

IMPLEMENTATION OF A POSTGRADUATE ORTHOPAEDIC PHYSICIAN ASSISTANT FELLOWSHIP FOR IMPROVED SPECIALTY TRAINING

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Abstract

Postgraduate PA fellowships allow for advanced specialty-specific education and experience for entry-level graduates. The Wake Forest School of Medicine created a postgraduate orthopaedic surgery PA fellowship (OPAF) that consists of 3 components: independent clinical experience, structured supervised rotations, and learning modules. The fellow is exposed to an all-inclusive experience via active rotations in each orthopaedic subspecialty, manages and operates an autonomous clinic, and receives additional training via learning modules related to systems-based practice and health-care quality improvement. The Wake Forest School of Medicine's OPAF can provide a framework for similar fellowship programs throughout the United States.

Postgraduate PA fellowships allow for advanced specialty-specific education and experience for entry-level graduates. The first PA fellowship program was started in 1971 at Montefiore Medical Center in response to a shortage of advanced practice health-care providers who specialized in surgery, and these programs have continued to grow¹.

In 2015, the Wake Forest School of Medicine Departments of Orthopaedic Surgery and PA Studies jointly opened a postgraduate orthopaedic surgery PA fellowship (OPAF). The program was initially designed to attract entry-level graduates, with the hope that as the program expands, PAs who are interested in specialized surgical fields also could benefit. Currently, the fellowship structure consists of 3 components: independent clinical experience, structured supervised rotations, and learning modules.

For the duration of the OPAF, the fellow runs 1 independent clinic day each week. This provides the fellow with clinical experience and benefits patients

and the institution through improved access to care. During the clinic, the fellow works independently, but has access to orthopaedic surgeons and PAs who are running clinics simultaneously if advice or guidance is needed.

Along with the weekly clinic, core orthopaedic-specific rotations expose the fellow to numerous facets of orthopaedic surgery as the year progresses. These various rotations foster collaboration among interdisciplinary teams of physicians, nurses, and other trainees throughout multiple phases of care. During the rotations, the fellow attends educational lectures and grand rounds, as well as continuing medical education conferences.

Additionally, throughout the year, the fellow completes learning modules that address aspects of systems-based practice to broaden the educational experience, including completion of a course on health-care quality improvement offered by the Institute for Healthcare Improvement (IHI)².

A 3-tiered model, such as this one at Wake Forest, can greatly benefit

graduating fellows and the PA field by giving a focused orthopaedic experience; it also can provide a framework for other fellowship programs around the United States to follow.

Background

Limited research has been conducted on the efficacy, utilization, and standardization of postgraduate PA fellowships. To date, the American Academy of Physician Assistants has not required a standardized credentialing process. In 2008, the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA) initially published an accreditation process for postgraduate PA training programs, and only 8 programs were provided accreditation³. After reviewing its processes in 2013, the ARC-PA accredited the initial programs and postponed additional accreditation until reassessment of the programs in the future.

Despite the lack of formal guidelines or standard curricula, continued health-care growth and reform with increased availability and access to advanced practice practitioners (APPs) has helped to sustain interest in the utility of postgraduate fellowships. A study in 2012 found that a total of 49 programs (of which 42 were nonmilitary) were running at that time (22 nonmilitary programs had opened for enrollment in or after 2008)⁴. Currently, the Association of Postgraduate PA Programs (APPAP) has >60 postgraduate PA programs listed, and the number of such programs continues to rise⁵.

Specialization in medicine has required orthopaedic surgeons to become highly trained and subspecialized; most PA programs, however, are family-medicine oriented and do not emphasize surgical training. The OPAF gives the PA fellow time and training in all of the subspecialties with several different attending surgeons in order to obtain a

more detailed surgical experience and foundation.

