

## Medically Underserved Populations: The Athletic Trainer's Role

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**Context:** Health care cost continues to rise; the US continues to spend dramatically more money than other developed nations per individual without increased health outcomes. More individuals are finding it harder to get access to a health care provider, especially those in medically underserved areas and populations.

**Objective:** To increase the knowledge of the athletic training educator about medically underserved populations and the roles athletic trainers (ATs) play as leaders in health care delivery.

**Background:** Current and future physician shortages are known and are only going to increase as more than one-third of current primary care physicians are expected to retire in the next 10 years. Forty percent of the population lives in areas that are medically underserved and designated by the government as areas of professional medical shortage; patients in these areas are primarily served by primary care physicians.

**Synthesis:** As with access to physicians, access to ATs has been shown to be based upon socioeconomic status and presents more challenges for the medically underserved. Early access to health care providers has shown to be important in adolescents, as negative health behaviors can carry into adulthood, leading to poorer health-related outcomes throughout life.

**Recommendation(s):** To ensure that athletic training educational programs include opportunities to provide service to the medically underserved, education on social determinates of health, and the means by which ATs can fill critical holes in providing care for these patients. More research is needed to validate ATs' roles in providing quality health care. Additionally, more research is needed around how AT education can help meet patient needs.

**Conclusion(s):** As the athletic training profession continues to evolve and responds to the growing demands of the complex health care system, access to an AT may provide a vital bridge to overall health care for patients within medically underserved populations.

**Key Words:** Health care, social determinates, health equality, Triple Aim

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# Medically Underserved Populations: The Athletic Trainer's Role

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## INTRODUCTION

Health care delivery is a hot topic and has been for the past decade. It remains unclear as to the direction health care policy will head in the near and foreseeable future. Even considering the amount of change in the past decade, still some clear trends and shortcomings remain.<sup>1</sup> During the last decade, health care costs in the US have increased 76% compared with only 30% growth in income.<sup>2</sup> Health care expenditures continue to rise and are significantly higher than in other developed nations; however, this has not led to better health outcomes.<sup>3,4</sup> Combined with these increasing costs, US residents experience difficulty finding access to personal health care through primary care providers.<sup>4</sup> This problem is expected to worsen as more individuals gain health insurance coverage due to current policy changes; access to providers is reduced due to an aging physician population, and fewer physicians choose to practice primary care.<sup>4,5</sup> Additionally, medically underserved areas and populations continue to grow at a pace faster than health care can manage these populations.<sup>4,5</sup> As a result, US residents are overusing emergency care.<sup>4</sup> This overuse leads to poor coordination of care, lower quality care, and incurs unnecessary costs, resulting in unsatisfied patients.<sup>4</sup> The triple aim described by Berwick et al<sup>6</sup> is the goal of improving the experience of care, improving the overall health of populations, and reducing the costs of care for populations. Without dramatic changes to health care delivery, achieving the triple aim will continue to be elusive.

Athletic trainers (ATs) have the essential knowledge and skills that can be an asset to address the aforementioned health care challenges. As ATs have continued to expand their practice, a body of research has demonstrated they can reduce cost,<sup>7,8</sup> improve patient satisfaction,<sup>9</sup> and improve patient access.<sup>10</sup> Athletic trainers have long been underused and should be used as a resource in addressing some of the health care challenges such as access to care, especially specialty care, health promotion and education, and healthy lifestyle changes.

## Access to Health Care

**Social Determinates.** Social determinates of health are important tools that are used to explain how the environments in which people are born, live, learn, work, play, worship, and age shape health and quality-of-life outcomes. These environments are often referred to as *place*.<sup>11</sup> Understanding the relationship between how a population group experiences their place and the effect their place has on their health is fundamental to understanding a population group's social determinant of health. Social determinants are broken into 4 main areas: (1) socioeconomic factors, (2) physical environment, (3) health behaviors, and (4) health care. Access to health care is one of the more important factors for determining an individual's health and is understood to influence not just his or her health but also education, employment, and other socioeconomic factors.<sup>11</sup>

**Medically Underserved.** Medically underserved areas and populations are determined by the Health Resources & Services Administration by measuring 4 variables: (1) ratio of primary care physicians per 1000 population, (2) infant mortality rate, (3) percentage of population below poverty line, and (4) percentage of population age 65 or over. The Health Resources & Services Administration takes each of these variables into account for a given area or population and then converts them into weighted values.<sup>5</sup>

