

Development of a Rural Family Practice Rotation in an Athletic Training Residency Program

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Context: Postprofessional residency (PPR) programs continue to gain popularity as athletic training education prepares for a paradigm shift. The Commission on Accreditation of Athletic Training Education has established didactic and clinical infrastructure for PPRs seeking accreditation. Accredited programs provide athletic trainers (ATs) with an advanced level of knowledge in a focused area of clinical practice.

Objective: A case study report to introduce a novel PPR general medical rotation to illustrate the skills and knowledge of ATs, evaluate the impact of the athletic training residents in the rural family practice (FP) setting, and to discuss how employing an AT in this setting aligns with the triple aim of the Affordable Care Act (ACA).

Background: Currently, there is very little literature regarding PPRs. Additionally, very little research exists describing how ATs function within the ACA model of health care delivery.

Description: The PPR developed a rotation for a rural FP outpatient clinic. Athletic training residents completed 3-week rotations in this setting working with multiple providers. Learning objectives were created to emphasize the evaluation, diagnosis, and management of general medical conditions. Objectives were assessed at the conclusion of the rotation. Finally, data were collected to evaluate the impact of athletic training residents in the ACA model of health care delivery.

Clinical Advantage(s): The athletic training residents improved their clinical evaluation and diagnosis skills in a FP clinic through this educational opportunity. This rotation cultivated and fostered interdisciplinary education and interprofessional collaboration. Finally, the observational findings of this rotation revealed the impact of ATs appear to align with the objectives of the ACA health care model, supporting the use of ATs in this role.

Conclusion(s): This rotation highlights an area of clinical practice future ATs could pursue. Accredited PPR programs must consider the evolution in health care delivery and the shift in athletic training education standards to develop strong PP programs.

Key Words: Postprofessional residency, advanced clinical practice, affordable care act, accountable care

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INTRODUCTION

Athletic trainers (ATs) have traditionally practiced in the high school, collegiate, and professional athletic settings. In these settings, ATs have used their expertise in prevention, management, and evaluation and diagnosis of a wide array of traumatic injuries and medical illnesses, providing safety for athletes and patients, along with an expedited and healthy return to play. Athletic trainers are health care professionals that work under the direction of a physician and, in doing so, have functioned as an indirect extension to their directing physician for decades. Athletic trainers have used their skills and education to develop new employment opportunities in a variety of emerging practice fields, such as performing arts, military, law enforcement, industry, and physician practice settings.

Athletic trainers in the physician practice setting have gained significant recognition and popularity in the health care community in recent years.¹⁻⁸ The development of postprofessional programs that provide advanced experience and education in the physician practice model has given ATs the opportunity to learn how to function effectively and efficiently in this setting. The Commission on Accreditation of Athletic Training Education (CAATE) has developed standards⁹ that guide the didactic and clinical experiences for postprofessional residency (PPR) programs within a clinical area of focus. This is a positive step forward in the advancement of athletic training education and provides insight and direction for the future of athletic training educational programs. Some of these postprofessional programs are housed within the physician practice setting, with a specialized area of focus in clinical evaluation and diagnosis or orthopaedics.

The Affordable Care Act (ACA) has driven our health care system to rethink how we function and the quality of care we provide. The triple aim of the ACA is to provide favorable outcomes with high patient satisfaction at a lower cost.¹⁰ Primary care is the logical foundation of an effective health care system. The United States currently has a national shortage of 4300–7200 primary care physicians.¹¹ The provider deficit will grow even larger with the ACA.¹¹ There have been many ideas proposed to address this gap in the primary care workforce. Potential solutions generally focus on 3 strategies: (1) produce more primary care physicians, (2) train more midlevel providers, and (3) use community health workers.^{12,13} Each of these strategies has obvious benefits and could address physician shortages, but alternative service delivery models are evolving. The use of the AT in the primary care and family practice (FP) office is just one example and is untapped potential for future athletic training positions.

The authors are unaware of any study that has investigated the impact of ATs in a rural or urban FP setting and discussed this impact in the context of the ACA objectives. The purpose of this case study educational technique is to introduce a novel rotation within an accredited PPR program, evaluate the

impact of the athletic training resident in the rural FP setting, and to discuss how employing an AT in this setting aligns with the triple aim of the ACA.

