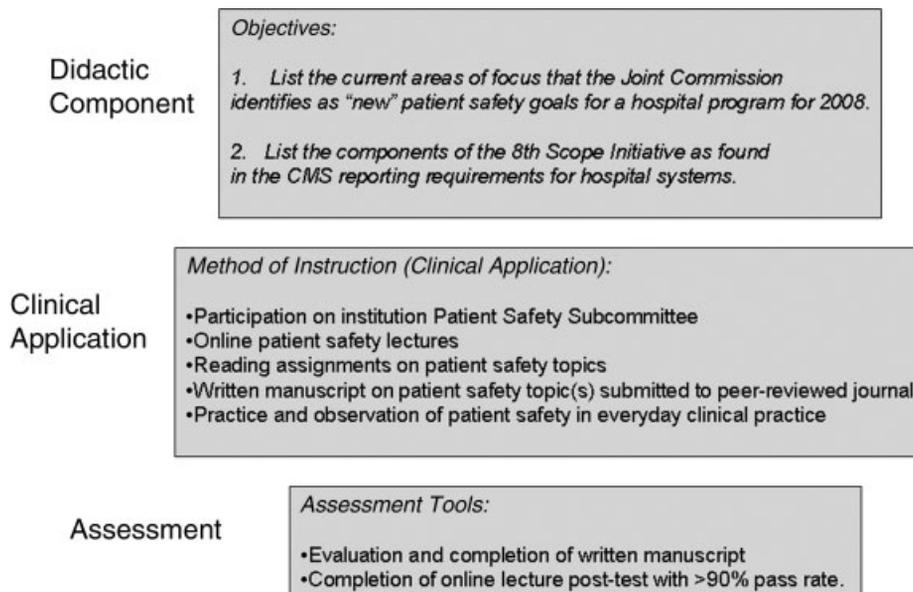


FIGURE 4. Example of a teaching module lesson plan for the PA fellow. The teaching module is comprised of a didactic component, clinical application, and assessment tool. **Abbreviation:** PA, physician assistant.

- End of rotation evaluations (12)
- End-year manuscript submitted for publication by peer-reviewed journal
- Mid-year and end-year formal comprehensive evaluations
- Competency checklist of modules completed by end of fellowship training
- Journal club presentations
- Professional Portfolio
- Teaching module assignments

FIGURE 5. Summary of PA fellowship assessment tools. **Abbreviation:** PA, physician assistant.

Teaching Modules

One component of the Hospital Medicine PA fellowship curriculum that may be unique is the concept of “teaching modules.” While receiving regular didactic instruction and completing their clinical rotations, the PA is also expected to complete self-directed teaching module assignments. These modules serve to educate the PA fellow on the “hospital as a system”—the true essence of hospital medicine. The modules cover a variety of topics not directly addressed during their rotations. These topics are outlined in Figure 3. Each teaching module consists of a didactic component, clinical application, and assessment (Figure 4) and has its own specific objectives and goals. Teaching modules are often taught by the local expert in the hospital in that particular area. For example, for the infectious control teaching module, the PA fellow will rotate with the infection control nursing staff learning about the isolation and infection control policies of the institution.

Assessment Tools

There are several tools utilized to assess both the PA fellow and the fellowship program itself (Figure 5). The assessment tools used include both ongoing and summative assessments. To fulfill the ongoing assessment, each rotation and teaching module contains assessment tools provided by the preceptor, which are reviewed by the program directors. Additionally, during the clinical rotations, skills are assessed using “competency checklists” that require the preceptor to directly observe the PA fellow perform a specific task or skill-set and sign off on its successful completion (Supplementary Figures 6, 7).

There are 2 forms of summative assessment for the PA fellow. First, to assess the PA fellow’s knowledge, comprehensive mid-year and end-year examinations are utilized. These multiple-choice examinations are comprised of questions which align with the didactic lectures/objectives provided by the Hospital Medicine faculty throughout the year. The second form of summative evaluation of the fellow is project-based and divided into 2 parts. First, the fellow is expected to write a publication-quality manuscript on a hospital medicine topic by the end of the year. Second, the PA fellow is expected to create a professional portfolio, which is comprised of a collection of all of the rotation/module assessments, the formal program assessments, and documentation of all of the skills obtained by the fellow throughout year (competency checklists). This portfolio can be used by the graduate to demonstrate to future employers what skills they possess and provide documentation of knowledge gained during the fellowship.

The program itself is evaluated by several measures. First, the fellow provides formal feedback during the mid-year and end-of-the-year assessments, which are used to

enhance the experience of future fellows. Second, there is ongoing review by both the division of Hospital Medicine and the institution's Allied Health Education Committee, which ensures that the program maintains the appropriate standards and goals.

Future Goals for the PA Fellowship

The program graduated its first fellow at the end of October 2008 and has enjoyed early success. Integrating the PA fellow onto the hospitalist services augmented the present mid-level and physician teams. There has been excellent institutional support for the program with extremely positive feedback from the rotation preceptors. There are several futures plans for the program. Our first goal is to seek accreditation from the Accreditation Review Commission for Physician Assistants (ARC-PA), the organization that accredits entry level PA programs and which began formal, voluntary accreditation of postgraduate programs in early 2008. We plan to begin this process within the next academic year.

