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Athletic Training and Population Health Science

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Objective: To define and discuss the role of population health as a framework to improve care and clinical decision making in athletic training practice.

Background: Athletic trainers (ATs) are allied health professionals who are uniquely suited to provide preventive and educational health and wellness programs to improve health outcomes across a physically active population. Athletic trainers are often the first contacts for high school athletes seeking health and wellness education, which may allow ATs to be the first intervention or prevention point for reducing or eliminating negative health behaviors and outcomes among their patients.

Conclusions: Integrating a population-health framework into the athletic training setting prepares ATs to address complex health concerns in communities that result from factors that influence determinants of health. The field of athletic training could benefit from a population-health approach to care by broadening consideration of the factors that affect the health of homogeneous populations that are served by ATs.

The Commission for Accreditation of Athletic Training Education implemented new core competency standards in 2020.[1] These revisions include education about public health and the value of population-health tools, such as data-driven research and outcomes, electronic health record utilization, health informatics, and value-based care decisions.[1] Curricular changes to athletic training programs include foundational knowledge in population health, epidemiology, health care delivery systems, and payer systems.[1] Athletic training students will be required to receive educational and clinical experiences that address factors that influence the health of a population, such as behavioral health and substance abuse. Incorporating this knowledge will create a new paradigm that pushes the field of athletic training forward by widening the lens to focus on the external influences that shape health behaviors and create potential health risks for patients.

Athletic trainers (ATs) are well educated in the prevention and management of injuries and regularly collaborate with other health care providers to treat and manage patients with acute and chronic health conditions. However, what if ATs could use data and surveillance methods to predict health risks and potential illnesses in their population and to develop the appropriate interventions earlier? This is the focus of population health. *Population health* is defined as a cohesive, integrated, and comprehensive approach to health care that considers the distribution of health outcomes within a population, the health determinants that influence the distribution of care, and the policies and interventions that affect and are affected by the determinants.[2] A population-health framework allows health professionals to think critically about how to manage and treat health conditions by focusing specifically on the factors that drive health and disease within groups of people (populations). These factors include biological, social, psychological, geographic, and economic conditions that shape health over the life course.[3] Athletic trainers who adopt a population-health–based approach to injury and illness prevention will be better suited to take leading roles in policy development and assessment and be able to develop and implement large-scale translations to practice initiatives that are informed by public health approaches.[4] Beyond the policy boundaries, ATs have a set of clinical responsibilities and skills that have prepared them to provide high-quality preventive care that can reduce risk and injury to the patients they serve. From a population-health perspective, with its focus on prevention and risk reduction, ATs should consider the characteristics and factors that make a subset of the population more vulnerable.

Athletic trainers are well positioned to provide effective and efficient health care to student-athletes at the secondary school level.[5] They focus on improving the health of their patients under the direction of or in collaboration with physicians and may serve as a liaison to the greater medical community. Because ATs are allied health care professionals with extensive knowledge of disease and illness prevention, they are often capable of working with patients and health professionals to find appropriate solutions to address a wide variety of health-related concerns.[4] As the number of US student-athletes has risen to nearly 8 million,[6] the responsibility of caring for them has increased not only the volume of patients seen by ATs but also the roles that ATs play in health maintenance and care. In 2015, researchers[7] found that nearly 70% of US public schools had access to some athletic training services; however, only 30% of those schools had full-time services. The focus of this paper is on the role high school ATs can play in addressing health determinants that affect the health of their patients. In the high school setting, the AT is often the first contact for care outside of an athlete or patient's primary care physician. Because health behaviors and attitudes are often shaped during these early adolescent years, providing ATs with a population-health framework to recognize and identify the factors that affect health determinants may reduce the risk of worse health outcomes later in the athlete's career.