Postprofessional Athletic Training Residency Programs

The purpose of a PPR in athletic training is to prepare ATs for advanced clinical practice. Post-professional residencies are formal educational programs that offer structured curricula, including didactic and clinical components, to educate ATs. They are designed to build upon and expand the AT's knowledge and experience acquired during professional (entry-level) education.⁹ The CAATE has established standards and guidelines for accreditation of PPRs and requires that they be a minimum of 12 consecutive months of continuous full-time practice and must ensure that residents are objectively meeting specific competencies consistent with the 7 foundational behaviors of professional practice. These competencies are consistent with those specified by the Institute of Medicine, Accreditation Council for Graduate Medical Education, and the American Board of Medical Specialties.⁹ The CAATE chose 6 of these foundational behaviors to develop the core competencies required for a PPR. The PPR core competencies are: (1) patient-centered care, (2) interdisciplinary collaboration, (3) evidence-based practice, (4) quality improvement, (5) use of health care informatics, and (6) professionalism.⁹

The CAATE-accredited St Luke's Sports Medicine's Post-Professional Athletic Training Residency (SLSM-PPR) was established to provide a foundation of excellence for ATs who seek employment within the physician practice setting. The program emphasizes a proactive approach to efficient and effective clinical management of patients and medical conditions in a sports medicine, orthopaedic, and primary care clinical environment. The specialized clinical area of focus of the SLSM-PPR is clinical evaluation and diagnosis, with an emphasis in orthopaedic pathologies; therefore, all didactic and clinical education is structured to meet this focus.

The first 4 months of the program are spent rotating with 4 sports medicine physicians who serve as preceptors to the athletic training residents, 2 of which are fellowship-trained primary care sports medicine physicians, and the other 2 are sports medicine fellowship-trained orthopaedic surgeons. Athletic training residents spend 1 month with each physician. During this time, athletic training residents build upon their existing knowledge within orthopaedic evaluation and diagnosis, develop an understanding and interpretation of basic and advanced musculoskeletal imaging modalities, and become proficient in the use of the electronic medical records system. Formal didactic sessions with St Luke's Sports Medicine physicians, ATs, and physical therapists facilitates interprofessional collaboration and directs the athletic training residents in their evaluation and diagnosis of both surgical and conservative pathologies through evidence-based care.

Table 1. Sample Overview of St Luke's Sports Medicine's Post-Professional Athletic Training Residency Programming

Rotation	Rotation Length, wk	Rotation description	Athletic Training Residents
Orientation	2	Orientation	1 and 2
Rotation 1	4	Primary Care Sports Medicine	1
		Primary Care Sports Medicine	2
Rotation 2	4	Primary Care Sports Medicine	1
		Primary Care Sports Medicine	2
Rotation 3	4	Sports Medicine Surgery	1
		Sports Medicine Surgery	2
Rotation 4	4	Sports Medicine Surgery	1
		Sports Medicine Surgery	2
Rotation 5	3	General Orthopedics	1
		Pediatric Sports Medicine Surgery	2
Rotation 6	3	Pediatric Sports Medicine Surgery	1
		General Orthopedics	2
Rotation 7	2	Durable Medical Equipment	1
		Public Safety Medical Practice	2
Rotation 8	2	Public Safety Medical Practice	1
		Durable Medical Equipment	2
Rotation 9	3	Urban Primary Care	1
		Rural Family Practice	2
Rotation 10	3	Rural Family Practice	1
		Urban Primary Care	2

These skills are developed and mastered throughout the year-long residency. Refer to Table 1 for a sample overview of the SLSM-PPR.

Following these first 4 months, athletic training residents are then exposed to orthopaedic practices outside of the sports medicine specialty. This allows the athletic training residents to expand their knowledge of the evaluation and management of various musculoskeletal conditions. These rotations are spent in areas such as pediatric orthopaedics, general orthopaedics, public safety medicine, and primary care. The final 4 months of the SLSM-PPR are again spent with the 4 primary sports medicine physicians. During this time, the athletic training residents are refining their clinical evaluation and diagnosis skills and learning the organization and administrative roles necessary to function independently within their scope of practice.

The recent changes in health care delivery and management with federal and state legislation have created an opportunity for the SLSM-PPR to develop a novel rotation within the residency program. This is a rural FP rotation, which was implemented in the spring of 2014. This rotation is 6 weeks in duration, with each athletic training resident spending 3 weeks at the practice. This rotation was added with 3 objectives in mind: (1) to expand the athletic training resident knowledge of common FP conditions and treatments and improve their evaluation and diagnostic skills, (2) to increase awareness of ATs' skills and knowledge as health care professionals to the practice providers, and (3) to possibly identify the niche ATs can fill in this setting. These goals have been defined and approved through the CAATE accreditation process.