Our second long-term goal for the program is to include NPs in the training program. Because of the desire to seek accreditation, the program directors felt temporarily limiting the fellowship to PAs would aide in the rigorous accreditation process, which can take approximately 1 year to complete. There is an NP on our faculty and the program has received interest from NPs. Once we obtain accreditation, expand the program enrollment, and develop an NP curriculum, we plan to open the fellowship to either PA or NP applicants.

Our third goal is to substantiate our PA Fellowship validity with outcome measures and ultimately publishable data. Thus far, the success of the PA fellowship is qualitative, and with small numbers of graduates it is difficult to quantify. After graduation of many subsequent PA fellows, our goal is to obtain quantifiable data that can be used to improve the quality of the PA fellowship and demonstrate the value of postgraduate training for physician assistants.

Perhaps the most important goal of the program is to eventually accept additional PA/NP fellows per year. While 1 program does not meet the demands of a national shortage of hospitalist providers, it may serve as a model that other institutions can adapt to their own needs. Since the program is based upon the SHM Core Competencies, the curriculum can be applied to a variety of hospitalist programs, and its relatively low operating cost makes it feasible for both academic-based and community-based institutions. Importantly, since recruitment and retention of employees is such a challenge for most hospitalist groups, this PA fellowship program may serve as a vehicle for recruitment and long-term retention of well-trained employees. This prece-

dent has been set, as our division has hired our first PA fellow, whose transition from PA fellow to PA staff was seamless.

In conclusion, our PA fellowship in Hospital Medicine represents the first reported postgraduate PA program of this kind in the United States offering a certificate of completion. As the need for hospitalists increase so will the need for NPPs, particularly those with additional training in hospital medicine. This program serves as an example of 1 type of training tool for physician assistants looking to work in hospital medicine.

Address for correspondence and reprint requests:

Kristen K. Will, MPAS, PA-C, Mayo Clinic Hospital, Division of Hospital Internal Medicine, 5777 E. Mayo Blvd., Phoenix, AZ 85054; Telephone: 480-342-1387; Fax: 480-342-1388; E-mail: will.kristen@mayo.edu Received 25 November 2008; revision received 21 August 2009; accepted 23 August 2009.

REFERENCES

1. Pham HH, Devers KJ, Kuo S, Berenson R. Health care market trends and the evolution of hospitalist use and roles. *J Gen Intern Med.* 2004;20:101–107.
2. Nyberg D. Innovations in the management of hospitalized patients. *Nurse Pract* Spring 2006 (suppl):2–3.
3. Jerrad J. Hospitalist pay up, productivity steady in SHM's latest survey. *Hospitalist.* 2008;12(5):7,16.
4. Duffy K. Physician assistants: filling the gap in patient care in academic hospitals. *Perspect Physician Assist Educ.* 2003;14(3):158–167.
5. Cowan MJ, Shapiro M, Hays RD, et al. The effect of a multidisciplinary hospitalist/physician and advanced practice nurse collaboration on hospital costs. *J Nurs Adm.* 2006;36(2):79–85.
6. Christmas AB, Reynolds J, Hodges S, et al. Physician extenders impact trauma systems. *J Trauma.* 2005;58(5):917–920.
7. Dubaybo BA, Samson MK, Carlson RW. The role of physician assistants in critical care units. *Chest.* 1991;99:89–91.
8. Henkel G. Alliances: invaluable assistants. *Hospitalist.* 2006;April:32–33.
9. Van Rhee J, Ritchie J, Eward AM. Resource use by physician assistant services versus teaching services. *JAAPA.* 2002;15:33–42.
10. Dresselhaus TR, Luck J, Wright BC, Spragg RG, Lee ML, Bozzette, SA. Analyzing the time and value of house staff inpatient work. *J Intern Med.* 1998;13:534–540.
11. Myers JS, Bellini LM, Rohrbach J, et al. Improving resource utilization in a teaching hospital: Development of a nonteaching service for chest pain admissions. *Acad Med.* 2006;81(5):432–435.
12. Darves B. Midlevels make a rocky entrance into hospital medicine. *Today's Hospitalist.* 2007;5(1):28–32.
13. Accreditation Review Commission for Physician Assistant Education. 3rd ed. 2005. Available at: <http://www.arc-pa.org/Standards/standards.html>. Accessed September 2009.
14. 22nd Annual Report on Physician Assistant Education in the U.S., 2005–2006. Available at: <http://www.paeonline.org>. Accessed September 2009.
15. Association of Postgraduate Physician Assistant Programs. Available at: <http://www.appap.org>. Accessed September 2009.
16. Dressler DD, Pistoria MJ, Budnitz TL, McKean SC, Amin AN. The core competencies in hospital medicine: development and methodology. *J Hosp Med.* 2006;1:48–56.