

**An Assessment of the Impact of Secondary School Demographics on Athletic Training  
Services in Pennsylvania**

by

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Meghan Lee Hawthorne, BS, LAT, ATC

University of Pittsburgh, 2024

Research to date has investigated the nationwide presence of athletic trainers in secondary schools for the past 30 years. These individual studies only encompass certain components of athletic training services and/or aspects of secondary schools. **PURPOSE:** To examine the characteristics of athletic training services as well as the demographics of secondary schools such as school type, school size, and geographic location in Pennsylvania. **METHODS:** Data was collected from a sample of 737 Pennsylvania secondary schools with various school types, school sizes, geographic settings, and athletic training services. This data was collected from public domain websites of the Pennsylvania Interscholastic Athletic Association (PIAA) and the individual Pennsylvania secondary schools. Specifically, this study gave insight as to how the characteristics of the secondary schools (school type, school size, geographic setting) influence the athletic training services (athletic trainer (yes/no), number of athletic trainers (0-3 or more), athletic trainer employment provider) offered. Descriptive statistics were calculated for all variables. Fisher-Freeman-Halton Exact and Pearson Chi-Square tests were conducted to assess the relationship between the school type, school size, and geographic location and the availability of athletic training services. **RESULTS:** There were statistically significant ( $p < 0.001$ ) relationships between the school type and school size and the athletic training services (yes/no and 0-3 or more). The rates of athletic training employment for public schools and the differing school sizes reflected previous research. The rates of athletic training employment for private schools and

the ranging geographic locations varied from previous reports. Specifics regarding the number of athletic trainers employed and the athletic trainer employment providers were limited due to the lack and consistency of research. **CONCLUSION:** Further efforts need to be made to ensure accessibility and accurate athletic training information is available by athletic training employment providers and the athletic trainer's site of employment. Further research needs to continue assessing state-specific secondary school demographics and the athletic training services provided.

# Table of Contents

Preface.....	xi
<b>1.0 Introduction.....</b>	<b>1</b>
<b>1.1 Definition of an Athletic Trainer.....</b>	<b>2</b>
<b>1.2 Athletic Trainer’s Scope of Practice .....</b>	<b>3</b>
<b>1.3 Athletic Training Education, Certification, Licensure .....</b>	<b>4</b>
<b>1.4 Athletic Training Services .....</b>	<b>6</b>
<b>1.5 Problem Statement .....</b>	<b>9</b>
<b>1.6 Study Purpose .....</b>	<b>10</b>
<b>1.7 Specific Aims .....</b>	<b>10</b>
<b>1.8 Study Significance .....</b>	<b>10</b>
<b>2.0 Methods.....</b>	<b>12</b>
<b>2.1 Experimental Design .....</b>	<b>12</b>
<b>2.2 Subject Characteristics .....</b>	<b>12</b>
<b>2.3 Power Analysis.....</b>	<b>13</b>
<b>2.4 Procedures.....</b>	<b>13</b>
<b>2.5 Data Reduction .....</b>	<b>14</b>
<b>2.6 Data Analysis .....</b>	<b>15</b>
<b>3.0 Results .....</b>	<b>16</b>
<b>3.1 Secondary School Demographics .....</b>	<b>16</b>
<b>3.1.1 School Type.....</b>	<b>19</b>
<b>3.1.1.1 School Type and Athletic Trainer Employment .....</b>	<b>19</b>

3.1.1.2 School Type and Number of Athletic Trainers .....	20
3.1.1.3 School Type and Athletic Trainer Employment Provider .....	21
3.1.2 School Size .....	27
3.1.2.1 School Size and Athletic Trainer Employment.....	27
3.1.2.2 School Size and Number of Athletic Trainers.....	29
3.1.2.3 School Size and Athletic Trainer Employment Provider .....	30
3.1.3 Geographic Location.....	35
3.1.3.1 Geographic Location and Athletic Trainer Employment .....	36
3.1.3.2 Geographic Location and Number of Athletic Trainers .....	38
3.1.3.3 Geographic Location and Athletic Trainer Employment Provider ..	40
<b>4.0 Discussion.....</b>	<b>46</b>
<b>4.1 School Type .....</b>	<b>46</b>
4.1.1 School Type and Athletic Trainer Employment .....	46
4.1.2 School Type and Number of Athletic Trainers .....	47
4.1.3 School Type and Athletic Trainer Employment Provider .....	48
<b>4.2 School Size and Athletic Training Services .....</b>	<b>49</b>
4.2.1 School Size and Athletic Trainer Employment .....	49
4.2.2 School Size and Number of Athletic Trainers .....	50
4.2.3 School Size and Athletic Trainer Employment Provider .....	50
<b>4.3 Geographic Location and Athletic Training Services .....</b>	<b>51</b>
4.3.1 Geographic Location and Athletic Trainer Employment .....	51
4.3.2 Geographic Location and Number of Athletic Trainers .....	52
4.3.3 Geographic Location and Athletic Trainer Employment Provider .....	53

<b>4.4 Limitations .....</b>	<b>54</b>
<b>4.5 Future Research and Recommendations.....</b>	<b>55</b>
<b>4.6 Conclusion.....</b>	<b>57</b>
<b>Bibliography .....</b>	<b>58</b>



## List of Tables

<b>Table 1 Athletic Training Employment Provider Per Secondary School.....</b>	<b>18</b>
<b>Table 2 School Type and AT Employment.....</b>	<b>19</b>
<b>Table 3 School Type and Number of ATs Employed .....</b>	<b>21</b>
<b>Table 4 School Type and AT Employment Provider.....</b>	<b>24</b>
<b>Table 5 School Size Enrollment<sup>34</sup> .....</b>	<b>27</b>
<b>Table 6 School Size and AT Employment.....</b>	<b>28</b>
<b>Table 7 School Size and Number of ATs Employed .....</b>	<b>29</b>
<b>Table 8 School Size and AT Employment Provider .....</b>	<b>32</b>
<b>Table 9 PIAA Districts 1.....</b>	<b>36</b>
<b>Table 10 PIAA Districts 2.....</b>	<b>36</b>
<b>Table 11 Geographic Location and AT Employment 1.....</b>	<b>37</b>
<b>Table 12 Geographic Location and AT Employment 2.....</b>	<b>37</b>
<b>Table 13 Geographic Location and Number of ATs Employed 1 .....</b>	<b>39</b>
<b>Table 14 Geographic Location and Number of ATs Employed 2 .....</b>	<b>39</b>
<b>Table 15 Geographic Location and AT Employment Provider.....</b>	<b>43</b>

## List of Figures

<b>Figure 1 Athletic Training Employment Provider Per Secondary School .....</b>	<b>17</b>
<b>Figure 2 School Type and AT Employment .....</b>	<b>20</b>
<b>Figure 3 School Type and Number of ATs Employed.....</b>	<b>21</b>
<b>Figure 4 School Type and AT Employment Provider .....</b>	<b>23</b>
<b>Figure 5 School Size and AT Employment.....</b>	<b>28</b>
<b>Figure 6 School Size and Number of ATs Employed.....</b>	<b>30</b>
<b>Figure 7 School Size and AT Employment Provider .....</b>	<b>31</b>
<b>Figure 8 PIAA Map of the Districts (1-12)<sup>35</sup> .....</b>	<b>35</b>
<b>Figure 9 Geographic Location and AT Employment .....</b>	<b>38</b>
<b>Figure 10 Geographic Location and Number of ATs Employed.....</b>	<b>40</b>
<b>Figure 11 Geographic Location and AT Employment Provider .....</b>	<b>42</b>

## Preface

I would like to express my gratitude and appreciation towards several individuals who had a positive impact on the completion of my master's thesis. I would like to thank the University of Pittsburgh Sports Medicine program for the opportunity to pursue my master's degree while also being a preceptor and the graduate assistant athletic trainer at Chatham University.

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I would like to thank all the student-athletes I have provided athletic training services for as well as any fellow athletic trainers I have worked with throughout my first two years of being a certified athletic trainer. My positive experiences and interactions have continuously fueled my passion and love for the profession of athletic training. I would also like to thank my past professors and preceptors from West Liberty University that positively impacted me as an undergraduate athletic training student, which allowed me to have success at the University of Pittsburgh and as a certified athletic trainer.

Last but not least, I would like to thank my parents, my support system of close friends, my undergraduate athletic training peers, and my current sports medicine classmates for the constant encouragement and shoulder to lean on throughout my graduate school journey.

## 1.0 Introduction

Athletic trainers (ATs) are health care professionals that have specific academic preparation and clinical training to work with physically active patients with injuries related to sport and physical activity.<sup>1</sup> No other health care professional is trained or prepared to be competent in the variety of areas that ATs are: risk reduction, wellness and health literacy, assessment, evaluation and diagnosis, critical incident management, therapeutic intervention, and healthcare administration and professional responsibility.<sup>1,2,8,9</sup> Without an athletic trainer present, many areas of liability arise such as the lack of preparation for emergencies and other medical needs, which can increase the risk of injury.<sup>3</sup> Athletic training services in secondary schools have lacked consistently for years compared to other settings such as professional sports and collegiate athletics.<sup>4,5</sup> Although there has been an increase in secondary school ATs, 34% of secondary schools in the United States still do not provide athletic training services for their student-athletes.<sup>4</sup> Much research has been conducted to assess the presence of athletic trainers in secondary schools in the United States, as well as the factors affecting the employment of ATs. Pennsylvania has only been assessed individually for specific factors, but nationwide studies have shown that Pennsylvania secondary schools have one of the highest employment rates of athletic trainers.<sup>4-7</sup> The combination of minimal inclusive studies and the rates of athletic training services leaves much to be understood regarding factors affecting athletic training employment at secondary schools in Pennsylvania.

## 1.1 Definition of an Athletic Trainer

Athletic trainers (ATs) are defined as highly qualified, multi-skilled health care professionals who render service or treatment under the direction of, or in collaboration with, a physician in accordance with their education, training, and the state's statutes, rules and regulations.<sup>8,9</sup> ATs are classified as mid-level health care professionals as well as an allied health profession by the American Medical Association (AMA), Health Resources Services Administration (HRSA) and Department of Health and Human Services (HHS).<sup>9</sup> Athletic trainers have an in-depth and unique academic preparation and clinical training compared to any other group of health professionals that work with the physically active population.<sup>1</sup> ATs are the only allied health practitioners specifically trained in injury prevention interventions as well as sport-specific and on-field emergency care.<sup>10</sup> Athletic trainers play a vital role in the health care system by being leaders of scholastic sports medicine programs, spearheading clinical care and managing the health of local communities.<sup>1,11</sup> Despite the multitudes of qualifications athletic trainers have, ATs are still not recognized as healthcare professionals by many. When asked to identify a trusted source of medical information, 93.3% of secondary school coaches, 92.9% of secondary school principals, and 96.6% of secondary school athletic directors identified athletic trainers.<sup>12,14,16</sup> In contrast, in a study conducted by Pike Lacy et al., where they surveyed legislators about their perceptions and knowledge of the athletic training profession, only 69.2% of legislators identified athletic trainers as a trusted source of medical information.<sup>17</sup> These legislators also identified physicians, nurses, physician assistants, and emergency medical technicians as trusted sources of medical information before they identified athletic trainers.<sup>17</sup> The legislators' level of agreement that athletic trainers are health care professionals varied: 68% agreed, 20% neither agreed nor disagreed, and 12% disagreed.<sup>17</sup> Expanding upon the inconsistencies of knowledge regarding

athletic trainers as health care professionals, most individuals are unsure of an athletic trainer's scope of practice.

