

Meeting Personal Health Care Needs in Primary Care: A Response From the Athletic Training Profession

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Context: Review of the origins, history, and attributes of primary care demonstrates continued challenges for the future of primary care and care delivery. The profession of athletic training may benefit from a critical self-review to examine its readiness to assist in reinventing primary care.

Objective: To explore parity between primary care attributes and athletic training practice and promote a timely and relevant discussion of primary care and public health integration native to athletic training practice, competency-based education with an emphasis on milestones, and the development of clinical specialists to prepare a well-trained workforce.

Background: General practitioners developed educational reforms through graduate medical education that resulted in primary care as it is known today. Graduate medical education has refined its assessment of students to include milestones for the purpose of describing the progression of clinical competence with identifiable behaviors. The development of future clinical specialists in primary care will also involve competence in public health.

Recommendation(s): Practicing clinicians and educators should begin to critically explore the congruencies between the primary care attributes and athletic training practice. It is important to conceptualize traditional models of care within the frameworks of primary care and public health, given that athletic training practice routinely engages patients at personal, community, and environmental levels. The athletic training skill mix should be purposefully presented within interprofessional health care teams in primary care so that stakeholders can appropriately integrate athletic trainers (ATs) at the point of first contact. It is plausible that continued structural changes in the traditional practice settings will be required to facilitate integration of ATs into primary care.

Conclusion(s): The impact of ATs in ambulatory settings and primary care possesses a foundation in the current literature. The ATs are uniquely suited to create a symbiotic pattern of care integrating both primary care and public health for improved outcomes.

Key Words: Primary care attributes, integration, skill mix, milestones, disruptive innovation

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KEY POINTS

- The professions of medicine and athletic training have evolved in a similar fashion in regard to education and practice, with primary care medicine beginning its postprofessional evolution shortly after the birth of formal athletic training education.
- Both athletic training and primary care medicine have begun the process of refining postprofessional education and training. The use of subcompetencies and milestones has aided in the identification of adequately prepared students as well as the development of clinical specialists.
- The future of primary care medicine will involve the creative integration of the patient encounter and public health. This will include transitioning care toward the patient's environment while appropriately leveraging technology and skill sets of a diverse health care workforce.
- The athletic trainer possesses a unique skill set to provide a viable solution to the shortage of primary care physicians, particularly with respect to musculoskeletal conditions. Athletic trainers routinely perform duties that fall within a public health arena while actively executing attributes of primary care medicine within the direct patient care that they provide in a seemingly integrated fashion. The integration of athletic trainers into structures such as school-based health centers and patient-centered medical homes provides an active platform to integrate the athletic trainer's skill set in an interprofessional setting at the point of care.

INTRODUCTION

Primary Care and Athletic Training: Shared Paths in Education and Professional Evolution

The profession of medicine and the profession of athletic training traversed similar terrains in their collective pursuits for both the education of students and the care of patients. Initial materials for the first-ever certification exam in athletic training were drawn from disciplines such as occupational therapy and nursing, with only a few questions developed that were specifically related to athletic training.¹ The curriculum available to aspiring athletic trainers (ATs) was that which was available within schools of physical education and health, and skills and behaviors were picked out that might “match” the behaviors and skills that the AT was expected to apply practically.¹ So too, the profession of medicine progressed from would-be physicians first serving as apprentices to formal medical schools with irregular curricular structures.² The Flexner report² was the impetus for the current system of medical education that we are familiar with today—four years of medical school followed by postgraduate training. As the profession of medicine continued to evolve, scientific advancement outpaced the physician's ability to successfully apply those advancements to patient care.³ Science had outrun medical practice, and the growing number of

physicians practicing in hospitals gradually began to produce opportunities for specialty practice. The profession of medicine was simply growing too rapidly to be mastered by a single physician.³ As this shift toward specialization continued, those physicians practicing outside of the hospital setting were left without resources to advance care for patients, which resulted in a perception of poor care provided by general practitioners. Conversely, patients were growing more concerned that the increasing number of specialty physicians lacked the skills to treat them comprehensively as a whole person.^{3,4} A proposed answer to salvaging the reputation of the general practitioner and ensuring whole-person care for patients was residency training for the general physician. John Millis would undertake this task of creating residency training for the newly named “primary physician.”³

The discussion of the origins of primary care is important for athletic training education and practice because it draws an intentional historical parallel between primary care medicine and the beginnings of athletic training. The Certification Committee and the Professional Education Committee worked diligently to promote and create standards for the first-ever athletic training program, but athletic training programs were rejected from schools of health due to a cultural identity defined within athletics and sport science.¹ As athletic training education and practice evolved, apprenticeship programs evolved into curriculum programs certified by the Board of Certification, Inc. Advancing skills and knowledge within athletic training that emerged from the point of care have now propelled entry-level education to the graduate level.⁵ The athletic training profession now finds itself with a task that is similar to that undertaken by John Millis—producing didactic and clinical experience beyond entry level for the preservation and vitality of the profession.^{3,6} As with the development of residencies in primary care, these are driven by the needs of the patient population and paired with the AT's skill set. The purposeful comparison of the evolution of the primary care physician (PCP) with the history of athletic training validates our professional history as normative within health care because medicine has previously traveled this path. A narrative review was constructed to further examine the parity between athletic training and primary care, because ATs are excellent candidates for moving team-based primary care forward in the future of the American health care system.