According to 2017 data from the Association of American Medical Colleges, there are 892 856 active or practicing physicians in the US.<sup>11,12</sup> Only approximately one-third are involved in primary care.<sup>11,12</sup> The concerning fact about the primary care physician pool is more than half are over the age of 50, with almost one-third being projected to retire in the next 10 years.<sup>5,13</sup> Exacerbating this problem is the fact that just 25% of medical school graduates are going into primary care practice.<sup>5,13</sup> The World Health Organization designates any country with fewer than 1.13 physicians per 1000 people as having a critical physician shortage. The World Health Organization advocates for at least 1 primary care physician per 1000 people to sufficiently care for populations in developed countries.<sup>5</sup> This 1 per 1000 ratio is likely a gross underestimation of need, especially as it does not take into account the saturation of high-risk patients such as elderly populations with complicated medical conditions or impoverished areas where patients have greater burden of disease. Currently, there are 5 states that have fewer than 1.13 primary care physicians per 1000 residents.<sup>14</sup> Huge disparities exist when considering access to primary care physicians in the US. For example, Rhode Island has the highest concentration of primary care physicians (2.6 per 1000), almost 3 times the number compared with Idaho, with the lowest concentration (0.9 per 1000).<sup>14</sup> In fact, almost 40% of the US rural population lives in federally designated health care professional shortage areas.<sup>15</sup> Currently, there are 6433 health care professional shortage areas in the US covering 77 million residents though urban and rural areas.<sup>15</sup> In those areas alone, there is a shortage of about 14 000 primary care physicians.<sup>16</sup> Rural and urban areas are the most commonly affected by the maldistribution of primary care physicians.<sup>16,17</sup>

**Socioeconomic Factors.** Socioeconomic status (SES), which is commonly defined by lower education achievement, substandard income attainment, low occupational status, or all of the above, has directly been linked to health status.<sup>5</sup> Researchers have directly linked those individuals with low SES to poorer metabolic profiles, higher blood pressure, lower heart rate variability, higher levels of inflammatory markers, more risky behaviors (eg, smoking, drinking, drug use), and higher overall allostatic load.<sup>5</sup> *Allostatic load* is a term used to quantify how external stressors such as social, environmental, and economic stressors can affect the function of multiple biologic systems (eg, endocrine, immune, digestive, neurologic, cardiovascular). Allostatic load-induced changes (eg, secreted hormones, increased blood pressure) are meant to provide positive adaptations for short periods. When such adaptations last for long periods, they can lead to an increase

in health-related disease.<sup>5</sup> Allostatic load has proved to be a stronger predictor of morbidity and mortality than SES or any other measure.<sup>5</sup> It is important to note that both low SES and high allostatic load experienced in childhood can carry on into adulthood, resulting in increased negative health care outcomes. It has been shown that interventions geared toward reducing allostatic load significantly decrease morbidity and mortality, especially when geared toward children.<sup>5</sup> Individuals from lower SESs are subject to health inequities; these include lack of insurance or underinsurance, greater reliance on public insurance, and less access to health care providers.<sup>18</sup>

Just like other health services, access to athletic training services, specifically in the secondary school setting, is directly correlated to SES.<sup>18</sup> Limited research shows that secondary school access to AT services, as well as level of services provided, is significantly associated with the socioeconomic characteristics of the school.<sup>18</sup> Schools that had access to an AT had higher median household incomes and a lower percentage of students in free lunch programs.<sup>18</sup> The schools with higher socioeconomic categories had more hours of AT coverage, and those ATs were responsible for fewer athletes per hour. Not surprisingly, presence of an AT correlated with higher level of medical care for student athletes.<sup>18</sup>

Early access to health care providers is particularly important in adolescents, as their negative health carries onto adulthood, leading to poorer health-related outcomes throughout life. For students from a low SES, interactions with an AT may be the only regular interactions they have with a health care provider.<sup>18</sup> These encounters may increase the athlete's or patient's awareness and knowledge on many health topics. With these known inequities for low SES patients, access to an AT may provide a vital bridge within the health care system to care for this vulnerable patient population.<sup>18</sup> The key is that this population not only have access to an AT for event coverage but have access to overall athletic training and medical services. Previous researchers have shown that models focusing on coverage of events over improved access limit the AT's ability to provide the full breadth of services to the populations he or she serves, especially preventive services.<sup>18</sup> Athletic trainers working at the top of their skill set have the education and ability to provide multiple services across the spectrum of care, including recognition of risk behaviors, health promotion, preventive care, and rehabilitative care for these patients and within the community.