## **1.2 Athletic Trainer's Scope of Practice**

The AT profession is encompassed by five domains: risk reduction, wellness and health literacy, assessment, evaluation and diagnosis, critical incident management, therapeutic intervention, and healthcare administration and professional responsibility.<sup>8,9</sup> Within these five domains, the services athletic trainers provide span from initial evaluation to returning to sport participation.<sup>11</sup> These athletic training services include injury and illness prevention.<sup>1,8,9,11</sup>, wellness promotion and education<sup>9</sup>, properly assessing and overseeing protective equipment.<sup>8,10</sup>, examination<sup>1,9</sup>, emergency and nonemergency care<sup>1,8,9,11</sup>, clinical diagnosis<sup>8,9</sup>, treatment of emergent, acute or chronic injuries and medical conditions<sup>9</sup>, therapeutic intervention<sup>8,9</sup>, rehabilitation of injuries and medical conditions<sup>1,8-10</sup>, improving functional outcomes and prevention of re-injury<sup>9</sup>, safe initiation of and return to physical activity<sup>1,10</sup> as well as developing and implementing a comprehensive athletic health care administrative system.<sup>8</sup> Athletic training services during emergencies specify determining an athlete's readiness to participate via preparticipation evaluation and/or a physician<sup>8</sup>, identifying and monitoring playing environments and facilities<sup>8,10</sup>, enforcing rules and policies of sport or activity<sup>10</sup>, and developing and implementing an Emergency Action Plan (EAP).<sup>8</sup> Athletic trainers coordinate and collaborate with other health care professionals, such as a physician with a specialty in sports medicine or outpatient rehab professionals.<sup>8,9,11</sup> ATs typically treat physically active patients participating in sport activity, but athletic trainers have an unparalleled continuum of care for their patients.<sup>1,9</sup> The variety of job

settings of athletic trainers allow for ATs to treat all types of patients engaged in competitive, recreational, and occupational physical activity.<sup>19</sup> Interestingly enough, when asked what athletic trainers are qualified to do, the top three responses from secondary school coaches, principals, and athletic directors were injury prevention (e.g., taping, equipment fitting, education), first aid & wound care, and therapeutic interventions (e.g., rehabbing an injury).<sup>12,14,16</sup> In contrast, the legislators' top three responses were injury prevention, first aid & wound care, and strength and conditioning.<sup>17</sup> The identification of strength and conditioning as one of the top three responses by legislators plays into the common and damaging misconception that athletic trainers are personal trainers or strength and conditioning coaches. These misconceptions regarding the profession of athletic training evolve into the vague understanding of an athletic trainer's training as well as the lack of knowledge regarding athletic training's educational requirements.

### **1.3 Athletic Training Education, Certification, Licensure**

The Board of Certification, Inc. (BOC), the credentialing body for athletic trainers, requires that candidates earn either a baccalaureate or master's degree from a program that is accredited by the Commission on Accreditation of the Athletic Training Education (CAATE).<sup>8,9</sup> The CAATE has mandated all undergraduate bachelor's degree Athletic Training Programs to submit for transition to a master's degree or drop their programs by the year 2026. After 2026, only a professional Master's degree will be sufficient to be eligible for the BOC exam.<sup>9</sup> The AT Strategic Alliance proposed this change in 2015, while currently, more than 70% of athletic trainers already hold at least a master's degree.<sup>8,9</sup> While utilizing a medical-based model for the academic curriculum and clinical training, a competency-based approach is heavily relied upon.<sup>9</sup> This

competency-based approach ensures that athletic training students master the knowledge, skills, and clinical abilities embedded in these professional programs. Mentioned previously, the five domains of athletic training clinical practice are risk reduction, wellness and health literacy, assessment, evaluation and diagnosis, critical incident management, therapeutic intervention, and healthcare administration and professional responsibility.<sup>8,9</sup> Academically, the CAATE-accredited athletic training programs must include acquiring knowledge, skills, and clinical abilities along with a broad scope of foundational behaviors of professional practice within and across each of the five domains.<sup>9</sup> Clinically, the Athletic Training Education Competencies identify and embody the clinical integration proficiencies (professional, practice-oriented outcomes) within this extensive clinical learning requirement.<sup>9</sup> Within the competencies, certain subject matter must be formally instructed to the students: evidence-based practice, prevention and health promotion, clinical examination and diagnosis, acute care of injury and illness, therapeutic interventions, psychosocial strategies and referral, health care administration, and professional development and responsibility.<sup>9</sup> Once a student completes a CAATE-accredited athletic training education program, they are eligible to sit for the Board of Certification, Inc. (BOC) examination.<sup>9</sup> If the BOC examination is successfully passed, and all other requirements are met, the individual is now a nationally certified athletic trainer. Currently, 48 states and the District of Columbia require athletic trainers to hold the Board of Certification credential of “Athletic Trainer Certified” (ATC).<sup>8,9</sup> In addition to the BOC credential of ATC, an athletic trainer must hold state licensure in the state they are employed.<sup>8,9</sup> Currently, 49 states and the District of Columbia require licensure or other regulations to practice as an athletic trainer.<sup>9</sup> California is the only state that has no regulations regarding athletic trainers, but the state organizations continue to push for licensure.<sup>9</sup> Licensure allows for the properly certified and licensed medical professionals to provide care that



they are qualified to perform, ensuring safety for their patients. The legislators' level of agreement with requiring health care professionals to have state licensure varied: 86% agreed, 11% neither agreed nor disagreed, and 3% disagreed.<sup>17</sup> The state organizations with the support from the National Athletic Trainers' Association (NATA) governmental affairs committee also continuously advocate to update state practice acts that are not cohesive with current qualifications and practices of athletic trainers.<sup>9</sup> To maintain national certification and specific state regulations, ATs must complete continuing education requirements. Continuing education requirements ensure that the clinicians are staying on the forefront in the field of athletic training, obtaining current professional development information, exploring new knowledge in specific content areas, mastering new athletic training-related skills and techniques, expanding approaches to effective athletic training, further developing professional judgment, and conducting professional practice in an ethical and appropriate manner.<sup>9</sup> A variety of continuing education opportunities for athletic trainers may include workshops, webinars, home study courses, clinical symposiums, and athletic training expositions.<sup>9</sup>

#### **1.4 Athletic Training Services**

The job settings of an athletic trainer range greatly: secondary schools, colleges, universities, professional sports, Olympic sports, youth leagues, physician practice, hospital settings, specialty clinics, occupational health departments, emergency services, military, and performing arts.<sup>18</sup> The percentage of athletic trainers working in specific fields vary from 24% in colleges and universities, 24% in secondary schools, 16% in clinics and hospitals, 14% as students, 3% in professional sports, and 3% in emerging settings of performing arts, public safety, military,

and occupational health.<sup>18</sup> Specific aspects of athletic training services in certain demographics of secondary schools have been assessed in multiple previous studies. The demographics of secondary schools that were evaluated individually included school type, socioeconomic status, geographic setting, and school size.<sup>5-7,19-22</sup> Due to the differences in secondary school athletic participation and required credentials for athletic trainers across the United States, studies have been conducted for the states of California, Michigan, North Carolina, South Carolina, Oregon, Hawaii, Arizona, Wisconsin, and West Virginia.<sup>23-32</sup> One specific study by Vandermark et al. analyzed the medical care provided in secondary schools in lieu of athletic trainers.<sup>33</sup> The secondary schools with licensed medical caregivers other than athletic trainers are individuals with a medical care background but do not have a “certified athletic trainer” (ATC) credential.<sup>33</sup> The secondary schools with non-medical caregivers may include parents, coaches, or athletic directors.<sup>33</sup> These non-medical caregivers are individuals who did not have medical training or credentials.<sup>33</sup> Of the responding public secondary schools, 25.6% did not have an athletic trainer.<sup>33</sup> In lieu of an athletic trainer, 74.7% of these secondary schools had other licensed medical caregivers, while 25.3% had no medical caregivers.<sup>33</sup> The other licensed medical caregivers employed through the public secondary schools varied: 80.4% employed EMS, 16.7% employed a physician, 9.6% employed a first responder, 3.3% employed a physical therapist, 2.9% employed a nurse, 1.0% employed a chiropractor, and 0.7% employed a physician assistant.<sup>33</sup> Among private secondary schools, 32.7% did not have an athletic trainer.<sup>33</sup> However, 36.4% of these secondary schools have other licensed medical caregivers in lieu of an athletic trainer, while 63.6% reported having no medical caregivers.<sup>33</sup> The other licensed medical caregivers employed through the private secondary schools varied: 49.2% employed EMS, 21.7% employed a nurse, 20.9% employed a physician, 17.6% employed a first responder, 4.1% employed a physical therapist,

1.2% employed a physical assistant, and 0.4% employed a chiropractor.<sup>33</sup> The amount of other licensed medical caregivers was similar among public and private secondary schools.<sup>33</sup> Public and private schools that employed a caregiver were found to both have 86% single caregivers, 13% and 12% two types of caregivers, and 0.8% and 2% three or more types of caregivers.<sup>33</sup> Regarding how valuable an athletic trainer is to the health and safety of student-athletes, the response of “extremely valuable” differed among respondents.<sup>12,14,16</sup> The secondary school staff with an athletic trainer referred to athletic trainers as “extremely valuable” for 73.1% of coaches, 75.4% of principals, and 86.3% of athletic directors.<sup>12,14,16</sup> On the contrary, secondary school staff without an athletic trainer referred to athletic trainers as “extremely valuable” for 61.1% of coaches, 31.3% of principals, and 49.1% of athletic directors.<sup>12,14,16</sup> Only 33.6% of legislators responded extremely valuable pertaining to the value of an athletic trainer.<sup>17</sup> Secondary school coaches were asked about their willingness to coach at a school that does not employ an athletic trainer.<sup>12</sup> Coaches with an athletic trainer had responses of 38.9% agree, 15.1% neither agree nor disagree, and 46% disagree relating to the statement of “I am willing to coach at a school that does not employ an athletic trainer”.<sup>12</sup> Coaches without an athletic trainer had responses of 81.7% agree, 13.2% neither agree nor disagree, and 5.1% disagree relating to the statement of “I am willing to coach at a school that does not employ an athletic trainer.”<sup>12</sup> Furthermore, 61.7% of secondary school principals and 75.8% of secondary school athletic directors with an athletic trainer employed at their secondary school believed employing an athletic trainer reduces liability.<sup>14,16</sup> In comparison, 28.8% of secondary school principals and 47.9% of secondary school athletic directors without an athletic trainer employed at their secondary school believed employing an athletic trainer reduces liability.<sup>14,16</sup> An impactful factor on secondary school coaches’, principals’, and athletic directors’ as well as legislators’ opinions regarding athletic trainers was their past or current experiences with

athletic trainers. The absence of an athletic trainer then also affects the desire to seek one out for employment. The principals without an athletic trainer responded to their opinion on employing one as 22.7% want to hire a full-time athletic trainer, 52.5% want to hire a part-time athletic trainer, and 24.8% do not want to hire an athletic trainer.<sup>14</sup> The athletic directors without an athletic trainer responded to their opinion on employing one as 35.9% want to hire a full-time athletic trainer, 54.7% want to hire a part-time athletic trainer, and 9.4% do not want to hire an athletic trainer.<sup>14</sup> Contrary to these data values, the evolving exposure of the athletic training profession continues to change athletic training services and employment at the secondary school level continuously.

### **1.5 Problem Statement**

Research to date has investigated the nationwide presence of athletic trainers in secondary schools for the past 30 years. These studies have gradually explored the characteristics of athletic trainers present in secondary schools and the barriers that come with hiring ATs.<sup>4,5</sup> However, the presence of athletic trainers in secondary schools is a continually evolving subject matter. These individual studies only encompass certain components of athletic training services and/or aspects of secondary schools. Furthermore, an investigation regarding a state with a high rate of athletic training services in secondary schools, such as Pennsylvania, would be beneficial. This data could be utilized by states that are struggling with athletic training services in secondary schools. By analyzing the relationships between certain secondary school demographics and athletic training services, specific trends could be discovered in Pennsylvania and implemented for other states.