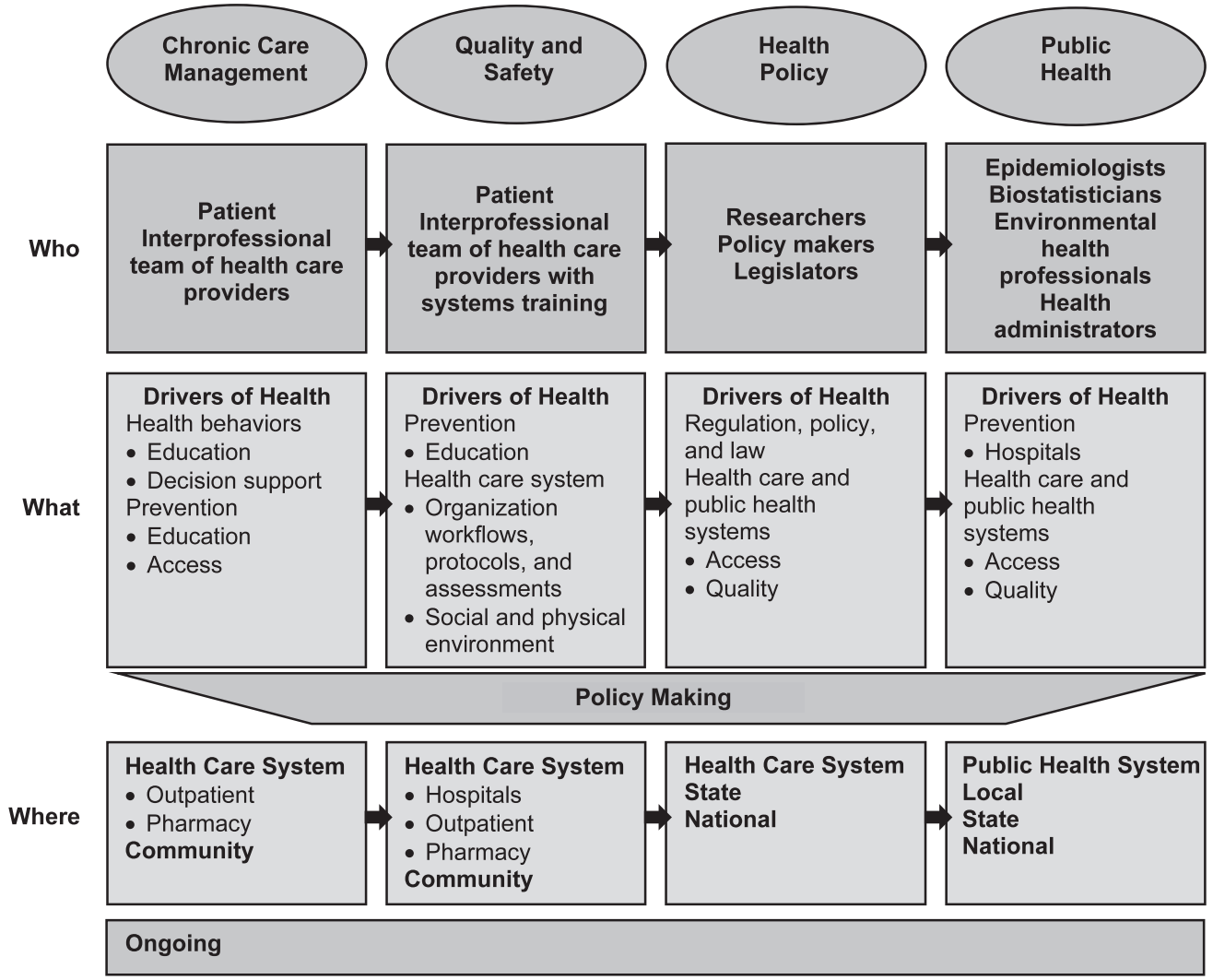

Figure. Four pillars of population health.

POPULATION HEALTH

Population-health programs assess the distribution of health outcomes and policies surrounding health determinants. Programs use this evidence to strategize improvements in how determinants of health are affecting large homogeneous groups of individuals throughout a system, which improves health outcomes. Population health seeks to provide a conceptual framework to organize thinking and approaches to the study of wellbeing and variability among populations.[2] In a population-health framework, clinical practice standards shift from care that is individual to care that considers population-level perspectives. This can be achieved by using primary and secondary prevention strategies, improved screening and surveillance, and broadening our focus beyond acute and episodic health care events.

The framework for population health has 4 pillars: chronic care management, quality and safety, health policy, and public health (Figure).[2] Athletic trainers are part of an interprofessional health care model that works closely with patients, providers, school officials, and others to improve the health and wellbeing of the population they treat. Although the pillars of population health are all-encompassing for allied health professionals, this does not imply that providers should be responsible for activities in each category. For example, ATs will not often be working in public health settings or actively engaged in policy making at the state or national level. However, it is important that ATs begin to think about the tasks in their daily practice that fit into each of these pillars. In the following paragraphs, ATs' engagement in the pillars of population health are highlighted with examples.

Chronic Care Management

Care management is a vital role in athletic training practice. Athletic trainers use a variety of health promotion and preventive measures that focus on health behavior modification. Athletic trainers work with patients who have a variety of existing health conditions and help to facilitate and manage both acute and chronic care needs. Because of this relationship, it is imperative that they establish partnerships with a variety of health care providers and resources. Using this care management model, ATs gain information about the patients they serve and are able to share information with those patients by becoming part of a broader community of interprofessional health care teams.

For instance, an athlete who was diagnosed with type 1 diabetes and is using an insulin pump will require care coordinated among the AT, primary care provider, and endocrinologist to manage insulin levels that fluctuate due to physical activity. This potentially improves the way in which patients use their health care, both to prevent the misuse of health services and to promote effective and efficient use of health services over the course of their care with ATs.