## SYNTHESIS

As athletic training education transitions to the 2020 Commission on Accreditation of Athletic Training Education curricular standards, the content being taught in professional athletic training programs will change. The 2020 standards shift the fundamental philosophy to having students be able to enact various behaviors of clinical practice when compared with previous educational programming that highlights specific knowledge, skills, and abilities.<sup>19</sup> This shift places more emphasis on the practice of athletic training and requires exposure of students to various practice environments and populations to ensure growth of the behavior-based changes in their clinical practice. It is the authors' hope that the 2020 standards will result in an expansion of the practice due to a broadening of knowledge and skills taught. The broadening of knowledge base, expansion of practice, and focus on clinical

practice and varied clinical immersion provides opportunities for athletic training to provide a vital bridge to the medically underserved.

## RECOMMENDATIONS

### Social Determinates

Athletic training programs should consider expanding curriculums to include public health topics such as recognition of risk behaviors for chronic diseases, health promotion, healthful lifestyle changes, and preventive care to help comply with the Commission on Accreditation of Athletic Training Education 2020 standards 55–60.<sup>19</sup> As educators expand their learners' knowledge base in these topics, educators should look for opportunities for their learners to integrate into their clinical experiences or seek out specific communities that may have a need for these services. Athletic trainers are ideal for the health educator role based on educational background in healthy lifestyle intervention and prevention. It has been shown that most AT interventions are the implementation of prevention strategies.<sup>18</sup> During and throughout the athletic training educational shift, the importance of health education and lifestyle adjustment needs should not be lost.

Early adopters of public health concepts realized the effect athletic training could have. Research by Shanley et al<sup>20</sup> is a great example of instituting a population-level quality improvement process using the AT to improve public health. They demonstrated a 22% decrease in injury rates and 50% reduction in health care cost within the studied school district (Greenville County, South Carolina schools).<sup>20</sup> This reduction was realized by simply strategically allocating resources to where they could have the most effect. Post et al<sup>18</sup> established how SES affects access to athletic training services. Quantifying these disparities allows for the discussion of why disparities exist. Additionally, it allows for the creation of new delivery models to provide access to AT services regardless of SES.<sup>18</sup> These are just some examples of the early adoption of public health concepts, but more research is needed to validate ATs' effect on public health. Additionally, more research is needed on how best to embed these concepts into educational programming.

### Medically Underserved

One of the biggest reasons for the shortage of medical providers in a given area is that most medical providers do not want to practice in the rural setting.<sup>21</sup> It has been shown in the literature that the best predictors of rural employment are rural background and placement during training.<sup>21</sup> Although it is very hard to control for the rural background of students, it is easy to control rural exposure during training. These 2 items are something both the athletic training profession and health care system should use to increase the likelihood of rural employment of medical providers or personnel. As educators seek to meet the 2020 standard requirement for immersive experiences, they should consider opportunities to ensure students are getting exposure to medically underserved populations and areas. Students with rural or urban backgrounds should be afforded opportunities to further their development in those medically underserved areas and populations.

As the athletic training profession continues to evolve and responds to the growing demands of the complex health care system, more research is required to validate the effects of the educational changes on the profession. As educational programs integrate and provide exposure opportunities, data collection is imperative to determine what techniques are working and how they are affecting the communities they serve. The athletic training profession should strive to collect large-scale population health data on how access to an AT can not only help the athletes or patients of the community they serve but also the population of the entire community. Additionally, the lasting effects ATs can have to improve long-term health outcomes due to increase in health awareness needs to be better understood. With these data, the profession and the public will truly understand and be able to better advocate for increased access to AT services.

### Health Care Delivery

The solution to increasing health equality and improving health outcomes for medically underserved areas and populations will require a network of health care providers and community-based organizations.<sup>17,22</sup> Many ATs, especially those in the secondary school setting, have had to develop networks of providers to ensure their patients are receiving effective and efficient care. Like primary care providers, ATs are often the first contact with the health care system and can effectively manage patient care as care coordinators.<sup>23</sup> Delivering quality care to medically underserved areas and populations has its many challenges, some of which are poor access, mistrust of the community, miscommunication, and low health literacy. These challenges highlight the importance of having health care professionals embedded in the community that can build the trust of community leaders and develop relationships to ensure quality and efficient care. Equally important is to have a provider from the community that truly understands the unique demographics within these populations.

There are many provider models (eg, paramedics, nurses, health coaches) in different capacities to accomplish the goal of the triple aim. These models have 4 key components: education, triage, treatment, and care coordination.<sup>22,24</sup> The model requires that health care providers be integrated into the community in some fashion. The role of this integrated provider has been described as having a registered nurse or paramedic handle the acute triage and chronic disease management, and a health educator handle the health promotion aspects. Li et al<sup>24</sup> found that Medicaid claims increased slightly with ATs in secondary school settings; however, it was suggested that “ATs may be identifying patients with injuries and conditions that need referral that would otherwise go untreated and lead to more significant sequelae in later years.”<sup>24(p168)</sup> It has also been shown that an AT providing treatment of rehabilitative services in a secondary school setting demonstrated a cost containment of nearly \$65 000. This is identified as costs that would have historically been billed services if these patients were referred to formal rehabilitation settings.<sup>7</sup> Athletic trainers should be considered and can be used in these models as community health care providers in providing education, triage, treatment, and care coordination to medically underserved areas and populations.