## **1.6 Study Purpose**

The purpose of this study is to examine the characteristics of athletic training services as well as the demographics of secondary schools such as school type, school size, and geographic location in Pennsylvania.

## **1.7 Specific Aims**

Specific Aim 1: To examine the characteristics of athletic training services in Pennsylvania secondary schools.

Specific Aim 2: To examine the relationship between athletic training services and school type in Pennsylvania.

Specific Aim 3: To examine the relationship between athletic training services and school size in Pennsylvania.

Specific Aim 4: To examine the relationship between athletic training services and geographic location in Pennsylvania.

## **1.8 Study Significance**

The study aims to reveal how the athletic training services vary among secondary schools in the state of Pennsylvania. Specifically, this study will give insight as to how the characteristics of the secondary schools (school type, school size, geographic setting) influence the athletic

training services (athletic trainer (yes/no), number of athletic trainers (0-3 or more), athletic trainer employment provider) offered. Therefore, this research will provide insight regarding Pennsylvania's secondary schools and athletic training services characteristics, which are known to be the one of the highest in the United States.<sup>4,5,7,22</sup> These findings will be applicable in assisting states with a lack of athletic training services, so they will be able to improve their athletic training services.

## **2.0 Methods**

### **2.1 Experimental Design**

The study design was a descriptive and comparative design. This study analyzed data regarding athletic training services and demographics of Pennsylvania secondary schools. This data was collected from public domain websites of the Pennsylvania Interscholastic Athletic Association (PIAA) and the individual Pennsylvania secondary schools.

### **2.2 Subject Characteristics**

#### **Inclusion Criteria:**

Pennsylvania secondary schools listed on the Pennsylvania Interscholastic Athletic Association (PIAA) website containing at least one of grades nine to twelve with an interscholastic athletic program of either boys' or girls' basketball.

#### **Exclusion Criteria:**

Any Pennsylvania secondary schools listed on the Pennsylvania Interscholastic Athletic Association (PIAA) website not containing at least one of grades nine to twelve with an interscholastic athletic program of either boys' or girls' basketball.

### **2.3 Power Analysis**

We included a sample of 737 Pennsylvania secondary schools with various school types, school sizes, geographic settings, and athletic training services. This sample included every secondary school that met the specified inclusion criteria.

### **2.4 Procedures**

The study did not require review by the University of Pittsburgh's Institutional Review Board (IRB). The data compiled was de-identified and was not re-identified, which was not considered human subject research. This data was gathered through the Pennsylvania Interscholastic Athletic Association (PIAA) website as well as the individual Pennsylvania secondary school athletic and/or academic websites.

The PIAA website's homepage was visited then the "Directory" section was clicked under the "Schools" tab. Within the "Directory" section, the "Search by PIAA District" option was selected. The "Search by PIAA District" option displayed a PIAA district map depicting each district (1-12) in marked off geographic districts. Each district's "View Schools" tab was selected, and each district's secondary schools were assessed to contain at least one of grades nine to twelve with an interscholastic athletic program of either boys' or girls' basketball. This specific inclusion criteria was determined in order to encompass a sport commonly offered across co-ed, all-girl, and all-boy secondary schools. Each secondary school that met this inclusion criteria had data collected from the PIAA website: school name, school address, school type (public, private, charter), school



size (PIAA classification: boys' or girls' basketball of 1A-6A), and geographic location (PIAA district 1-12).

To assess the athletic training services (athletic trainer (yes/no), number of athletic trainers (0-3 or more), athletic trainer employment provider) of each individual secondary school, the name of each secondary school was web searched followed by the words "athletic trainer." Among the search results, the secondary school's official academic and athletic websites were utilized. On these websites, specific features were investigated into whether they had athletic training services information: the staff directory, any athletic training page listed, and/or athletic staff lists. To confirm the athletic training services information found, the specific athletic trainer employment provider's website was assessed. If the athletic trainer(s) were listed, their name in addition to "athletic trainer" was internet searched to find either their public job or employment listing. This methodology to collect the athletic training services data of each secondary school was chosen to assess the accessibility of this information to student-athletes, their families and support systems, and to other health care professionals.

## **2.5 Data Reduction**

All data collected (school name, school address, school type (public, private, charter), school size (PIAA classification: boys' or girls' basketball of 1A-6A), geographic location (PIAA district 1-12), athletic trainer (yes/no), number of athletic trainers (0-3 or more), athletic trainer employment provider) for each secondary school was organized in Excel. The athletic training services data (athletic trainer (yes/no), number of athletic trainers (0-3 or more), athletic trainer employment provider) was sorted further by school type (public, private, charter), school size

(PIAA classification: boys' or girls' basketball of 1A-6A), and geographic location (PIAA district 1-12).

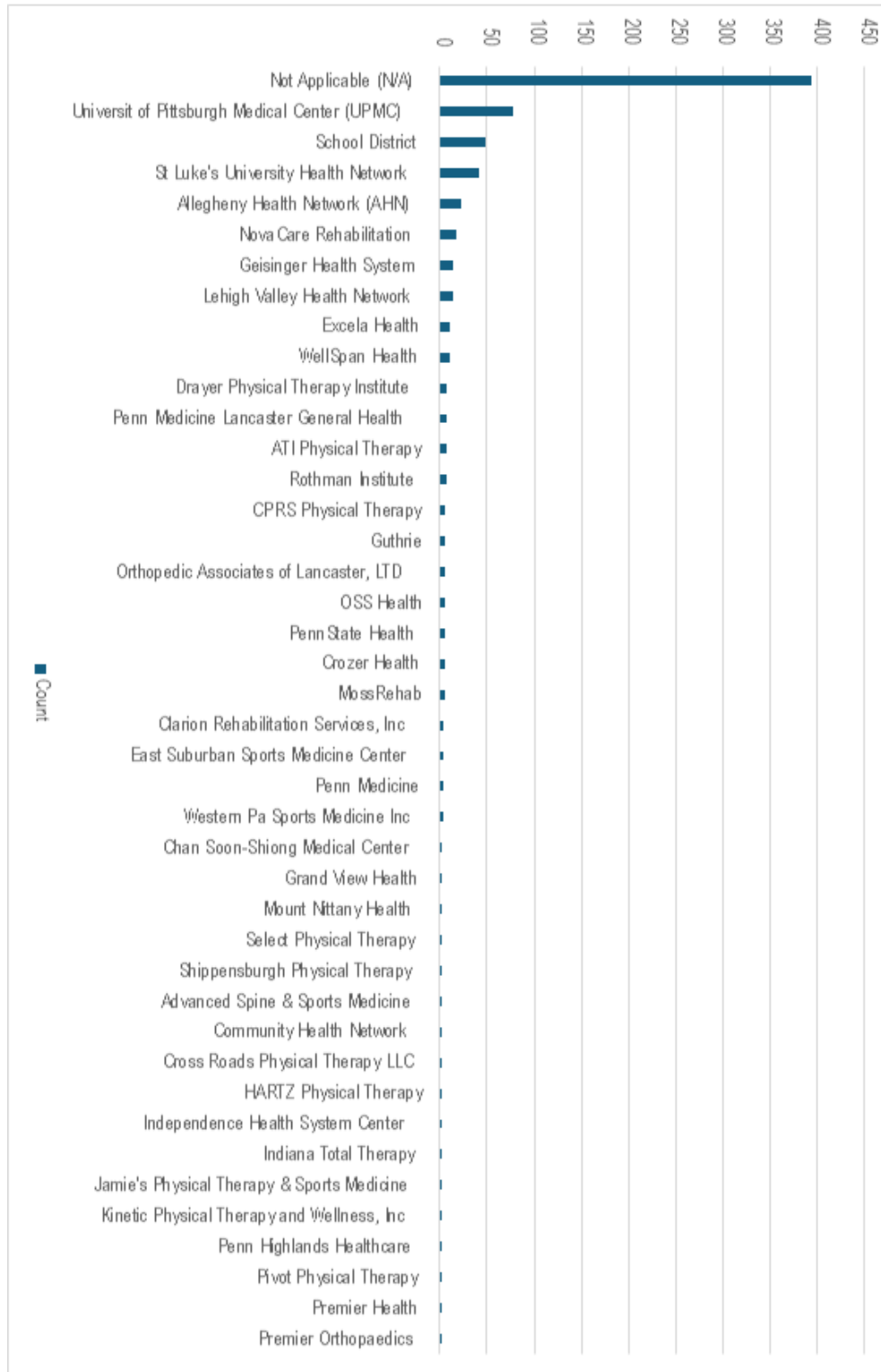
## **2.6 Data Analysis**

Descriptive statistics (mean, standard deviation, median, interquartile range, proportion/percentage, as appropriate) were calculated for all variables. Inferential statistics (Pearson Chi-Square and Fisher-Freeman-Halton Exact Tests) were conducted to assess the relationship between the school type, school size, and geographic location and the athletic training services (yes/no and 0-3 or more). The relationship between the school type, school size, geographic location, and the athletic trainer employment providers were not conducted due to the large amount of athletic trainer employment providers (41), could not be reorganized into meaningful categories.

## **3.0 Results**

### **3.1 Secondary School Demographics**

Data collection of the secondary school demographics as well as the athletic training services was conducted from November 2023 to January 2024. A total of 737 Pennsylvania secondary schools met the inclusion criteria of being a Pennsylvania secondary schools listed on the Pennsylvania Interscholastic Athletic Association (PIAA) website containing at least one of grades nine to twelve with an interscholastic athletic program of either boys' or girls' basketball were assessed. Of these 737 Pennsylvania secondary schools, 467 (63.4%) were found to have an athletic trainer, while 270 (36.6%) were found to not have an athletic trainer. The number of athletic trainers present at each Pennsylvania secondary school ranged between 0 (38.4%), 1 (40.3%), 2 (15.2%), and 3 or more (6.1%). The athletic training employment providers were found to span across 41 different employers. Figure 1. and Table 1. show the number of Pennsylvania secondary schools employing their athletic trainers through each employer. Other than being an athletic trainer, 29 individuals were found to have additional jobs: athletic director (11), assistant athletic director (8), teacher (8), transportation coordinator (1), and facilities manager (1).