The AT is routinely found at that point of first contact, and characteristics of ATs' daily practice find them executing the attributes of primary care. Importing the skills of the AT into the point of first contact requires a discussion of the attributes of primary care and a working definition to establish what it means.^{7,8} International consensus⁹ found that hospital-based care did not translate well into environments where preventable diseases were treated by non-health care workers. In 1978, the Institute of Medicine (IOM) published a report entitled “A Manpower Policy for Primary Health Care: Report of a Study.”⁷ This report advanced the premise that

primary care is a services-based branch of medicine broken down into 5 attributes. According to the 1978 IOM report, “The five attributes essential to the practice of good primary care are accessibility, comprehensiveness, coordination, continuity, and accountability.”^{7(p16)} *Accessibility* refers to the responsibility of the provider team to assist the patient or the potential patient to overcome temporal, spatial, economic, and psychologic barriers to health care.⁷ Reasonably fast responses to requests for service were also included within the accessibility attribute.⁷ Yoon et al¹⁰ found that a 10-point increase in timely access to primary care decreased emergency department visits for nonemergent conditions by 7%. Timely access can result in cost savings to the patient because patients with serious illness are less common in primary care.¹¹ *Comprehensiveness* of care refers to the willingness of the primary care team to handle the great majority of health problems arising in the population that it services. It is important to note that comprehensiveness of care can be limited to a specific age group or sex, but primary care providers should be able to handle the majority of health concerns that arise within that group.⁷ *Coordination* of care includes arranging contact and referral between the patient and the specialist, seeking the opinion of specialists, explaining diagnosis and treatment, and ensuring that the plan of care is congruent with the patient’s economic situation and personal desires.⁷ *Continuity* of care generally involves having the same provider care for a patient from one visit to another with transfer of information that is consistent from one provider to another.¹¹ *Continuous* care at its best should also be longitudinal, whereby the same source of care is used over time.¹¹ *Accountability* refers to the continual process of collection and documentation of practice outcomes with continual efforts by all members of the primary care team to improve the services provided both in number and quality.⁷

The IOM again revisited the topic of primary care in a 1996 report entitled “Primary Care: America’s Health in a New Era,”⁸ in which considerations were made regarding how the community may interface with primary care. As such, the 1996 IOM report defines *primary care* as “the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community.”^{8(p31)} This definition was reaffirmed by the IOM¹² as recently as 2012 and was cited in textbooks on primary care as recently as 2015, with no other definitions identified upon review of the literature.¹³ The outcomes that define the success of primary care are quality of care, efficiency of care, and equity of care.¹⁴ If athletic training is to contribute to those care outcomes, professionals in the field must continue to educate and train both students and clinicians for that purpose using the full strength of scope of practice.

COMPETENCIES, SUBCOMPETENCIES, AND MILESTONES

The end goal of medical education is to produce clinicians who can go and care for the health needs of the patient in the 21st century.¹⁵ Expressions such as “graded patient responsibility,” “increased clinical competence,” and “integration of basic concepts” were common at the writing of the Millis report, but they lacked an actionable structure for measuring competence in a sequential manner.⁴ Competency-based

education has become the most recent focus of medical education to ensure that the graduate medical student possesses the requisite knowledge and skill to practice independently for the overall benefit of the patient.¹⁵ The Accreditation Council for Graduate Medical Education (ACGME) has broken down the content of all medical specialty education into 6 competencies: patient care, medical knowledge, systems-based practice, practice-based learning and improvement, professionalism, and interpersonal and communication skills. Reviews of the components and structure of competency-based education have also been applied to medical residents in training.^{16–20} Those competencies have been further broken down into subcompetencies with milestones as a measure of progress and content mastery.^{3,15,17,19} Competency-based education has more formally been measured with the Dreyfus model, which proposes that a learner will pass through 5 stages of learning from novice to expert.²⁰ The Dreyfus model has been preferred for describing the progression of a novice learner to that of an expert because the performance of the skill and the demonstration of knowledge are both contained in each stage.¹⁹ A modified Dreyfus model containing an “absolute beginner” stage has also been described to represent a critical deficiency in the learner, as demonstrated in the internal Medicine milestones published by the ACGME.¹⁹ A modified Dreyfus model demonstrating the relationship between knowledge and behavior in mastery of a given sub-competency is represented in Table 1.