Rural Family Practice Rotation

The clinic, designated a rural health clinic,¹⁴ consisted of 10 providers, 7 physicians, 2 physician assistants, and 1 nurse

practitioner and used a team approach to patient care. One patient care team consisted of 2 physicians and 1 physician assistant or nurse practitioner. To qualify as a rural health clinic, the clinic must be located in a nonurbanized area and a designated medically underserved area or designated population group or geographic health professional shortage area.¹⁵ The athletic training resident was added to the patient care team, scheduled with 1 provider daily, but worked with all the providers throughout the rotation. The first week of this rotation consisted of clinical orientation, followed by 5 weeks working in the clinical setting 4 days per week (20 clinic days) of direct patient care. The athletic training resident provided clinical care for all patients presenting to the clinic during this time. These patients presented for evaluation or follow up of primary care and general medical conditions, as well as orthopaedic injuries and disorders. Throughout the rotation, the residents were exposed and educated on comprehensive evaluation, treatment, and management strategies for general medical conditions. These medical conditions include diabetes, hypertension, heart disease, obesity, and various other cardiovascular, endocrine, and internal medicine pathologies.

Residency Program Goals and Objectives

The learning objectives for this rotation were to develop an advanced understanding of the management of rural FP patients, with an emphasis on evaluation and diagnosis. Refer to Table 2 for detailed rotation goals and objectives. The athletic training residents would continue enhancing their knowledge in family medicine and how they can be incorporated into other FP settings. All core competencies established by CAATE were addressed during this rotation. Specific objectives were measured using the athletic training resident preceptor and mentor evaluation forms, athletic training resident self-evaluation forms, and through verbal feedback from the onsite provider mentors. Refer to the Figure for a sample of preceptor and self-evaluation

Table 2. Rural Family Practice Rotation Description

Rotation timing	Occurs during the seventh/eighth month of residency
Rotation contact hours	120 h
Rotation goals	Develop an advanced understanding of the management of rural family practice patients with an emphasis on evaluation and diagnosing. The resident will continue enhancing their knowledge in family medicine and how they can be incorporated into another family practice setting.
Core competencies addressed	Patient centered care Interdisciplinary collaboration Evidence based practice Quality improvement Healthcare informatics Professionalism
Rotation objectives	The resident will develop an advanced understanding on how to manage rural family practice patients and enhance their evaluation and diagnosing skills. Residents integrate education from all previous content areas into their clinical practice skills.
Rotation outcomes	Residents will see patient in conjunction with a board certified physician The resident will demonstrate an advanced understanding of rural family medicine and continue to enhance their skills in evaluating and diagnosing these patients. The resident will receive verbal feedback on clinical management skills from athletic training faculty in regards to evaluation and diagnosing skills.
Rotation assessment	Performance measure: Evaluation of the resident by use of: certified athletic trainer preceptor/mentor forms and verbal feedback Performance measure: Verbal feedback from certified athletic trainer faculty at St Luke's Sports Medicine

questions. The residents felt this rotation was very beneficial to their overall residency education and felt it met all of the established learning objectives. Both athletic training residents listed the rural rotation as one of the strengths of the SLSM-PPR in their graduate feedback survey. "The rural clinic rotation was a great experience. I learned so much about comorbidities and general medical conditions. This will certainly help me identify problematic issues," answered 1 past athletic training resident on the graduate feedback survey asking to "provide examples of SLSM-ATR [athletic training resident] you felt were beneficial to the program." The residents felt their understanding of the treatment, management, and more importantly, the prevention of general medical conditions improved significantly. For example, residents felt their knowledge of evaluation and diagnosis improved in areas such as diabetic treatment plans and blood lab values, common drug interactions, and drug therapy to treat hypertension and high cholesterol, as described by the athletic training residents in their rotation evaluation. In addition, providers in this FP clinic used the skills and expertise of the resident with all of their orthopaedic patients. Providers were very satisfied with the diagnostic ability, skills, and expertise the residents added to their clinic and felt patient satisfaction and clinic flow improved significantly during the rotation. Per the Rural Family Practice Medical Director Jon Schott MD:

ATs have made a significant impact to our practice with adding a provider that fits into the clinic and business model, not only in improving patient outcomes, but increasing both patient and provider satisfaction. We use the athletic training residents as an orthopaedic consultant for our clinic.

The ability of the residents to document certain components of the clinic visit, such as history, physical exam, and medical reconciliation, allowed the provider to expedite his or her dictation time with their FP-related patients.