**Figure 1 Athletic Training Employment Provider Per Secondary School**

N/A = Athletic Trainer Employment Provider Not Found or Known

**Table 1 Athletic Training Employment Provider Per Secondary School**

		Frequency	Percent
Valid	N/A	392	53.2
	UPMC	77	10.4
	School District	48	6.5
	St Luke's University Health Network	41	5.6
	AHN	22	3.0
	NovaCare	17	2.3
	Geisinger	13	1.8
	Lehigh Valley Health Network	13	1.8
	Excela Health	10	1.4
	WellSpan Health	10	1.4
	Drayer Physical Therapy Institute	7	.9
	Penn Medicine Lancaster General Health	7	.9
	ATI Physical Therapy	6	.8
	Guthrie	6	.8
	Rothman Institute	6	.8
	CPRS Physical Therapy	5	.7
	Orthopedic Associates of Lancaster, LTD	5	.7
	OSS Health	5	.7
	PennState Health	5	.7
	Crozer Health	4	.5
	MossRehab	4	.5
	Clarion Rehabilitation Services, Inc	3	.4
	East Suburban Sports Medicine Center	3	.4
	Penn Medicine	3	.4
	Western Pa Sports Medicine Inc	3	.4
	Chan Soon-Shiong Medical Center	2	.3
	Grand View Health	2	.3
	Mount Nittany Health	2	.3
	Select Physical Therapy	2	.3
	Shippensburg Physical Therapy	2	.3
	Advanced Spine & Sports Medicine	1	.1
	Community Health Network	1	.1
	Cross Roads Physical Therapy LLC	1	.1
	HARTZ Physical Therapy	1	.1
	Independence Health System Center	1	.1
	Indiana Total Therapy	1	.1
	Jamie's Physical Therapy & Sports Medicine	1	.1
	Kinetic Physical Therapy and Wellness, Inc	1	.1
	Penn Highlands Healthcare	1	.1
	Pivot Physical Therapy	1	.1
	Premier Health	1	.1
Premier Orthopaedics	1	.1	
Total	737	100.0	

N/A = Athletic Trainer Employment Provider Not Found or Known

### 3.1.1 School Type

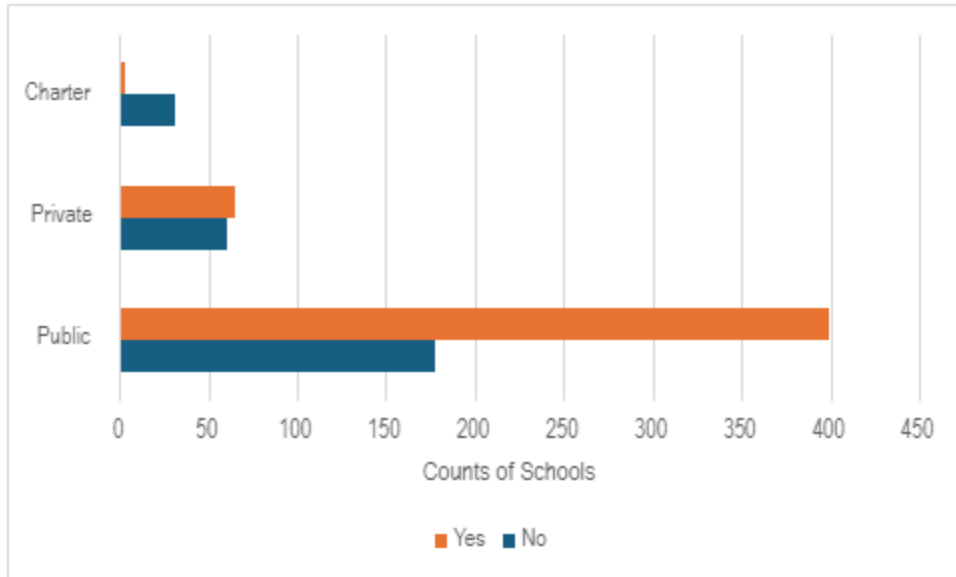
The 737 Pennsylvania secondary schools varied amongst school type: 577 public schools, 126 private schools, and 34 charter schools. Public schools encompassed over two thirds of the Pennsylvania secondary schools assessed in this study (78.3%). The number of private schools (17.1%) and charter schools (4.6%) combined were less than one third of the total amount of Pennsylvania secondary schools assessed.

#### 3.1.1.1 School Type and Athletic Trainer Employment

Pertaining to having an athletic trainer (yes/no), 69.2% (n=399) of public schools were found to have an athletic trainer and 178 (30.8%) were without an athletic trainer. Of the private schools investigated, 51.6% had athletic trainers, while 91.2% of charter schools were found without athletic trainers. The results of the Fisher's exact test ( $p < 0.001$ ) indicated a significant association between school type and athletic trainer employment. Table 2. and Figure 2. display each school type (public, private, charter) and the data found of having an athletic trainer (yes/no).

**Table 2 School Type and AT Employment**

<b><u>School Type</u></b>	<b><u>Yes</u></b>	<b><u>No</u></b>
Public (n=577)	399 (69.2%)	178 (30.8%)
Private (n=126)	65 (51.6%)	61 (48.4%)
Charter (n=34)	3 (8.8%)	31 (91.2%)



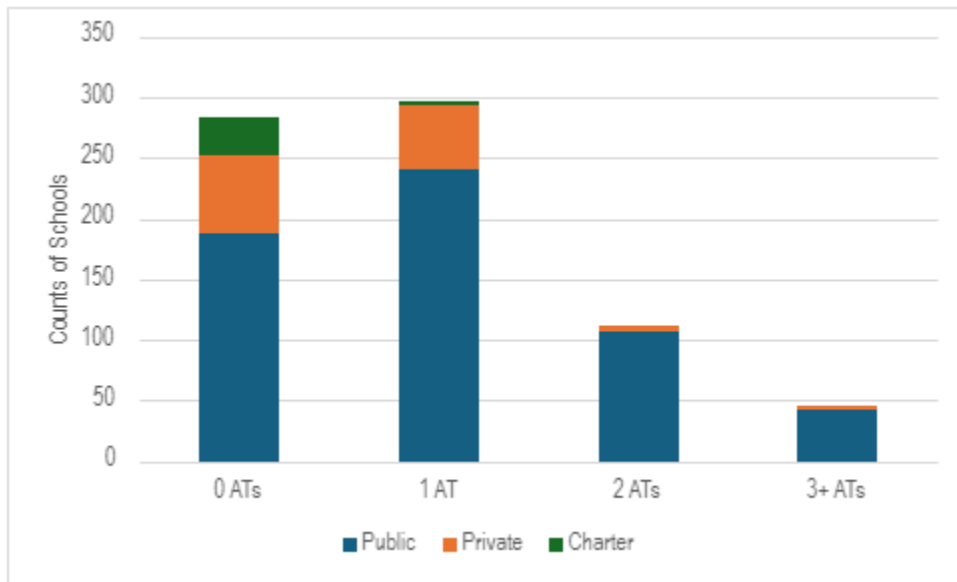
**Figure 2 School Type and AT Employment**

### 3.1.1.2 School Type and Number of Athletic Trainers

The number of athletic trainers employed in public schools varied from no athletic trainer being present (32.4%) up to more than three athletic trainers being employed (7.5%). Most private schools were found to have either no athletic trainer (51.6%) or one athletic trainer employed (42.1%). Charter schools had one athletic trainer in 8.8% of schools, while the remaining schools lacked an athletic trainer entirely (91.2%). The results of the Fisher's exact test ( $p < 0.001$ ) indicated a significant association between school type and number of athletic trainers employed. Table 3. and Figure 3. display each school type (public, private, charter) and the data found pertaining to the number of athletic trainers employed.

**Table 3 School Type and Number of ATs Employed**

<b><u>School Type</u></b>	<b><u>0 ATs</u></b>	<b><u>1 AT</u></b>	<b><u>2 ATs</u></b>	<b><u>3 or More ATs</u></b>
Public (n=577)	187 (32.4%)	241 (41.8%)	106 (18.4%)	43 (7.5%)
Private (n=126)	65 (51.6%)	53 (42.1%)	6 (4.8%)	2 (1.6%)
Charter (n=34)	31 (91.2%)	3 (8.8%)	0 (0.0%)	0 (0.0%)



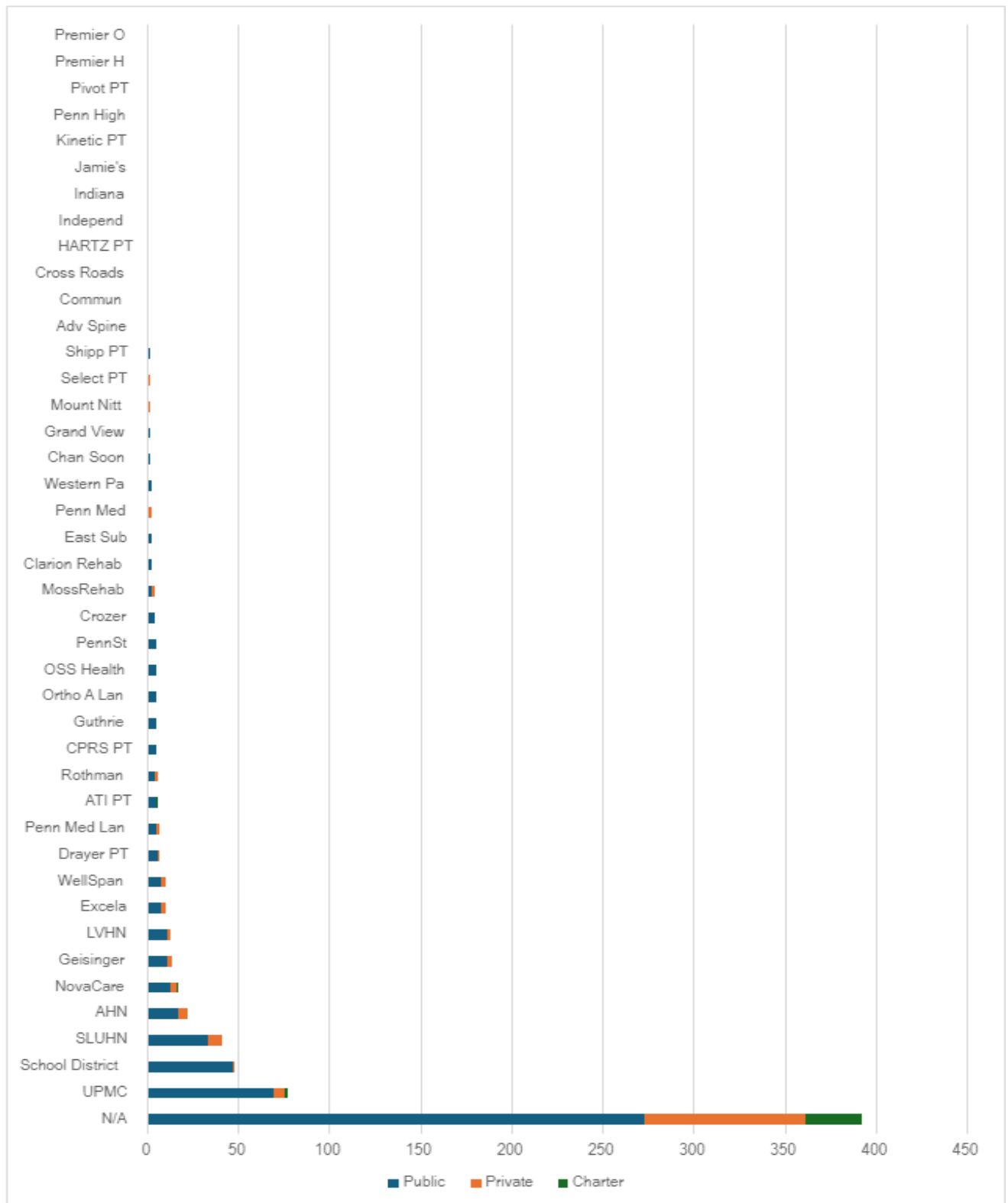
**Figure 3 School Type and Number of ATs Employed**

### **3.1.1.3 School Type and Athletic Trainer Employment Provider**

The athletic trainer employment provider was not found or reported for 47.31% of public schools, 69.84% of private schools, and 91.18% of charter schools. Public schools were found to have 39 different employers with the University of Pittsburgh Medical Center (UPMC), School District, St. Luke’s University Health Network, and Allegheny Health Network (AHN) rounding out the top four employers. Private schools had 17 different employers that also included St. Luke’s University Health Network, UPMC, AHN as well as Geisinger Health System. Charter schools were found to only have 3 employers: ATI Physical Therapy, NovaCare Rehabilitation, and



UPMC. Figure 4. and Table 4. display each school type (public, private, charter) and the data found regarding athletic trainer employment provider.