The integrated health care provider, as described above, requires an autonomous provider and develops 2 types of identified relationships: independent and collaborative.<sup>24</sup> For the *independent relationship*, the providers must be established autonomously within the community and must assume responsibility for achieving the triple aim goals for their population. Through *collaborative relationships*, integrated providers develop networks of health care providers, systems, or both to share in the patient’s quality of care. The integrated care model requires a second level of the health care team to provide service such as specialty care or chronic health maintenance. This level of care can be accomplished in many ways but most often is done via telehealth. Being integrated into the community allows the integrated care provider to assess the needs of the community and offer service to promote the health of the community, for example, education on health topics unique to the community, blood pressure screenings, or healthy cooking classes. Athletic training education should prepare ATs to handle the roles of the integrated health care provider. This is not a new concept for ATs who work as health care providers, under the direction of a physician, integrated into a population to provide independent care.

Outlined in previous papers; ATs working in a rural family practice clinical setting have demonstrated the ability to increase patient access into family practice clinics, subsequently generating enough revenue to cover the cost of hiring an AT. Medical Director Jon Schott, MD, suggested “ATs have made a significant impact to our practice. . . We use the athletic training residents as an orthopedic consultant for our clinic.”<sup>25(p194)</sup> Additionally, the AT’s time in the family practice clinic was purposely scheduled on a 0.8 full-time equivalent basis, allowing time for the AT to engage and provide athletic training services within the community.<sup>25</sup> This is just 1 model that can be used to financially support an AT integrating into a community. Having an AT fully integrated into a community who assumes the responsibility for achieving the triple aim for that community or population should be the goal. This way, ATs can change the focus of care and can be involved in transparent and educational decision-making that is based around a trusting relationship.<sup>4</sup>

Understanding health care delivery is an area that educators can look to expand their curricula. Ensuring graduates have a general understanding of health care delivery should be the focus of the professional programs. Doctorate of Athletic Training programs should look to expanding leadership principles within health care delivery principles, especially those related to the triple aim. The more ATs can advance to leadership positions within health care, the more opportunities there will be for ATs to be used at the top of their scope or practices within health care. There may also be a role for the development of residency programs specific to health care delivery including specialty areas of prevention, primary care, or both. Clinical specialists developed from these residencies will allow for further research and development of health care delivery models.

### LIMITATIONS

There are several limitations to implementing care models for ATs to service the medically underserved. The first comes with the cost to provide care, specifically related to how health care

is delivered. Even though health systems are transitioning to more value-based care, large portions of the sector are still operating within a fee-for-service model. Since ATs still have many barriers with insurance providers, especially without Centers for Medicare & Medicaid Services recognition, the services they provide are not reimbursable. Providing services to these communities may have to fall to organizations with large philanthropies or those who are fully committed to value-based care. Additionally, there may be barriers to getting community engagement due to not having relationships built and trust. There is a limitation of qualified ATs with enough specific public health and primary knowledge to be able to implement these programs. This will take time to develop. The changes coming to educational programs as a result of the 2020 standards will help, but programs will have to commit time and energy to educating their students on these topics. Additionally, finding AT providers with the drive or willingness to work in these communities may be difficult. As stated, providers who work in the underserved populations are likely to have grown up in these settings; the number of students who come from medically underserved areas is unknown.

## AREAS FOR FUTURE RESEARCH

Research priorities should be analyzing what effect ATs have on the health of the communities they serve. Once these effects on health outcomes are known, athletic training can start to evaluate what specific effect they can have on the medically underserved. Educators should look at how well current professional program graduates understand the concepts of social determinates of health. Are graduates being prepared to meet the demands of the medically underserved? What specific pedagogy and educational program produces the most improvement in patient outcomes? Like other professions, what is the profile of the clinician that chooses to work with the medically underserved, and how can those clinicians be identified and their growth fostered?

## CONCLUSIONS

Athletic trainers are well suited and have the educational background to make an effect as part of an interdisciplinary team within the various health care delivery models. Medically underserved areas and populations have been identified as a current area of limited health care services, and projections are worse for the future. Athletic training should look to the future of health care and position the profession to address those areas of need that are ahead, specifically within the medically underserved areas and populations. As educational curriculums expand to meet the 2020 standards, educators should look to develop opportunities to expand into public health and increase the role athletic training can play.

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