Rotation Data Collection

An observational, but important finding of this rotation was documented in the clinic productivity the athletic training resident facilitated during his or her time at the practice. Providers allowed for additional patient add-ons during the time the athletic training residents were in clinic. There were 342 patients seen during the 5 weeks the athletic training residents were in clinic. Of those, 252 were regularly scheduled patients. Due to the provider's confidence of the athletic training resident in efficiently managing clinic flow and patient care, 90 additional patients were same-day or next-day add-ons (Table 3). As seen in Table 4, of the 90 patients added to the clinic, 53 were acute orthopaedic patient add-ons. These were patients that contacted the clinic and were added to the schedule within 24 hours. The remaining 37 add-on patients were seen for various primary care conditions. Patient add-ons were further evaluated to determine revenue generated within the clinic. For the 53 orthopaedic patient add-ons, the evaluation and management level of service was recorded, and this is presented in Table 5. Of the 90 patients that were added to the clinic, 29 received some sort of clinical ancillary service, including either x-ray, durable medical equipment, casting, injections, or ordering of lab tests. Among the added patients, 23 were referred for system ancillary services to include advanced imaging, physical therapy, or surgery. These ancillary services and referrals to other hospital-based providers all produced revenue for the clinic.

Figure. Sample questions for preceptor/mentor and athletic training resident evaluation form. Abbreviation: N/A, not applicable; xxx, placeholder for proper information.

PATIENT CENTERED CARE										
Responds to each patients unique characteristics and needs										
Unsatisfactory			Satisfactory			Superior				
1	2	3	4	5	6	7	8	9	N/A	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Obtains complete and accurate physical exams of the xxx										
Unsatisfactory			Satisfactory			Superior				
1	2	3	4	5	6	7	8	9	N/A	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
INTERDISCIPLINARY COLLABORATION										
Facilitates the learning of ATs, MAs, and PTs to obtain information which provides improved patient care and education										
Unsatisfactory			Satisfactory			Superior				
1	2	3	4	5	6	7	8	9	N/A	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
EVIDENCE BASED PRACTICE										
Actively pursues knowledge of recent and high level of evidence based orthopaedic literature										
Unsatisfactory			Satisfactory			Superior				
1	2	3	4	5	6	7	8	9	N/A	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
USE OF HEALTHCARE INFORMATICS										
Accurately documents and records patient specific information in each patient's electronic medical record as required by the provider										
Unsatisfactory			Satisfactory			Superior				
1	2	3	4	5	6	7	8	9	N/A	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
PROFESSIONALISM										
Accepts responsibility and follows through on tasks; is accountable for own actions										
Unsatisfactory			Satisfactory			Superior				
1	2	3	4	5	6	7	8	9	N/A	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Additionally, providers not directly supported by the athletic training resident sought their consultation on 33 additional orthopaedic patients, due to their expertise in musculoskeletal evaluation and management.

Table 3. Throughput Increase Seen Over 5 Weeks

Patient Type	No. Patients
Regular scheduled patients	252
Additional patients seen due to athletic training resident	90
Total patients seen	342
Percent increase (%)	26.3

DISCUSSION

The expansion of emerging practices in the field of athletic training has resulted in increased opportunities for ATs. In

Table 4. Type of Patient Added During Trial

Patients Added	Totals
Orthopaedic patient add-ons	53
Regular patient add-ons	37
Total patients added	90
Orthopaedic consultations	33
Total patient encounters	123

Table 5. Distribution of Evaluation/Management Visit Type for Orthopaedic Add-On Patients

Code	No. Visits	Unit Price ^a	Subtotal
99999	3	0	0
99202	1	72.62	72.62
99203	2	105.16	210.32
99204	2	161.47	322.94
99212	3	42.57	127.71
99213	41	71.24	2920.84
99214	13	105.18	1367.34
99385	1	134.74	134.74

^a Based on Medicare rates for state where clinic was located.

turn, this has encouraged AT skill specialization, such as clinical evaluation and diagnosis, orthopaedics, rehabilitation, and primary care.⁹ This AT skill specialization is provided through PPR programs in advanced clinical practice governed by the CAATE. The addition of a FP rotation to our curriculum provided the residents an opportunity to expand upon the limited general medicine education offered during their undergraduate and graduate instruction. A better understanding of general medical conditions and the management of these conditions allows an athletic training resident to provide satisfactory support to the provider and enhance the quality of patient care.