**Figure 4 School Type and AT Employment Provider**

N/A = Athletic Trainer Employment Provider Not Found or Known

**Table 4 School Type and AT Employment Provider**

Employer		School Type			Total
		Charter	Private	Public	
Advanced Spine & Sports Medicine	Count	0	0	1	1
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.2%	0.1%
AHN	Count	0	5	17	22
	% within Employer	0.0%	22.7%	77.3%	100.0%
	% within School Type	0.0%	4.0%	2.9%	3.0%
ATI Physical Therapy	Count	1	0	5	6
	% within Employer	16.7%	0.0%	83.3%	100.0%
	% within School Type	2.9%	0.0%	0.9%	0.8%
Chan Soon-Shiong Medical Center	Count	0	0	2	2
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.3%	0.3%
Clarion Rehabilitation Services, Inc	Count	0	0	3	3
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.5%	0.4%
Community Health Network	Count	0	0	1	1
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.2%	0.1%
CPRS Physical Therapy	Count	0	0	5	5
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.9%	0.7%
Cross Roads Physical Therapy LLC	Count	0	0	1	1
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.2%	0.1%
Crozer Health	Count	0	0	4	4
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.7%	0.5%
Drayer Physical Therapy Institute	Count	0	1	6	7
	% within Employer	0.0%	14.3%	85.7%	100.0%
	% within School Type	0.0%	0.8%	1.0%	0.9%
East Suburban Sports Medicine Center	Count	0	0	3	3
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.5%	0.4%
Excela Health	Count	0	2	8	10
	% within Employer	0.0%	20.0%	80.0%	100.0%
	% within School Type	0.0%	1.6%	1.4%	1.4%
Geisinger	Count	0	2	11	13
	% within Employer	0.0%	15.4%	84.6%	100.0%
	% within School Type	0.0%	1.6%	1.9%	1.8%
Grand View Health	Count	0	0	2	2
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.3%	0.3%
Guthrie	Count	0	0	6	6
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	1.0%	0.8%

Table 4 continued

Employer		School Type			Total
		Charter	Private	Public	
HARTZ Physical Therapy	Count	0	0	1	1
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.2%	0.1%
Independence Health System Center	Count	0	0	1	1
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.2%	0.1%
Indiana Total Therapy	Count	0	0	1	1
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.2%	0.1%
Jamie's Physical Therapy & Sports Medicine	Count	0	0	1	1
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.2%	0.1%
Kinetic Physical Therapy and Wellness, Inc	Count	0	1	0	1
	% within Employer	0.0%	100.0%	0.0%	100.0%
	% within School Type	0.0%	0.8%	0.0%	0.1%
Lehigh Valley Health Network	Count	0	2	11	13
	% within Employer	0.0%	15.4%	84.6%	100.0%
	% within School Type	0.0%	1.6%	1.9%	1.8%
MossRehab	Count	0	1	3	4
	% within Employer	0.0%	25.0%	75.0%	100.0%
	% within School Type	0.0%	0.8%	0.5%	0.5%
Mount Nittany Health	Count	0	0	2	2
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.3%	0.3%
N/A	Count	32	85	275	392
	% within Employer	8.2%	21.7%	70.2%	100.0%
	% within School Type	94.1%	67.5%	47.7%	53.2%
NovaCare	Count	1	2	14	17
	% within Employer	5.9%	11.8%	82.4%	100.0%
	% within School Type	2.9%	1.6%	2.4%	2.3%
Orthopedic Associates of Lancaster, LTD	Count	0	0	5	5
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.9%	0.7%
OSS Health	Count	0	0	5	5
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.9%	0.7%
Penn Highlands Healthcare	Count	0	0	1	1
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.2%	0.1%
Penn Medicine	Count	0	2	1	3
	% within Employer	0.0%	66.7%	33.3%	100.0%
	% within School Type	0.0%	1.6%	0.2%	0.4%
Penn Medicine Lancaster General Health	Count	0	2	5	7
	% within Employer	0.0%	28.6%	71.4%	100.0%
	% within School Type	0.0%	1.6%	0.9%	0.9%

Table 4 continued

Employer		School Type			Total
		Charter	Private	Public	
PennState Health	Count	0	0	5	5
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.9%	0.7%
Pivot Physical Therapy	Count	0	0	1	1
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.2%	0.1%
Premier Health	Count	0	0	1	1
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.2%	0.1%
Premier Orthopaedics	Count	0	0	1	1
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.2%	0.1%
Rothman Institute	Count	0	2	4	6
	% within Employer	0.0%	33.3%	66.7%	100.0%
	% within School Type	0.0%	1.6%	0.7%	0.8%
School District	Count	0	1	47	48
	% within Employer	0.0%	2.1%	97.9%	100.0%
	% within School Type	0.0%	0.8%	8.1%	6.5%
Select Physical Therapy	Count	0	1	1	2
	% within Employer	0.0%	50.0%	50.0%	100.0%
	% within School Type	0.0%	0.8%	0.2%	0.3%
Shippensburg Physical Therapy	Count	0	0	2	2
	% within Employer	0.0%	0.0%	100.0%	100.0%
	% within School Type	0.0%	0.0%	0.3%	0.3%
St Luke's University Health Network	Count	0	7	34	41
	% within Employer	0.0%	17.1%	82.9%	100.0%
	% within School Type	0.0%	5.6%	5.9%	5.6%
UPMC	Count	0	7	70	77
	% within Employer	0.0%	9.1%	90.9%	100.0%
	% within School Type	0.0%	5.6%	12.1%	10.4%
WellSpan Health	Count	0	2	8	10
	% within Employer	0.0%	20.0%	80.0%	100.0%
	% within School Type	0.0%	1.6%	1.4%	1.4%
Western Pa Sports Medicine Inc	Count	0	1	2	3
	% within Employer	0.0%	33.3%	66.7%	100.0%
	% within School Type	0.0%	0.8%	0.3%	0.4%
Total	Count	34	126	577	737
	% within Employer	4.6%	17.1%	78.3%	100.0%
	% within School Type	100.0%	100.0%	100.0%	100.0%

N/A = Athletic Trainer Employment Provider Not Found or Known

### 3.1.2 School Size

The PIAA classifies each interscholastic sport into multiple school size classifications, according to the number of students enrolled in each secondary school. In this study, we specifically utilized the PIAA classifications for boys' and girls' basketball. The school size classifications in ascending order are listed from 1A up to 6A. Table 5. displays the PIAA school size classification to relation to the student enrollment numbers for boys' and girls' basketball.

**Table 5 School Size Enrollment<sup>34</sup>**

<u>School Size</u>	<u>Boys' Basketball (students)</u>	<u>Girls' Basketball (students)</u>
PIAA 1A	1-83	1-83
PIAA 2A	84-132	84-129
PIAA 3A	133-194	130-194
PIAA 4A	195-297	195-291
PIAA 5A	298-507	292-466
PIAA 6A	508-99999	467-99999

The 737 Pennsylvania secondary schools varied amongst school size: PIAA 1A 127 (17.2%), PIAA 2A 124 (16.8%), PIAA 3A 124 (16.8%), PIAA 4A 125 (17.0%), PIAA 5A 122 (16.6%), and PIAA 6A 115 (15.6%). The number of secondary schools amongst each PIAA school size classification were similar and fell between 115 to 127 secondary schools.

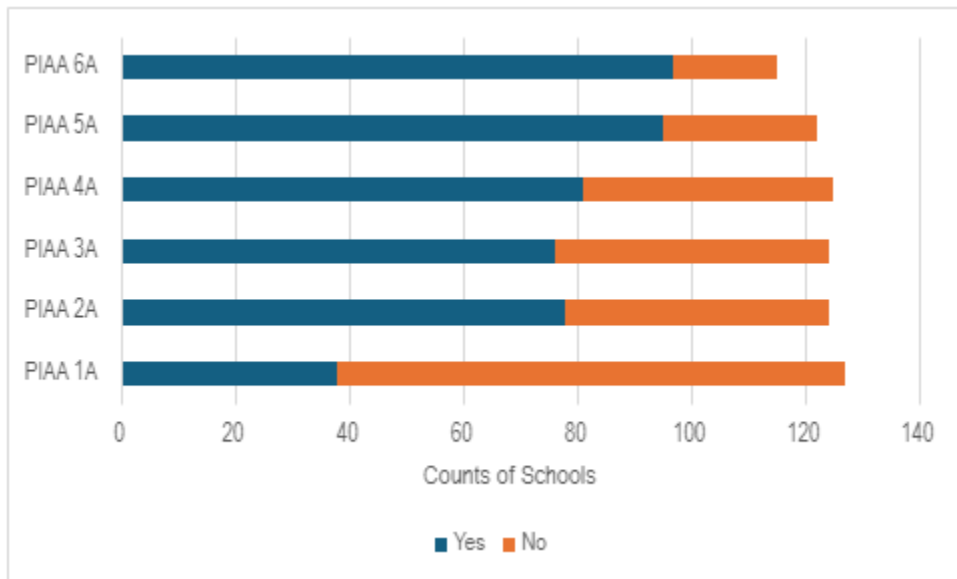
#### 3.1.2.1 School Size and Athletic Trainer Employment

In regard to having an athletic trainer, approximately 30% of PIAA 1A schools employed an AT. The classifications of PIAA 2A to 6A were found to have athletic trainer employment

increase as the school size also increased (62.9% to 84.3%, respectively). The results of the Pearson Chi-Square test ( $X^2(5, N = 737) = 98.175, p < 0.001$ ) indicated a significant association between school size and athletic trainer employment. Table 6. and Figure 5. display each school size (PIAA 1A-6A) and the data found of having an athletic trainer (yes/no).

**Table 6 School Size and AT Employment**

<u>School Size</u>	<u>Yes</u>	<u>No</u>
PIAA 1A (n=127)	38 (29.9%)	89 (70.1%)
PIAA 2A (n=124)	78 (62.9%)	46 (37.1%)
PIAA 3A (n=124)	76 (61.3%)	48 (38.7%)
PIAA 4A (n=125)	81 (64.8%)	44 (35.2%)
PIAA 5A (n=122)	95 (77.9%)	27 (22.1%)
PIAA 6A (n=115)	97 (84.3%)	18 (15.7%)



**Figure 5 School Size and AT Employment**

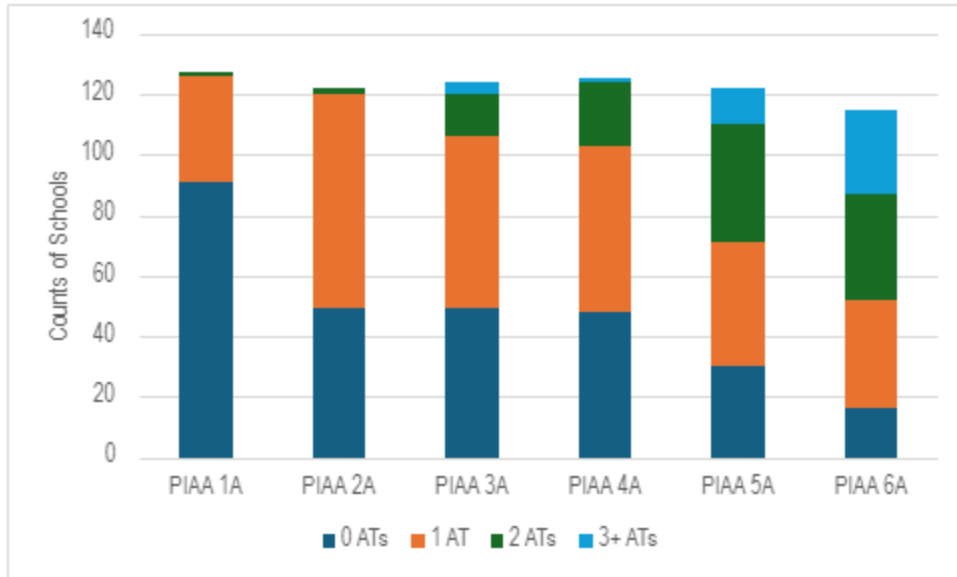
### 3.1.2.2 School Size and Number of Athletic Trainers

PIAA 1A and 2A schools were found to have up to two athletic trainers, while PIAA 3A-6A were found to have up to three athletic trainers. As the school sizes increased, it was found that the number of athletic trainers employed also increased. The results of the Pearson Chi-Square test ( $X^2(15, N = 737) = 243.721, p < 0.001$ ) indicated a significant association between school size and the number of athletic trainers employed. Table 7. and Figure 6. display each school size (PIAA 1A-6A) and the data found pertaining to the number of athletic trainers employed.