Quality and Safety

Participating in athletics is associated with an inherent risk of injury. Athletic trainers often use injury surveillance to track and make inferences about the causes and risks of illness and injury among the populations they serve. With the current focus on value-based care models, many ATs collect patient-reported outcomes data to evaluate the quality of interventions and treatments. These tools and practices have advanced the development of evidence-based treatment protocols, as well as the creation and implementation of prevention and screening tools, and informed epidemiologic studies that lead to reductions in the risk of injury or illness.

Health Policy

Health policy in athletic training is likely to occur on the state and national levels. The National Athletic Trainers' Association has developed practice policies and guidelines that keep ATs and athletes safe and protected. Athletic trainers may be part of the policy development process for injury prevention, risk management, behavioral health policy, return-to-play guidelines, and referral guides at the school and district levels. In nearly all 50 states, the athletic training profession is managed by a regulatory body that outlines policies, practice guidelines, and rules and regulations. Athletic trainers have been involved in developing many of these laws and regulations.

Public Health

Public health is a relatively new field for athletic training. The National Athletic Trainers' Association has created a task force to examine the role of ATs in public health and collaborate with the American Public Health Association to bring awareness of public health initiatives to ATs. Collaborating with health departments and community-facing organizations may create opportunities for developing innovative strategies to address the social determinants of health, reducing health disparities and preventing disease transmission. Athletic trainers also regularly engage in injury prevention, health screenings, health education, and injury and disease surveillance within populations. Given ATs' unique skill set and the overlap between the medical and public health models, they are well positioned to lead responses to public health emergencies. For example, the global COVID-19 pandemic has created an opportunity for ATs to begin interpreting and implementing public health policy and data from organizations such as the Centers for Disease Control and Prevention. As a result of the pandemic, ATs are consulting with organizational leadership to implement new policies and procedures that protect the health of the populations they serve.

Characteristics of Population-Health Professionals

An interdisciplinary population-health model suggests that clinicians adopt certain attributes or characteristics that will lead to successful health outcomes. These include taking personalized, patient-centered approaches to health, such as shared decision making about health promotion and case management; calling on interdisciplinary care teams to address complex health needs; gaining knowledge about determinants of health and their effect on population health and individual health outcomes; and using evidence-based care strategies that provide high-quality, value-based, effective care.[2] These attributes of population health align well with ATs' current practices. Athletic trainers use evidence-based treatment guidelines to manage a variety of conditions such as concussions, mental health disorders and addictions, and musculoskeletal injuries.

Translating Population Health Into Athletic Training Practice

Three athletic training competencies can be used to improve health of populations:

(1) Assess the health status of populations using available data (eg, public health surveillance data, vital statistics, registries, surveys, electronic health records, and health plan claims data).
(2) Discuss the role of socioeconomic, environmental, cultural, and other population-level determinants of health on the health status and health care of individuals and populations.
(3) Identify community assets and resources to improve the health of individuals and populations.[8]

Population-level data alert us to trends in populations. The field of athletic training should be informed by data that surveil risks and trends to inform assessments, treatments, and health outcomes. Athletic trainers know how to care for individuals and their health needs but may not be attuned to the larger group needs within the populations they serve. Athletic trainers spend numerous hours with patients developing treatment plans, assessing and monitoring their health status, and building relationships that foster trust and engagement. Because population health focuses on homogeneous groups of people and identifying and understanding factors that affect health outcomes in these groups, incorporating these competencies can serve as an additional protective factor for reducing injury, illness, and worse health outcomes. The causes of population health are multilevel (institutions, socioeconomic policies, communities, social relationships, and individual behaviors) and accumulate throughout the life course.[9] This population-health lens of increasingly vigilant surveillance to identify the factors and conditions that put populations at greater risk than others for health disparities, injuries, and risk is critical for the field of athletic training.

Athletic trainers are often in positions where they observe disparities that are caused by health inequity. In a pilot focus group we conducted, ATs discussed health concerns related to poverty, food scarcity, substance abuse, mental health, housing insecurity, crime, and violence. Surveillance and detection of these problems may help ATs develop preventive initiatives that connect patients with the

appropriate professionals and resources to prevent worse health outcomes.

CONCLUSIONS

A population-health framework can benefit the field of athletic training by positioning ATs to consider a broader perspective in understanding the factors that affect the health of the populations they serve through interprofessional collaborations and community support. Early detection and prevention of illness and injury has long been the primary role of the AT. The profession can continue to expand on this by shifting toward a population-health framework and recognizing how the distribution of health determinants may place the populations they serve at risk for worse health outcomes. Athletic trainers should take proactive steps to recognize these population-health concerns and implement new preventive health-education opportunities. As ATs become more knowledgeable about population health and begin thinking critically about the conditions affecting the health of their communities and patients, they will be able to implement transformative policies, interventions, and practices that raise the health status of the populations they serve.

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