The American Association of Surgical Physician Assistants (AASPA) recognizes the unique opportunity that postgraduate PA residencies/fellowships can provide to a PA who is interested in the increasing opportunities in specialized surgical fields⁵⁻⁷. Like the original Montefiore fellowship, Wake Forest's OPAF was developed to offset institutional, local, and regional shortages of specialty-trained PAs. The OPAF aligns with the organization's strategic initiative of improving recruitment and the retention of quality APPs. The fellowship recruits new PA graduates with the goal of transforming them into skilled providers through a 3-tiered program.

Following the first Postgraduate PA Program at Montefiore Medical Center, the U.S. government developed postgraduate PA orthopaedic training programs starting in the late 1980s. However, these well-established programs are available only to active-duty PAs in the armed services⁶. The Naval Medical Center Postgraduate PA Program for Orthopedics, like the Wake Forest OPAF, is a 12-month program that provides rotations in the subspecialties, but does not include an elective rotation, a rotation in osteoporosis and metabolic bone disease, or a rotation in physical medicine and rehabilitation and pain management. While similar to the Navy's program, the Wake Forest OPAF offers 1 day a week of autonomous clinic. Upon completion of the Naval Medical Center's postgraduate program, participants owe 2 years of service, and they are awarded a certificate of completion from the United States Navy Bureau of Medicine and Surgery. Wake Forest OPAF participants are awarded a certificate of completion from the Wake Forest School of Medicine; there is no contractual obligation, although efforts are made to retain the highly skilled fellows. The U.S. Army

currently has a postgraduate PA program in conjunction with Baylor University. The Army/Baylor University Orthopedic Physician Assistant Residency and Doctoral Program provides the same subspecialty training as the Navy program. The Army program includes a rotation dedicated to orthopaedic oncology (this subspecialty can be completed as an elective in the Wake Forest OPAF) and a rotation dedicated to research. The research component of the Wake Forest OPAF is completed at the fellow's discretion throughout the program in coordination with an orthopaedic attending surgeon and residents.

Development of the Program

Rotation Descriptions and Schedule

Prior to development of the OPAF, the fellowship director was chosen from the orthopaedic department faculty by application based on his or her history of medical education experience, work with PAs, and vision for the fellowship. The OPAF rotation schedule was designed to provide complete exposure to all aspects of orthopaedic surgery. The first month is an introduction to the program, including orientation sessions mandated by the hospital as well as an introduction to both the clinic and operating room (OR) environments.

After creation of the rotation schedule, a PA mentor for each rotation was identified based on specific discussions to confirm interest in education (specifically, PA education); this mentor then created rotation objectives. These objectives were discussed with and approved by the fellowship director in collaboration with the rotation mentor. In addition, appropriate learning modules were selected, and clinical competency checklists were created for each rotation. A sample of a rotation objective and schedule is shown below (see Appendix 1 for details on additional rotations).

Total Joints – 4 Weeks

- a. Diagnosis and management of hip and knee arthritis
- b. Indications for surgery
- c. Implant selection; templating basics
- d. Postoperative imaging surveillance
- e. Identification, description, and management of periprosthetic fractures, dislocations, and other complications
- f. Joint aspirations and injections
- g. Attendance at weekly conference
- h. First assistant in the OR

Learning modules were based on modules from the PA education director and are related to each rotation (see Appendix 2).

Learning Modules

Learning modules were created focusing on patient-centered care and incorporating interprofessional collaboration and professional development. Providers in modern health care work closely with other allied-health specialists (e.g., case managers, infection control nurses, dietitians, etc.), and these learning modules were incorporated to augment understanding of all of the roles of the health-care team⁷. This ultimately may contribute to a more comprehensive approach to patient care. The modules, all relevant to orthopaedic practice, were structured to include reading assignments, didactic instruction, observation, and evaluation (see Appendix 2). These modules were specifically designed to enhance the objectives of our program.

The PA fellow also completes online modules through the IHI². These modules review fundamental principles of health-care systems, and, upon completion, the fellow receives a certificate with continuing education credit from IHI.

Procedural Checklists

The PA fellow has a formally evaluated procedural competency assessment for each rotation, as well as an extensive procedural checklist to complete over the course of the year.