**Table 7 School Size and Number of ATs Employed**

<u>School Size</u>	<u>0 ATs</u>	<u>1 AT</u>	<u>2 ATs</u>	<u>3 or More ATs</u>
PIAA 1 A (n=127)	91 (71.7%)	35 (27.6%)	1 (0.8%)	0 (0.0%)
PIAA 2A (n=124)	49 (39.5%)	73 (58.9%)	2 (1.6%)	0 (0.0%)
PIAA 3A (n=124)	49 (39.5%)	57 (46.0%)	14 (11.3%)	4 (3.2%)
PIAA 4A (n=125)	48 (38.4%)	55 (44.0%)	21 (16.8%)	1 (0.8%)
PIAA 5A (n=122)	30 (24.6%)	41 (33.6%)	39 (32.0%)	12 (9.9%)
PIAA 6A (n=115)	16 (13.9%)	36 (31.3%)	35 (30.4%)	28 (24.4%)





**Figure 6 School Size and Number of ATs Employed**

### 3.1.2.3 School Size and Athletic Trainer Employment Provider

The number of schools with unknown or not reported athletic trainer employment provider varied amongst school sizes: 78.7% of PIAA 1A schools, 58.1% of PIAA 2A schools, 53.2% of PIAA 3A schools, 53.6% of PIAA 4A schools, and 43.4% of PIAA 5A schools. The employers of School District, St. Luke’s University Health Network, and University of Pittsburgh Medical Center (UPMC) were of the top four providers amongst PIAA 1A schools through PIAA 6A schools. Allegheny Health Network (AHN) was found to only be a top four athletic trainer employment provider for PIAA 5A and 6A schools. Figure 7. and Table 8. display each school size (PIAA 1A-6A) and the data found regarding athletic trainer employment provider.

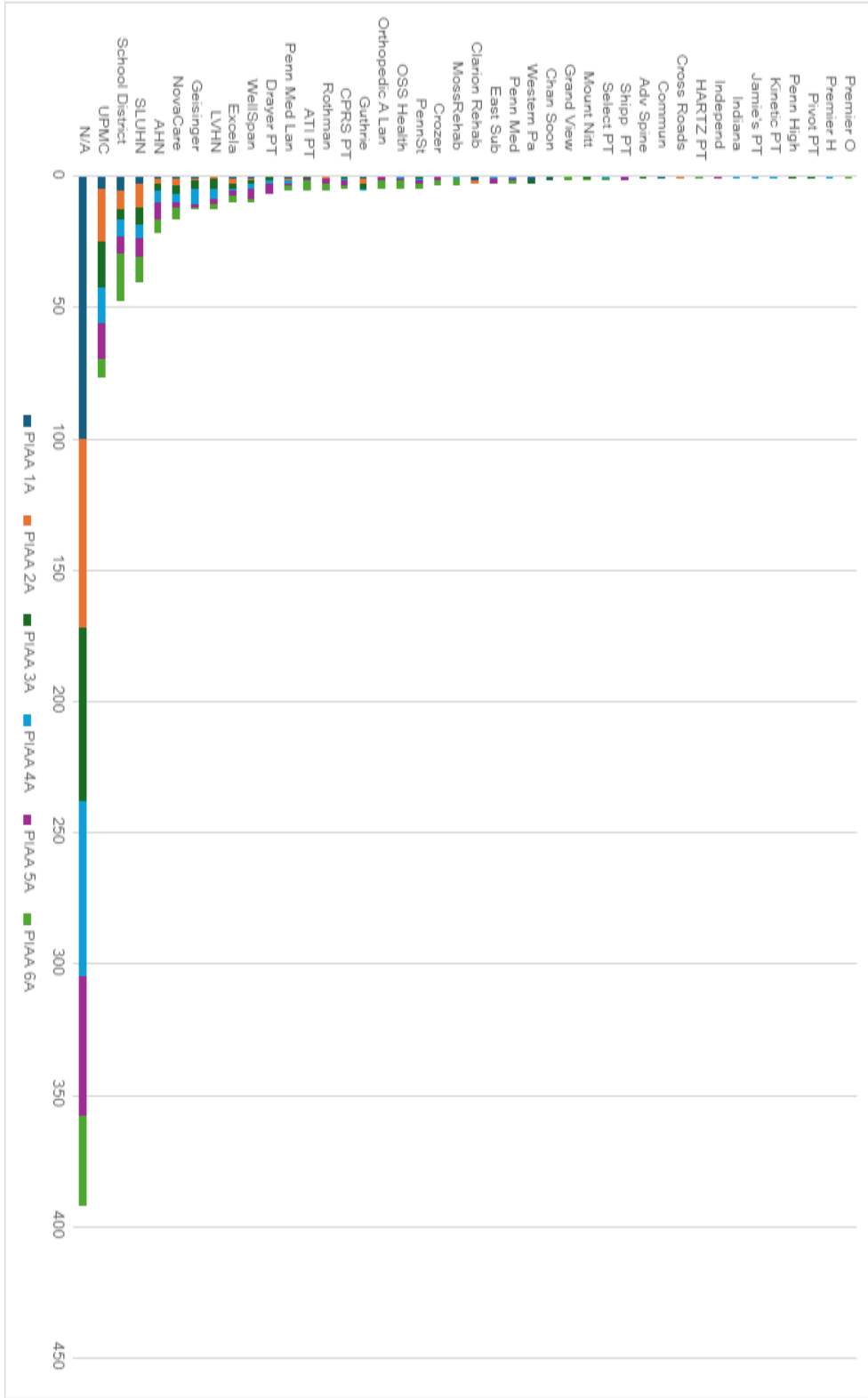


Figure 7 School Size and AT Employment Provider

N/A = Athletic Trainer Employment Provider Not Found or Known

**Table 8 School Size and AT Employment Provider**

Employer			PIAA Classification						Total
			1A	2A	3A	4A	5A	6A	
Advanced Spine & Sports Medicine	Count		0	0	1	0	0	0	1
	% within Employer		0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%
	% within PIAA Classification		0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	0.1%
AHN	Count		1	2	3	4	7	5	22
	% within Employer		4.5%	9.1%	13.6%	18.2%	31.8%	22.7%	100.0%
	% within PIAA Classification		0.8%	1.6%	2.4%	3.2%	5.7%	4.3%	3.0%
ATI Physical Therapy	Count		0	0	1	0	1	4	6
	% within Employer		0.0%	0.0%	16.7%	0.0%	16.7%	66.7%	100.0%
	% within PIAA Classification		0.0%	0.0%	0.8%	0.0%	0.8%	3.5%	0.8%
Chan Soon-Shiong Medical Center	Count		1	0	1	0	0	0	2
	% within Employer		50.0%	0.0%	50.0%	0.0%	0.0%	0.0%	100.0%
	% within PIAA Classification		0.8%	0.0%	0.8%	0.0%	0.0%	0.0%	0.3%
Clarion Rehabilitation Services, Inc	Count		2	1	0	0	0	0	3
	% within Employer		66.7%	33.3%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within PIAA Classification		1.6%	0.8%	0.0%	0.0%	0.0%	0.0%	0.4%
Community Health Network	Count		1	0	0	0	0	0	1
	% within Employer		100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within PIAA Classification		0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
CPRS Physical Therapy	Count		0	0	1	1	2	1	5
	% within Employer		0.0%	0.0%	20.0%	20.0%	40.0%	20.0%	100.0%
	% within PIAA Classification		0.0%	0.0%	0.8%	0.8%	1.6%	0.9%	0.7%
Cross Roads Physical Therapy LLC	Count		0	1	0	0	0	0	1
	% within Employer		0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within PIAA Classification		0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.1%
Crozer Health	Count		0	0	0	0	2	2	4
	% within Employer		0.0%	0.0%	0.0%	0.0%	50.0%	50.0%	100.0%
	% within PIAA Classification		0.0%	0.0%	0.0%	0.0%	1.6%	1.7%	0.5%
Drayer Physical Therapy Institute	Count		0	0	2	1	4	0	7
	% within Employer		0.0%	0.0%	28.6%	14.3%	57.1%	0.0%	100.0%
	% within PIAA Classification		0.0%	0.0%	1.6%	0.8%	3.3%	0.0%	0.9%
East Suburban Sports Medicine Center	Count		0	0	0	1	2	0	3
	% within Employer		0.0%	0.0%	0.0%	33.3%	66.7%	0.0%	100.0%
	% within PIAA Classification		0.0%	0.0%	0.0%	0.8%	1.6%	0.0%	0.4%
Excela Health	Count		1	2	2	1	2	2	10
	% within Employer		10.0%	20.0%	20.0%	10.0%	20.0%	20.0%	100.0%
	% within PIAA Classification		0.8%	1.6%	1.6%	0.8%	1.6%	1.7%	1.4%
Geisinger	Count		1	1	3	6	1	1	13
	% within Employer		7.7%	7.7%	23.1%	46.2%	7.7%	7.7%	100.0%
	% within PIAA Classification		0.8%	0.8%	2.4%	4.8%	0.8%	0.9%	1.8%
Grand View Health	Count		0	0	0	0	0	2	2
	% within Employer		0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
	% within PIAA Classification		0.0%	0.0%	0.0%	0.0%	0.0%	1.7%	0.3%
Guthrie	Count		1	2	2	1	0	0	6
	% within Employer		16.7%	33.3%	33.3%	16.7%	0.0%	0.0%	100.0%
	% within PIAA Classification		0.8%	1.6%	1.6%	0.8%	0.0%	0.0%	0.8%

Table 8 continued

Employer		PIAA Classification						Total
		1A	2A	3A	4A	5A	6A	
HARTZ Physical Therapy	Count	0	0	0	0	0	1	1
	% within Employer	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.1%
Independence Health System Center	Count	0	0	0	0	1	0	1
	% within Employer	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.0%	0.0%	0.8%	0.0%	0.1%
Indiana Total Therapy	Count	0	0	0	1	0	0	1
	% within Employer	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	0.1%
Jamie's Physical Therapy & Sports Medicine	Count	0	0	0	1	0	0	1
	% within Employer	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	0.1%
Kinetic Physical Therapy and Wellness, Inc	Count	0	0	0	1	0	0	1
	% within Employer	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	0.1%
Lehigh Valley Health Network	Count	0	1	4	4	2	2	13
	% within Employer	0.0%	7.7%	30.8%	30.8%	15.4%	15.4%	100.0%
	% within PIAA Classification	0.0%	0.8%	3.2%	3.2%	1.6%	1.7%	1.8%
MossRehab	Count	0	0	0	1	0	3	4
	% within Employer	0.0%	0.0%	0.0%	25.0%	0.0%	75.0%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.0%	0.8%	0.0%	2.6%	0.5%
Mount Nittany Health	Count	0	0	1	0	0	1	2
	% within Employer	0.0%	0.0%	50.0%	0.0%	0.0%	50.0%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.8%	0.0%	0.0%	0.9%	0.3%
N/A	Count	100	72	66	67	53	34	392
	% within Employer	25.5%	18.4%	16.8%	17.1%	13.5%	8.7%	100.0%
	% within PIAA Classification	78.7%	58.1%	53.2%	53.6%	43.4%	29.6%	53.2%
NovaCare	Count	1	3	3	3	2	5	17
	% within Employer	5.9%	17.6%	17.6%	17.6%	11.8%	29.4%	100.0%
	% within PIAA Classification	0.8%	2.4%	2.4%	2.4%	1.6%	4.3%	2.3%
Orthopedic Associates of Lancaster, LTD	Count	0	0	0	0	2	3	5
	% within Employer	0.0%	0.0%	0.0%	0.0%	40.0%	60.0%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.0%	0.0%	1.6%	2.6%	0.7%
OSS Health	Count	0	0	0	1	1	3	5
	% within Employer	0.0%	0.0%	0.0%	20.0%	20.0%	60.0%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.0%	0.8%	0.8%	2.6%	0.7%
Penn Highlands Healthcare	Count	0	0	1	0	0	0	1
	% within Employer	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	0.1%
Penn Medicine	Count	0	0	0	1	1	1	3
	% within Employer	0.0%	0.0%	0.0%	33.3%	33.3%	33.3%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.0%	0.8%	0.8%	0.9%	0.4%
Penn Medicine Lancaster General Health	Count	1	1	0	1	2	2	7
	% within Employer	14.3%	14.3%	0.0%	14.3%	28.6%	28.6%	100.0%
	% within PIAA Classification	0.8%	0.8%	0.0%	0.8%	1.6%	1.7%	0.9%