A milestone further describes and focuses the expected behaviors or outcomes of a resident who progresses along the continuum of novice to expert.¹⁸ Friedman et al¹⁸ found that shifting to a milestone model in the evaluation of residents resulted in more discriminate analysis of skill acquisition over time during the course of a 3-year training program. Because a milestone specifically focuses on the inherent behavior within an acquired skill, it is possible that evaluators are more easily able to determine the level of a learner through those criteria.¹⁸ A representation of the milestone method of evaluation with its foundation within the Dreyfus model is pictured in Figure 1.

To date, milestone projects have been completed in all 28 specialty areas as listed by the ACGME. It is fully expected that specialties will continue to move forward with milestone methods of evaluation of residents, because they have been required to document the progress of residents.¹⁷ Family medicine and internal medicine are the focus herein for the sake of this review of the ACGME milestones. Internal medicine was one of the 6 areas of concentration for the primary physician as described in Millis’ original report in 1966; family medicine has maintained itself as the specialty to advocate for and promote the importance and characteristics of primary care.^{3,21} A key characteristic of the internal medicine milestone project involves interprofessional collaboration with other specialties. The internal medicine resident is given a high level of independence in both interprofessional collaboration and consulting for various problems.¹⁹ In contrast, the family medicine milestones note the importance of disease prevention and health promotion as well as the development and sustainment partnerships at both the patient and community levels.¹⁷ Appropriate discussions of integration of the patient and community levels to health leads

Table. The Modified Dreyfus Model of Adult Skill Acquisition with descriptors of knowledge, skill, and the development of clinical expertise as encompassed within six demonstrated levels of competence.¹⁵

Modified Dreyfus Model of Adult Skill Acquisition						
Actionable Goal: Mastery of the sub-competency						
Learner knowledge	"I know almost nothing."	"I can do it, relying on rules."	"I can do it relying on rules, while recognizing elements of situations."	"I can do it by a set plan with an organized approach to a problem or situation."	"I can do it, based on similar experiences."	"I can do it by intuition based on sufficient experience."
Skill performance	Does not perform	Performs by a set of rules	Performs by a set of rules, and recognizes a clinical application	Performs by a set of rules and takes action based on a clinical situation	Selectively performs based on previous experiences and the clinical situation	Takes action automatically using intuition and judgement, distinguishing through rich experience. Milestone
Resulting sub-competency execution (based on knowledge and skill)	Milestone	Milestone	Milestone	Milestone	Milestone	Milestone
Description of the learner	Absolute beginner (critical deficiency)	Beginner	Advanced beginner	Competent	Proficient	Expert

Figure 1. The patient care and procedural skills competency with the associated subcompetency of diagnosis and management with associated milestones.

Patient-Care and Procedural Skills (PC-3): Diagnosis and Management: Gathers and synthesizes essential and accurate information to define each patient's clinical problem(s). (Internal Medicine PC-1)					
Critical Deficiencies	Level 1	Level 2	Level 3 (Ready for Unsupervised Practice)	Level 4 (Ready for Advanced Practice)	Level 5 (Aspirational)
Does not collect accurate historical data	Inconsistently able to acquire accurate historical information in an organized fashion	Consistently acquires accurate and relevant histories from patients	Acquires accurate histories from patients in an efficient, prioritized and hypothesis-driven fashion	Obtains relevant historical subtleties, including sensitive information that informs the differential diagnosis	Publishes clinical case reports on unique clinical problems
Does not use physical exam to confirm history	Does not perform an appropriately thorough physical exam or misses key physical exam findings	Seeks and obtains data from secondary sources when needed	Performs accurate physical exams that are targeted to the patient's complaints	Identifies subtle or unusual physical exam findings	Collaborates in practice-based research efforts to gather, aggregate, and synthesize patient data to enhance diagnostic and management efforts
Relies exclusively on documentation of others to generate own database or differential diagnosis	Does not seek or is overly reliant on secondary data	Consistently performs accurate and appropriately thorough physical exams	Synthesizes data to generate a prioritized differential diagnosis and problem list	Efficiently utilizes all sources of secondary data to inform differential diagnosis	Generates and disseminates new knowledge pertaining to diagnoses and management
Fails to recognize patient's central clinical problems	Inconsistently recognizes patients' central clinical problem or differential diagnoses	Uses collected data to define a patient's central clinical problem(s)	Effectively uses history and physical examination skills to minimize the need for further diagnostic testing	Role models and teaches the effective use of history and physical examination skills to minimize the need for further diagnostic testing	
Fails to recognize potentially life threatening problems					
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directly into an informed discussion of the integration of primary care and public health.¹²