The acquisition of these skills through focused, specialized residency program rotations creates professional opportunities for ATs that would not be available otherwise. Additionally, during this FP rotation, athletic training residents were given an opportunity to demonstrate their improved level of knowledge and clinical skill in orthopaedic evaluation, diagnosis, and management. These skills were clearly recognized by the attending providers, and in many cases, the athletic training residents were relied upon to determine the best initial course of treatment for the patient. This provides an excellent example of the impact ATs have as health care professionals in the clinic setting. Continued efforts must be made to expose providers in this setting to the value of an AT in their practice. Furthermore, with the state and federal mandated changes in health care access and management, ATs could fill a unique niche in health care delivery models across the country.

Our observational productivity results are similar to other reported studies demonstrating AT productivity in an orthopaedic practice setting. Previous studies have found ATs functioning in the physician clinic setting increase clinical efficiency by 15%–30%^{1,3–6} (ie, patient volume and revenue generation), improve patient outcomes,¹⁶ and increase physician satisfaction.^{2,5,7} A recent article revealed that patients compared ATs with orthopaedic medical residents in both perceived level of musculoskeletal knowledge and patient care.⁸ Health care changes placing more emphasis on preventive care make the AT an ideal fit for filling the gap reported in primary care access.

Additionally, there are 2 ways to look at the documented productivity data from this rotation. The first view can be used to support specific salary or hourly pay rates of ATs in this setting due to the revenue generation to the clinic or hospital. Our data sample suggests that, if patient add-on

rates remained consistent over 1 year, the clinic would generate over \$77 000 in physician office visits or evaluation and management charges based on Medicare rates alone. This does not include additional ancillary services and demonstrates a positive return on investment for the cost of hiring an AT in the clinic. The second and potentially more important observation is that the athletic training residents were able to improve patient access to the FP clinic through same-day or next-day patient add-ons. This suggests that ATs working in this setting can provide a solution to the growing concern of reduced patient access to medical care with the implementation of the ACA. Furthermore, the anecdotal responses documented from the FP Medical Director suggest that ATs in this setting may improve patient satisfaction and outcomes through their skill set and expertise. These findings are consistent with the objectives of the triple aim of the ACA mentioned previously in providing exceptional patient satisfaction and outcomes.

Additionally, data collected during this rotation demonstrated the revenue generated by having the athletic training residents spend 4 days a week in clinic would exceed their salary. Having a full-time AT employed in this setting would also allow for additional time each week the AT could provide care to the community through high school athletics or community events in a medically underserved area, which historically has limited access to athletic training care.

The medical community has been expecting increased patient volumes across the country due to ACA implementation and the ability to obtain personal health insurance. A recognized challenge of this model is the shortage of health care providers needed to accommodate these patient volumes. Options to address this provider deficit have been discussed and include producing more primary care physicians, training more midlevel providers such as physician assistants and nurse practitioners, or using community health workers to support clinics and improve patient access to medical care.^{12,13} Postprofessional residencies provide an opportunity to enter this national discussion. Athletic trainers are qualified community health care professionals that can address the provider gap, especially as ATs continue to develop and advance in the physician practice setting. Furthermore, there is evidence to support the use of ATs in the ACA model due to documented efforts demonstrating improved patient satisfaction and providers' opinions that ATs improve patient outcomes with their specialized education and clinical skills. The data from the SLSM-PPR rural FP rotation provide a foundation on which other PPR programs can build upon to advocate for ATs in the FP setting and continue cultivating interprofessional relationships in the medical community.

CONCLUSIONS

Future directions of athletic training PPR education programs should seek to analyze, develop, and expand on this potential niche ATs could fill in the changing model of health care delivery. With athletic training residents incorporated into the rural FP clinical model, patient throughput increased by 26%. Preliminary feedback and results from the athletic training residents and FP providers after 1 year have been exceptional. Residency program goals and learning objectives were met. Athletic training residents' knowledge of pathologies and related treatments in FP and general medical conditions

increased, and they were able to use their musculoskeletal background to assist with decision making related to orthopaedic patient care. Athletic training residents provided high satisfaction scores with the rural FP rotation. Feedback from the providers regarding the athletic training residents has been positive in both patient and physician satisfaction, evident with Dr Schott's quote, "ATs have made a significant impact to our practice. . . We use the athletic training residents as an orthopaedic consultant for our clinic." These findings encourage us to further investigate the potential role of ATs in providing patient care within the outpatient rural FP clinic setting and within the evolving model of health care delivery.

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