Table 8 continued

Employer		PIAA Classification						Total
		1A	2A	3A	4A	5A	6A	
PennState Health	Count	0	0	1	1	1	2	5
	% within Employer	0.0%	0.0%	20.0%	20.0%	20.0%	40.0%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.8%	0.8%	0.8%	1.7%	0.7%
Pivot Physical Therapy	Count	0	0	1	0	0	0	1
	% within Employer	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	0.1%
Premier Health	Count	0	0	0	1	0	0	1
	% within Employer	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	0.1%
Premier Orthopaedics	Count	0	0	0	0	0	1	1
	% within Employer	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.1%
Rothman Institute	Count	0	1	0	0	2	3	6
	% within Employer	0.0%	16.7%	0.0%	0.0%	33.3%	50.0%	100.0%
	% within PIAA Classification	0.0%	0.8%	0.0%	0.0%	1.6%	2.6%	0.8%
School District	Count	6	7	4	6	7	18	48
	% within Employer	12.5%	14.6%	8.3%	12.5%	14.6%	37.5%	100.0%
	% within PIAA Classification	4.7%	5.6%	3.2%	4.8%	5.7%	15.7%	6.5%
Select Physical Therapy	Count	0	0	0	1	0	1	2
	% within Employer	0.0%	0.0%	0.0%	50.0%	0.0%	50.0%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.0%	0.8%	0.0%	0.9%	0.3%
Shippensburg Physical Therapy	Count	0	0	0	0	2	0	2
	% within Employer	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
	% within PIAA Classification	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	0.3%
St Luke's University Health Network	Count	3	9	7	5	7	10	41
	% within Employer	7.3%	22.0%	17.1%	12.2%	17.1%	24.4%	100.0%
	% within PIAA Classification	2.4%	7.3%	5.6%	4.0%	5.7%	8.7%	5.6%
UPMC	Count	5	20	18	13	14	7	77
	% within Employer	6.5%	26.0%	23.4%	16.9%	18.2%	9.1%	100.0%
	% within PIAA Classification	3.9%	16.1%	14.5%	10.4%	11.5%	6.1%	10.4%
WellSpan Health	Count	1	1	1	2	4	1	10
	% within Employer	10.0%	10.0%	10.0%	20.0%	40.0%	10.0%	100.0%
	% within PIAA Classification	0.8%	0.8%	0.8%	1.6%	3.3%	0.9%	1.4%
Western Pa Sports Medicine Inc	Count	2	0	1	0	0	0	3
	% within Employer	66.7%	0.0%	33.3%	0.0%	0.0%	0.0%	100.0%
	% within PIAA Classification	1.6%	0.0%	0.8%	0.0%	0.0%	0.0%	0.4%
Total	Count	127	124	124	125	122	115	737
	% within Employer	17.2%	16.8%	16.8%	17.0%	16.6%	15.6%	100.0%
	% within PIAA Classification	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

N/A = Athletic Trainer Employment Provider Not Found or Known

### 3.1.3 Geographic Location

The PIAA divides the state of Pennsylvania's secondary schools into twelve districts based off geographic location. Figure 8. displays the twelve PIAA districts among the state of Pennsylvania.

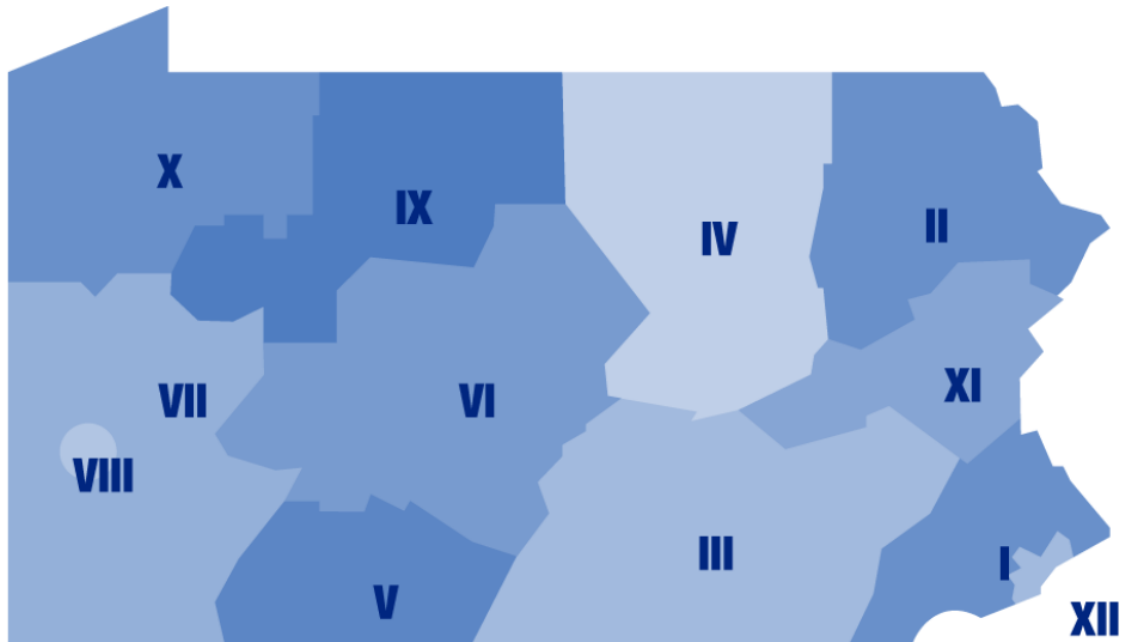


Figure 8 PIAA Map of the Districts (1-12)<sup>35</sup>

Table 9. and Table 10. display each PIAA district and the corresponding number of secondary schools that fall within each PIAA district.

**Table 9 PIAA Districts 1**

<b><u>Geographic Location:</u></b>	<b><u>Number of Secondary Schools:</u></b>
PIAA District 1	93 (12.6%)
PIAA District 2	39 (5.3%)
PIAA District 3	122 (16.6%)
PIAA District 4	47 (6.4%)
PIAA District 5	22 (3.0%)
PIAA District 6	47 (6.4%)

**Table 10 PIAA Districts 2**

<b><u>Geographic Location:</u></b>	<b><u>Number of Secondary Schools:</u></b>
PIAA District 7	138 (18.7%)
PIAA District 8	6 (0.8%)
PIAA District 9	35 (4.7%)
PIAA District 10	45 (6.1%)
PIAA District 11	56 (7.6%)
PIAA District 12	87 (11.8%)

### **3.1.3.1 Geographic Location and Athletic Trainer Employment**

The PIAA districts with the highest percentages of employing an athletic trainer were found to be district 1 (86.0%), district 5 (75.0%), and district 4 (74.5%). In PIAA district 8, every school employed an athletic trainer, but this district only consisted of six secondary schools. The PIAA districts of 12 (17.2%), 5 (31.8%), and 2 (46.2%) had the lowest percentages of employing an

athletic trainer. The results of the Pearson Chi-Square and Fisher’s exact tests could not be conducted in order to indicate whether or not there is a significant association between geographic location and athletic trainer employment. Tables 11. & 12. and Figure 9. display each geographic location (PIAA district 1-12) and the data found of having an athletic trainer (yes/no).

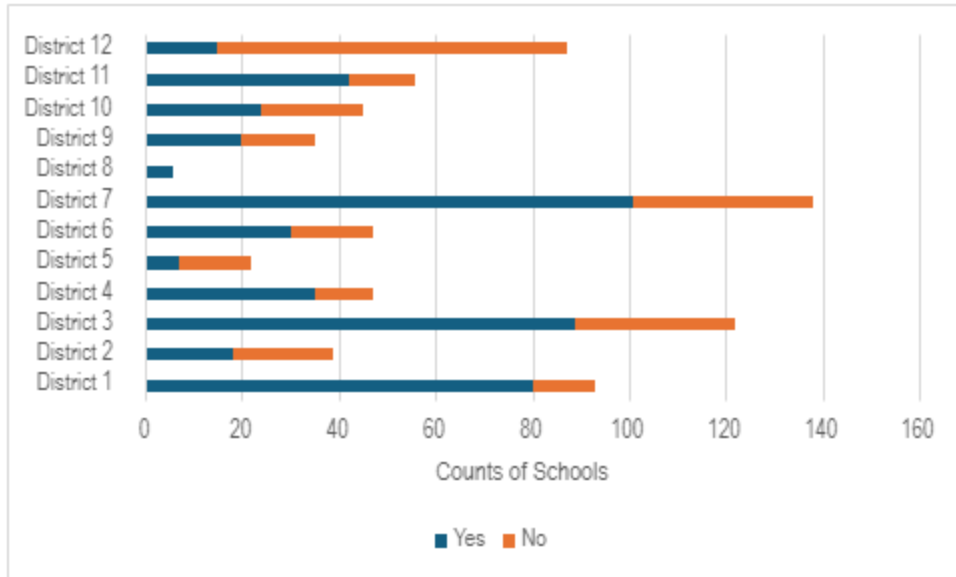
**Table 11 Geographic Location and AT Employment 1**

<b><u>Geographic Location</u></b>	<b><u>Yes</u></b>	<b><u>No</u></b>
PIAA District 1 (n=93)	80 (86.0%)	13 (14.0%)
PIAA District 2 (n=39)	18 (46.2%)	21 (53.8%)
PIAA District 3 (n=122)	89 (73.0%)	33 (27.0%)
PIAA District 4 (n=47)	35 (74.5%)	12 (25.5%)
PIAA District 5 (n=22)	7 (31.8%)	15 (68.2%)
PIAA District 6 (n=47)	30 (63.8%)	17 (36.2%)

**Table 12 Geographic Location and AT Employment 2**

<b><u>Geographic Location</u></b>	<b><u>Yes</u></b>	<b><u>No</u></b>
PIAA District 7 (n=138)	101 (73.2%)	37 (26.8%)
PIAA District 8 (n=6)	6 (100.0%)	0 (0.0%)
PIAA District 9 (n=35)	20 (57.1%)	15 (42.9%)
PIAA District 10 (n=45)	24 (53.3%)	21 (46.7%)
PIAA District 11 (n=56)	42 (75.0%)	14 (25.0%)
PIAA District 12 (n=87)	15 (17.2%)	72 (82.8%)





**Figure 9 Geographic Location and AT Employment**

### 3.1.3.2 Geographic Location and Number of Athletic Trainers

Districts 4 (72.7%), 9 (57.1%), and 1 (54.8%) had the highest percentages of employing one athletic trainer. More than three athletic trainers were increasingly present among districts 11 (25.0%) and districts 7 (10.8%), while districts 5, 8, 9, 10, and 12 were found to not have one secondary school employing more than three athletic trainers. The results of the Pearson Chi-Square and Fisher’s exact tests could not be conducted in order to indicate whether or not there is a significant association between geographic location and the number of athletic trainers employed. Tables 13. & 14. and Figure 10. display each geographic location (PIAA district 1-12) and the data found pertaining to the number of athletic trainers employed.