INTEGRATION OF PRIMARY CARE AND PUBLIC HEALTH

Public health has been defined as what we do as a society to ensure the conditions in which everyone can be healthy.¹² The main metric for improving the health outcomes of the population has been identified as the health indicator.²² Healthy People 2020 was a campaign²² based on the recommendations of the Federal Interagency Workgroup, and it is this report that identifies those health indicators. An updated list of leading health indicators for 2030 is soon to be released, and recent objectives for identification of a new set of health indicators has been published by The National Academies Press.²³ Whereas it is true that previous reports²² have focused on biological markers of health and disease, health behaviors, and health outcomes, the upcoming 2030 leading health indicators will focus more on environmental factors and their impact on overall well-being.²³ Examples of proposed indicators that could be particularly affected by athletic training include lowering the heat vulnerability index and reduction of hospital discharges for ambulatory care sensitive conditions.²³ Recent reports on the evolving nature of public health have called for the use of treatment approaches that extend outside the traditional clinical setting and into the community.^{7,19} This concept has been formalized into a call for the integration of primary care and public

health.¹² In its 2012 report,¹² the IOM recognized that the nation was ill equipped to meet the needs of the patient in terms of health promotion and prevention services despite an excellent biomedical and specialty medical infrastructure.

Primary care had begun to develop a strategy to deal with chronic health concerns in patients via the chronic care model (CCM) developed by Wagner.^{12,24} The CCM encompassed 6 different tools designed to translate the care received by the patient out in the community. Those elements are communities and policies, health care organization, self-management support, delivery-system design, decision support, and clinical information systems.¹² Patients being treated for chronic conditions often receive treatment that requires components of personal effort, time, and resources that must be allocated to improve health outcomes. This results in work for the patient that may create a treatment burden when personal resources and ability are outpaced by the demands of treatment.²⁴ Previous applications of minimally disruptive medicine have attempted to ease this burden with regular home visits, offering transportation to appointments, and similar services.²⁴ A recent systematic review and thematic analysis²⁴ of the application of the CCM to patients with multi-morbidity found that the CCM may not adequately address the practical needs of patients with multi-morbidity or ease the treatment workload experienced by these patients.²⁴ As a result, the patient must choose between necessary life roles and tasks and pursuit of appropriate care in a timely manner, a decision that may negatively affect health.²⁴ It is for

this reason that primary care and public health must integrate: to assist the patient in minimization of treatment burden to promote better health. The primary care provider can only make better recommendations at an individual level with the input of the public health workforce, and many efforts have been proposed to link primary care and public health via collaboration and training.¹²

P4 SYSTEMS MEDICINE: A PATH TOWARD INTEGRATION?

If ideal integration includes the goal of expanding the care of the patient outside of the traditional encounter and into the patient's environment, then a requisite level of knowledge and self-determination on the part of the patient about what constitutes health is necessary.²⁵ A framework for understanding how that level of education, awareness, and participation could be made manifest is P4 systems medicine (P4SM). The P4 stands for medical care that is predictive, preventive, personalized, and participatory.²⁶ The P4SM takes into account genetic, personal, and environmental factors with the aid of measurable patient data to define the optimal state of health for each person.^{26,27} *Predictive medicine* involves the potential use of genetic markers and specific tools to estimate the patient's response to treatment or injury.²⁶ *Preventive medicine* has been described as an approach to prevent a problem that has been predefined via the individual collection and analysis of a patient's family, personal, and genetic data.²⁶ *Personalized medicine* involves use of all available patient information—genetic, personal previous and current history, and family history—to formulate treatment plans for presenting clinical problems. It is important to note that personalized care assumes the collection of a varied yet comprehensive panel of patient information to make those decisions.²⁶ *Participatory medicine* involves patients by turning them into educated consumers of information regarding their health, condition, and treatment and giving them primary responsibility for carrying out the plan of care.²⁶ Exercise prescription has been the obvious, cost-effective means of treatment and patient engagement to promote participatory medicine with the addition of proper nutrition and healthy sleep habits.^{26,28} The P4SM has been viewed as fundamentally changing the practice of primary care by honing a precision approach to each patient to minimize error, harm, and waste; it also acknowledges that a holistic approach to health cannot be fully realized without healthy social environments and behaviors. This systems approach to health seeks to view the patient as an integrated whole with a bidirectional relationship between themselves and the environment.²⁷

OPPORTUNITY FOR ATHLETIC TRAINING

Athletic training has begun to use frameworks for behavior change that function at both the personal and environmental levels. One such example is the socioecological framework.²⁹ This is a framework that attempts to address health behavior change by addressing educational interventions at the intrapersonal, interpersonal, environmental, and society and policy levels. The most notable example of this is within concussion education.²⁹ The interpersonal and intrapersonal levels can be easily executed within the realm of primary care; whereas, the environmental and policy dimensions fall within the purview of public health interventions. ATs apply their

scope of practice within the public health arena with the production and implementation of position statements and other key publications.