These competencies were designed to test the core skills that are essential for an orthopaedic PA.

The checklists include a step-by-step evaluation of a particular skill, including patient safety (e.g., appropriate patient name on a radiograph), planning (e.g., preparation of appropriate supplies for a cast), and execution (see Appendix 3).

Clinical Practice

Clinical orientation includes exposure to other APPs in a clinical setting to understand how clinics are run, providing preliminary training in independent patient care. The PA fellow then begins an autonomous weekly clinic, increasing to full patient volumes within the first few months.

On core rotations, the fellow generally spends another day per week in a subspecialty clinic with the orthopaedic surgeon mentor for that rotation, as well as 3 days in the OR. With this schedule, the fellow continues to accumulate clinical insight throughout the year to increase independent clinical skills.

Implementation

Education of the academic clinical department prior to OPAF implementation is the key to successful integration of a new program. The entire department, including faculty, residents, APPs, and students, should be unified not only in supporting the OPAF, but also in understanding the educational goals that are summarized and shared prior to implementation.

The PA fellow should be considered a trainee who performs in a supportive environment, and it is imperative that the department understand this role rather than assume that the PA fellow is an independent provider while on rotations. Before each rotation, the preceptors are reminded of their roles and responsibilities through e-mail. This e-mail also includes the specific rotation objectives that were previously determined with the preceptors.

Consistent and ongoing feedback is key. The fellowship director should be consistently available for guidance and support. This mentor should be able to understand the needs of the PA fellow and help to provide guidance, but should also be able to resist any departmental or faculty pressures that diminish the fellow's educational goals. We recommend having a faculty director who has been in practice for ≥ 4 years at that institution.

In addition, we instituted a direct feedback questionnaire that is completed by the rotation preceptor(s); we shared this feedback with the PA fellow and the fellowship director. The fellowship director personally solicits feedback from the preceptors for each rotation and meets with the fellow at the end of each rotation to discuss educational benefits and opportunities for improvement.

Benefits of Implementation

Voluntary employee turnover carries substantial costs to both the employee and the employer. In general, PA students complete a training program consisting of a minimum of 2,000 clinical hours, which may or may not include an orthopaedic surgery elective. Students have limited exposure to specialty training before choosing a career, leading to increased turnover because of poor alignment of expectations with those of the medical practice. Turnover is 9% to 12% among APPs, indicating an opportunity to improve retention⁸. Our institutional baseline was consistent with this percentage at 9%; however, turnover within the first year was 18% in fiscal year 2015⁹. In large academic medical centers, total turnover costs can account for 5% of the overall operating budget¹⁰. Many factors contribute to employee turnover, including job satisfaction and role clarity¹¹. Mechanisms to reduce voluntary turnover are favorable to the employer and the employee.

The OPAF embeds the employee within the health-care team. Although

the fellowship is only 1 year, PA fellows develop close relationships with supervising physicians, and they fully understand the responsibilities of a PA in a busy orthopaedic surgical practice. As fellows prepare for job interviews for permanent positions, they will have a better understanding of questions to ask about the onboarding process, the work environment, and professional development opportunities. Fellows learn how to integrate into a variety of teams and work with multiple surgeons. They learn the basics of common orthopaedic conditions and procedures, thereby limiting the “on-the-job training” to focusing on the preferences of a particular surgeon, which potentially optimizes the onboarding process for efficiency and provider satisfaction.

The OPAF provides a solid foundation in multiple subspecialties, enabling the fellow to make more informed decisions about practice type. This improved knowledge may reduce turnover within the first year of employment. Additionally, many academic medical centers utilize a large APP workforce, and new positions could provide a seamless transition within the parent institution.

A PA fellow must also consider opportunity costs; the fellow stipend is approximately \$65,000, whereas a new graduate can expect an average salary of \$90,000¹². The fellow must weigh this with other considerations such as productivity expectations, procedural training in the OR, the development of orthopaedic-specific physical examination skills and office-based procedures, and recruitment opportunities (including a broad base for recommendation letters). Highly competitive jobs often require orthopaedic experience because of the time investment that is required for training; this is fulfilled by the OPAF. In addition, with the extra year of subspecialty training, an OPAF graduate may start at a higher salary than a new PA graduate.