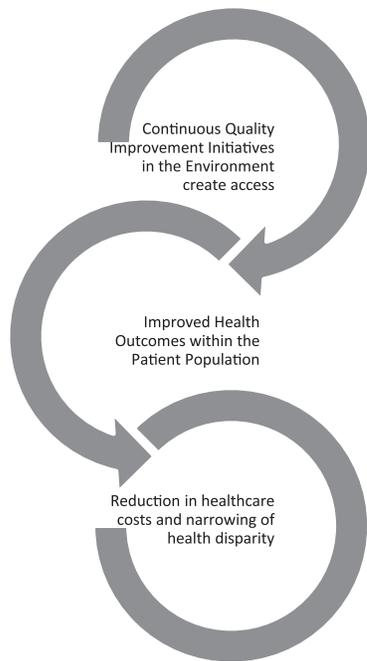
In order to expand the reach of our expertise with increased relevance for all Americans, the role of the AT as an agent of behavior change needs to be explored.^{24,28,30} Although exercise prescription has been identified as an obvious tool for affecting the health of the population, the recognition that those tools can be applied to the healthy and with slight modification to those with chronic conditions such as type 2 diabetes and cardiovascular disease may not be fully appreciated by many ATs.^{28,30} Craddock et al³⁰ provided a review of various health behavior-change interventions that could possibly be used to increase compliance with recommended physical activity guidelines. The health behavior model, theory of planned behavior, and others were reviewed with the overall intention of applying them to patient encounters to remove barriers and facilitate habits of regular exercise.³⁰ The AT's experience in coordinating care and modifying activity may also be useful in decreasing the overall possibility of treatment burden for patients to assist in diminishing the stress associated with balancing self-care for chronic illness and basic life tasks.²⁴

As the AT works to learn and execute this role, a quality improvement (QI) approach to addressing health needs will be necessary.³¹ The QI approach involves identification of a problem or gap in quality of care, a specific plan to address the problem or quality gap, and evaluation of the results of the plan to determine directions for future change—this has also been referred to as the *plan, do, study, act* cycle.³² Shanley et al³³ used a QI framework in cohort of approximately 67 000 student-athletes. The informed use of patient data resulted in prevention and strengthening programs to prevent muscular injury and shoulder pathology in pitchers and allowed them to make recommendations for safe return to activity after anterior cruciate ligament reconstruction.³³ The programs based on a QI initiative also resulted in a \$250 000 reduction in secondary insurance claim costs.³³ The ideal use of population health data should result in informed patients who have the ability to play a proactive role in their own health and provides specific, evidence-based information for a specific pathology or concern. In any setting, the presence of an AT who is involved in a continuous quality improvement process within a population creates immediate access to health care. The goal of health care is to improve health outcomes for the patient and the population. A patient who has experienced an improved health outcome as a part of a QI initiative has also experienced a narrowing of a personal- or population-based health disparity, because access to care is being filtered through external criteria independent of personal barriers to care or insurance coverage. An illustration of the interplay between health care access and QI initiatives at the population level is pictured in Figure 2.

THE AT AS A PRIMARY CARE PROVIDER: BUILDING A CASE

An appropriate discussion of the AT's role in primary care should be formed after a thorough explanation of the following factors: (1) the potential impact of the current health care climate on athletic training practice and (2) the skill mix that the AT contributes to the primary care team.

Figure 2. The cyclical nature of population-based quality improvement and the creation of access to health care.



Starfield¹¹ has advocated for a capacity process approach to measuring how well primary care is practiced. The IOM^{7,8} and Starfield^{11,34} have discussed attributes of primary care and further elaborated on the capacity process approach for measuring primary care. The 4 structural elements to primary care are access, the range of services provided, definition of the eligible population, and continuity. The ATs who conceptualize their practice within the construct of primary care must determine how their practice location will serve patients when care will be available, which services will be offered, which patients are eligible to receive care, and how continuity of care will be maintained through documentation in an electronic health record.¹¹ The reframing of the AT's point of view to see daily interactions and tasks as primary care attributes is a paradigm shift, but it is not out of reach.

Hajart^{35–37} has commented regarding the implications that previous health care reforms have had on the practice of athletic training. Specifically, Hajart stated that ATs may be well positioned to succeed in an accountable care organization-type environment, where incentives are given for high-quality, low-cost care.³⁴ Starfield³⁸ reported that those nations that have highly developed systems of primary care typically rank high in cost containment when compared with those who do not. In addition, the United States was characterized³⁸ as having a poor orientation toward primary care as of 2004. More patients have been filtered into primary care clinics due to an increased emphasis on primary care and the continued growth of health maintenance organizations, further substantiating need but exacerbating a long-standing shortage.^{36,39,40} As we are currently working in the midst of a shortage of 91 500 PCPs, with further estimates at 139 160 by the year 2030, creative use of health care resources will be required.^{36,39} It has also been proposed that the AT could be very well suited to assist in addressing that shortfall.⁴⁰ For the AT to fulfill such a role in team-based primary care, skills in virtual consultation, extended hours, and a walk-in care model may

be used to ensure expanded access and cost savings.⁴¹ Perhaps most important, an increase of 1 PCP per 10 000 people, resulted in better health outcomes.⁴²

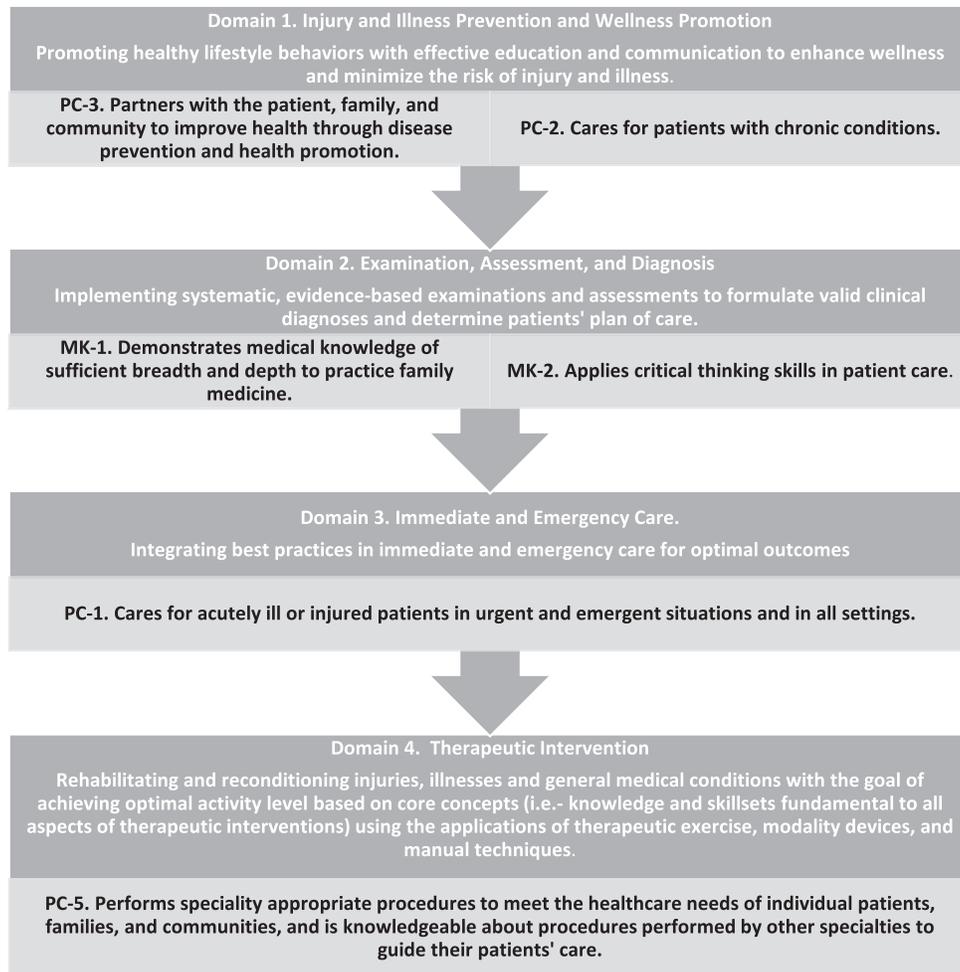
Advancing the idea that the AT can serve as a primary care provider requires actual data that providers other than physicians are engaged in primary care. Although this may seem obvious, literature on skill mix and task shifting may provide insight that care processes within primary care are changing.^{36,43,44} *Skill mix* has been conceptualized as the presence of health care providers of different disciplines within a practice setting.⁴³ *Task shifting* has been operationally defined as the surrendering of tasks usually performed by physicians to nonphysicians—traditionally nurses and physician assistants—with the expectation that those providers have the capacity to complete them.^{43,44}

Whereas task shifting has not been formally discussed within athletic training apart from the direct supervision of a physician, investigating the value and hiring patterns of ATs within ambulatory settings may provide a possible metric of an emerging skill mix within the profession. Frogner, Westerman, and DiPietro⁴⁰ conducted a nationwide survey of ATs employed in ambulatory care settings. Of those ATs surveyed, 60% practiced in multi-specialty practices.⁴⁰ Of those in multi-specialty practices, 27% were described as working in primary care. It is interesting that the individuals most commonly served by ATs in ambulatory care settings were under the age of 18 years and over the age of 65 years.⁴⁰ Data regarding patients outside of those demographics were not disclosed.