The OPAF has educational goals and objectives different from those of orthopaedic residents, and it is important that the PA fellows’ didactic curriculum reflects these differences. There are areas of overlap with resident training, such as indications for surgery and initial fracture management, but a substantial portion of the education is unique. For example, a PA’s education in the OR focuses on how to assist the surgeon and facilitate the day, whereas a resident’s education in the OR focuses on how to perform the procedure and the nuances of various surgical techniques. PA fellows receive education that is specific to their role as consultants, integration into a health-care team, and patient education. With this comprehensive curriculum, PA fellows can appreciate differences in the inpatient and outpatient settings, as well as the advantages and the disadvantages of hospital employment.

PA fellows are encouraged to develop research skills by critically evaluating medical literature in order to incorporate evidence-based medicine into their daily practice. It is expected that each fellow will complete a scholarly project by the end of the fellowship, culminating in a poster presentation, journal submission, and/or presentation at departmental grand rounds.

Professional development is emphasized throughout the year-long fellowship. Small-group educational settings are conducive to providing immediate feedback. Fellows receive instruction on specific musculoskeletal examination techniques and integration within complex care teams of attending surgeons, residents, nurses, and other APPs. Direct conversations with faculty during rotations and regularly scheduled feedback sessions with the program director are essential for open communication. PA fellows are instructed on giving effective, nonthreatening feedback since fellows may teach PA students during the OPAF⁷. The development of feedback

skills, both for giving and receiving, is underemphasized in medical education but crucial for real-world interactions¹³.

Innovation and Next Steps

Besides cultivating a PA who is uniquely skilled in orthopaedic fundamentals at the outset of practice, our fellowship is specifically innovative because of the early self-directed clinical opportunity. In addition, this fellowship adds structure and core competencies that most certificate programs lack. The fellow acts as an independent provider in clinic weekly, which, to our knowledge, has not previously been implemented by other programs. The clinic population primarily involves general orthopaedics, creating a level of comfort with the evaluation and the treatment of common musculoskeletal conditions. Completing autonomous visits provides early exposure to billing and coding, an often-overlooked area of medical education. Upon completion of the OPAF, the PA will not only have more specific orthopaedic knowledge, but will also be equipped with necessary skills and experiences, minimizing additional on-the-job training in a multitude of different settings. This limits the time and the money that is spent training a new hire. With this breadth of experience, future employers can be assured that the PA has clear intentions and is aware of job requirements and expectations, which will increase assimilation and decrease attrition. Furthermore, the PA fellow can interact with other PA specialties and participate in interdisciplinary learning. Early collaboration with different schools of thought broadens the fellow’s ability to communicate with other members of the health-care team, creating the ability to solve the increasingly complex medical problems that are encountered in orthopaedic patients.

The OPAF is unique because of rotations through closely affiliated specialties, including osteoporosis and

metabolic bone disease, podiatry, and physical medicine and rehabilitation. These rotations provide the PA with extensive hands-on experience in related areas of medicine and a diverse knowledge base. Exposure to multiple arenas related to musculoskeletal health also increases the PA's understanding of appropriate referral patterns.

We believe that this advanced educational program, described in detail above, will serve as a national model for postgraduate PA training. The Wake Forest Department of Orthopaedic Surgery intends to formally conduct a retrospective study at the end of 5 years to evaluate the effectiveness of the program. This study will examine the outcomes of the program, including successful job placement, retention, and satisfaction, and how the results can be applied to a larger scale.

Appendix

Appendices showing the rotation objectives and schedule, the learning modules, and a procedural competency checklist are available

with the online version of this article as a data supplement at [jbjs.org \(http://links.lww.com/JBJSJOPA/A18\)](http://links.lww.com/JBJSJOPA/A18).

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