Because it has been established that the presence of an athletic training–related skill mix does exist within primary care, exploration of common themes between subcompetencies and athletic training practice domains will be explored. The patient care and medical knowledge competencies within graduate medical education in family practice reflect a large degree of similarity to 4 of the 5 athletic training practice domains.^{17,45} Figure 3 illustrates some of these comparisons.

The athletic training practice domains resemble the family medicine subcompetencies through similar language but also promote wellness and health promotion.^{17,45} Whereas the language is broader in the family practice milestone document, the athletic training domains appear to represent more focused perspectives on the role of the primary care provider. *The Practice Analysis*, 7th edition, uses the term *primary health care professionals*⁴⁵ when describing the AT's role in the management of acute and emergency conditions. In addition, the musculoskeletal diagnosis and management skill set possessed by ATs further substantiates the need for that skill set within primary care, given that 1 of every 7 consultations to primary care is for a musculoskeletal condition.⁴⁶ Physicians supervising ATs within ambulatory care settings report being very well satisfied with the musculoskeletal skill set possessed by ATs.⁴⁰ It is interesting that physiotherapists in the United Kingdom were able to deliver independent musculoskeletal care within primary care after a brief training regarding interventions for chronic health conditions.⁴⁷ Outcomes were good, with patients reporting increased function, decreased health care costs due to primary care visits, and appreciation of the increased time spent with personally tailored advice.⁴⁷ This may be a feasible model for ATs to adopt in a team-based primary care setting. Finally,

Figure 3. Comparison of athletic training practice domains with Accreditation Council for Graduate Medical Education (ACGME) family practice subcompetencies.



the therapeutic intervention skills possessed by ATs may serve as a mechanism adding value to the primary care experience, increasing patient satisfaction, and lowering costs.

The current trajectory and need within health care call for a team-based approach to primary care. This will involve a broad array of skills accompanied by careful and accountable task shifting from physicians to midlevel providers, including ATs. The presence of ATs at the point of first contact in many settings calls for a broadened perspective with measured progress by all clinicians.⁴⁰ As such, a milestone project for primary care within athletic training is currently under way. Milestones for the specialty of primary care are in development by the AT Milestones project team.⁴⁸ The intentional production of milestones within this area will socialize students and learning professionals into primary care and position them for independent clinical interaction in the care of patients with a broader array of clinical concerns in sustained partnership with physicians. In harnessing the specific practice domains of athletic training, the health needs of the population can be addressed at the point of care and those interventions also transitioned into the community for larger impact. As this project develops, an intentional goal has been established to develop an operational definition of primary care within athletic training practice.

MOVING UPMARKET: DISRUPTING ATHLETIC TRAINING PRACTICE FOR THE SAKE OF PRIMARY CARE

Innovative models for athletic training practice continue to emerge. Laursen⁴⁹ has discussed a patient-centered model for athletic training practice that moves athletic training services out of an athletic department and transitions it toward an independent and interprofessional clinical unit. This is a novel approach that has been adopted by several college and university practices resulting in fewer hours worked, direct supervision by physicians, and reported increased recognition of the athletic training profession among fellow clinicians.⁴⁹ This transition out of the traditional athletics model creates an opportunity not only for collaboration, but for expansion of primary care into the traditional settings in which ATs work. The usual mechanism for accomplishing this in the college and university practice setting has been through student health services, whereas the secondary school practice setting is seeing the emergence of school-based health centers (SBHC) with possibility for contribution by ATs in that setting.⁴⁹⁻⁵¹ Recent work by Noel-London, Breitbart, and Belue⁵¹ demonstrated a 20% increase in the number of clinic visits within an SBHC and a change in perception of the SBHC when the services of the AT were included. It is important to note that there are differences in the composition of SBHCs that may be attributable to socioeconomic status.^{51,52}

The reason that these transitions out of a traditional athletic training practice model are important is that they provide a structure that is amenable to recognition as a patient centered medical home (PCMH). The PCMH was first introduced by the American Academy of Pediatrics in 1967 and has been proposed to provide patient-centered care that reduces costs while creating a sustained relationship between the patient and provider.^{52,53} The National Committee for Quality Assurance is the largest and most well-known accreditation body for PCMHs in the United States. The organization has set forth 6 concepts with 19 competencies that define the criteria that make up a PCMH.⁵³ The 6 concepts are (1) team-based care and practice organization, (2) knowing and managing your patients, (3) patient-centered access and continuity, (4) care management and support, (5) care coordination and care transitions, and (6) performance measurement and quality improvement.⁵³ Whereas it is true that currently only PCPs, physician assistants, and nurse practitioners can be recognized as personal clinicians under current PCMH standards, ATs can play an incredible role in promoting transition to PCMH status by facilitating team-based care, coordinating care, and promoting evidence-based strategies based on population-specific criteria.⁵³ Merging ATs, school nurses, and counselors into a cohesive SBHC is a comprehensible beginning to establishing a PCMH at the point of care. It is also worth noting that some SBHCs did not have a physician on-site at all times; however, a physician is still expected to have a panel of patients within a PCMH. Recent work⁵² has described the state of PCMH recognition in SBHCs throughout the country. The majority of those SBHCs had no recognition as a PCMH, and the majority of SBHCs employed a PCP at less than 1 full-time equivalent.⁵² The creative and intentional disruption of athletic training practice within the traditional setting creates an instant interprofessional team that can move forward much more readily, not only in achieving PCMH status but also in providing care for a diverse and comprehensive set of health needs within the population. In general, as the poverty level within a school increased, likelihood of recognition as a PCMH decreased.⁵² It is plausible that ATs may be able to readily benefit SBHC revenue through the creative and intentional use of student accident, secondary, and gap insurance policies. Whereas these are typically used in athletics, these may provide added financial benefit to the SBHC due to potentially higher reimbursement rates and multiple payers. ATs have multifaceted experience and skill to directly benefit PCMH status within traditional practice settings.

It is important to understand the historical challenges that primary care has faced in order for ATs to respond to the primary care workforce shortage. The creative and honed skill of the AT positions them to have a substantial effect by meeting a need of providing access to comprehensive care throughout the communities in which athletics trainers serve patients. In order to help solve health disparities in access to primary care, ATs must continue to use the platform of health promotion and prevention in population health to simultaneously identify pathology and promote health. The comparison of an AT's scope of practice to primary care attributes is an intentional demonstration of readiness and ability to respond to health care needs and create change. This comprehensive paradigm shift will require both clinical and administrative leaders with experience in primary care. The

athletic training primary care milestones are the conduit not only for preparing clinicians to meet the personal health care needs of patients, but also for identifying those leaders expert in primary care who will innovate and advocate for continued change and new solutions.

LEARNING AND DOING: EXECUTING PRIMARY CARE ATTRIBUTES IN THE CLASSROOM AND IN PRACTICE

The crucial intersection of the primary care attributes with athletic training education and practice involves the intentional pairing of the practice domains with primary care attributes. The requirement of an athletic training student to experience multiple clinical environments with varied patient populations with presumed differences in resources and socioeconomic status⁵⁴ should create intentional questions about access to athletic training services and health care for these populations. Exploring this in a reflective journal or case series could be an excellent way to prepare for the realities of clinical practice in which access does indeed vary, along with possible strategies to address lack of access.⁵⁴ Finding ways to explore and remove barriers to care is an intentional display of the primary care attribute of access. Comprehensiveness of care involves the recognition of a wide variety of health needs within a patient population.¹¹ Although it is obvious that an AT may not be able to provide care for all of these entities, comprehensive care still occurs when appropriate referral resources are identified and used. Whereas athletic training students and clinicians are not expected to provide care for every pathology that may present to them, there should be enough contact with these clinical problems for students and clinicians to remain competent.^{11,45,54} Students and clinicians should become comfortable reviewing patient documentation and previous medical histories. Coordination of care involves knowledge of past medical history after careful review of information.¹¹ Using mock or real-time exercises involving review of preparticipation exams and medical histories may allow students to maximize their ability to make decisions about medical eligibility or coordinate care with the appropriate specialist when concerns with patient health do arise. A novel exercise known as *previsit planning* involves critical examination of a patient's medical history, previous labs, and other clinical information before a scheduled appointment with a provider to formulate a known history with known comorbidities. This allows the student to gain familiarity with clinical medicine, associated lab tests, and terminologies in order to appropriately communicate, think, and promote efficient care. This will allow for thorough communication with the physician and result in student learning regarding how these may affect options for patient care. Most important, practicing clinicians often assume the role of patient advocate when coordinating care for patients using this available knowledge.¹¹ Care that is continuous involves use of the same source of care over a period of time.¹¹ For ATs working in traditional practice settings, this primary care attribute is easily attainable, because patients often receive care in one location for a number of years. A longitudinal nature should develop as the clinician and student maintain competence for triage of multiple organ systems in order to formulate care as it becomes person focused.^{11,54} Accountability of care revolves around proper documentation and ethical interactions in patient care.⁵⁴ Primary care continues to evolve with ever-increasing health care spending.⁵⁵ Musculoskeletal disorders lead all causes of health care spending

in those aged 20 to 64 years, ahead of diabetes and other conditions.⁵⁵ This is reflective of payments made from private and public insurers as well as out-of-pocket costs.⁵⁵ It is time for the profession of athletic training to leverage its history of innovation, work ethic, and skills to provide an answer at the point of first contact for patients and the communities served.

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