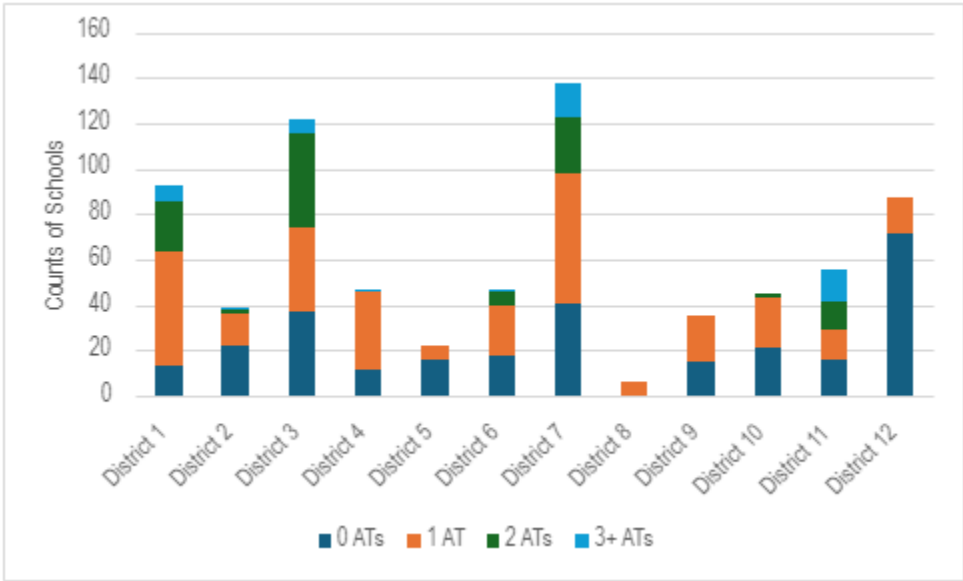
**Table 13 Geographic Location and Number of ATs Employed 1**

<b><u>Geographic Location</u></b>	<b><u>0 ATs</u></b>	<b><u>1 AT</u></b>	<b><u>2 ATs</u></b>	<b><u>3 or More ATs</u></b>
PIAA District 1 (n=93)	13 (14.0%)	51 (54.8%)	22 (23.7%)	7 (7.6%)
PIAA District 2 (n=39)	22 (56.4%)	14 (35.9%)	2 (5.1%)	1 (2.6%)
PIAA District 3 (n=122)	37 (30.3%)	37 (30.3%)	42 (34.4%)	6 (4.9%)
PIAA District 4 (n=47)	12 (25.5%)	34 (72.3%)	0 (0.0%)	1 (2.1%)
PIAA District 5 (n=22)	16 (72.7%)	6 (27.3%)	0 (0.0%)	0 (0.0%)
PIAA District 6 (n=47)	18 (38.3%)	22 (46.8%)	6 (12.8%)	1 (2.1%)

**Table 14 Geographic Location and Number of ATs Employed 2**

<b><u>Geographic Location</u></b>	<b><u>0 ATs</u></b>	<b><u>1 AT</u></b>	<b><u>2 ATs</u></b>	<b><u>3 or More ATs</u></b>
PIAA District 7 (n=138)	41 (29.7%)	57 (41.3%)	25 (18.1%)	15 (10.8%)
PIAA District 8 (n=6)	0 (0.0%)	6 (100.0%)	0 (0.0%)	0 (0.0%)

PIAA District 9 (n=35)	15 (42.9%)	20 (57.1%)	0 (0.0%)	0 (0.0%)
PIAA District 10 (n=45)	21 (46.7%)	22 (48.9%)	2 (4.4%)	0 (0.0%)
PIAA District 11 (n=56)	16 (28.6%)	13 (23.2%)	13 (23.2%)	14 (25.0%)
PIAA District 12 (n=87)	72 (82.8%)	15 (17.2%)	0 (0.0%)	0 (0.0%)

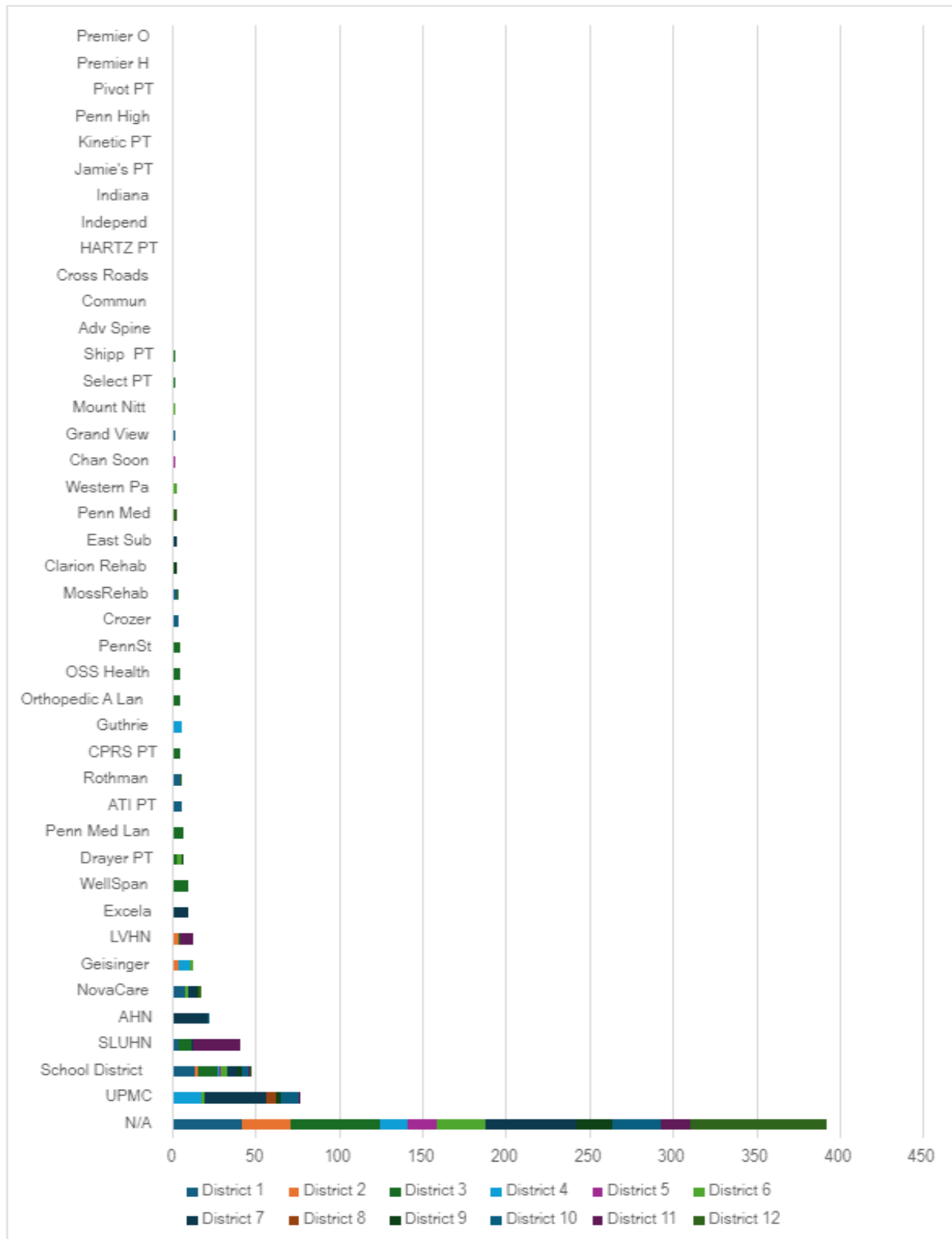


**Figure 10 Geographic Location and Number of ATs Employed**

**3.1.3.3 Geographic Location and Athletic Trainer Employment Provider**

Each PIAA district, except district 8, included a majority of secondary schools whose athletic trainer employment provider was not found or unknown, ranging from 32.1% of schools up to 93.1% of schools. Athletic trainers being employed by the school district were amongst the top four employers for all districts except 4, 8, and 12. Districts 7 and 8 encompass the areas around

Pittsburgh, Washington, and Greensburg. The top employers in these districts were the University of Pittsburgh Medical Center (UPMC), Allegheny Health Network (AHN), and Excelsa Health. Districts 1 and 12 are located around Philadelphia, which includes employers such as NovaCare Rehabilitation and Rothman Institute. The PIAA district 3 of Harrisburg, York, and Lancaster were found to have the most variety in athletic trainer employment providers: 18 different employers. Figure 11. and Table 13. displays each geographic location (PIAA district 1-12) and the data found regarding athletic trainer employment provider.



**Figure 11 Geographic Location and AT Employment Provider**

N/A = Athletic Trainer Employment Provider Not Found or Known

Table 15 Geographic Location and AT Employment Provider

Employer	Count	District												Total		
		1	2	3	4	5	6	7	8	9	10	11	12			
Advanced Spine & Sports Medicine	% within Employer	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
	Count	0	0	1	0	0	0	20	0	0	1	0	0	0	0	22
AHN	% within Employer	0.0%	0.0%	4.5%	0.0%	0.0%	0.0%	90.9%	0.0%	0.0%	4.5%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	14.5%	0.0%	0.0%	2.2%	0.0%	0.0%	0.0%	0.0%	3.0%
	Count	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6
ATI Physical Therapy	% within Employer	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	6.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%
	Count	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
Chan Soon-Shiong Medical Center	% within Employer	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.0%	0.0%	9.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
	Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Clarion Rehabilitation Services, Inc	% within Employer	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.6%	0.0%	0.0%	0.0%	0.0%	0.4%
	Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Community Health Network	% within Employer	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
	Count	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5
CPRS Physical Therapy	% within Employer	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	4.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%
	Count	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Cross Roads Physical Therapy LLC	% within Employer	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	2.1%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
	Count	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Crozer Health	% within Employer	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	4.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%
	Count	0	0	3	0	0	3	0	0	1	0	0	0	0	0	7
Dryer Physical Therapy Institute	% within Employer	0.0%	0.0%	42.9%	0.0%	0.0%	42.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	2.5%	0.0%	0.0%	6.4%	0.0%	0.0%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%
	Count	0	0	1	0	0	0	2	0	0	0	0	0	0	0	3
East Suburban Sports Medicine Center	% within Employer	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	66.7%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%
	Count	0	0	0	0	0	0	10	0	0	0	0	0	0	0	10
Ecclesia Health	% within Employer	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.0%	0.0%	0.0%	7.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%
	Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
Geisinger	% within Employer	0.0%	30.8%	0.0%	0.0%	53.8%	0.0%	15.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	10.3%	0.0%	14.9%	0.0%	4.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%
	Count	0	4	0	7	0	2	0	0	0	0	0	0	0	0	13
Grand View Health	% within Employer	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
	Count	0	0	0	6	0	0	0	0	0	0	0	0	0	0	6
Guthrie	% within Employer	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.0%	12.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%
	Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6

Table 15 continued

Employer	District												Total	
	1	2	3	4	5	6	7	8	9	10	11	12		
HARTZ Physical Therapy	Count	0	0	1	0	0	0	0	0	0	0	0	0	1
	% within Employer	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Independence Health System Center	Count	0	0	0	0	0	1	0	0	0	0	0	0	1
	% within Employer	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Indiana Total Therapy	Count	0	0	0	0	0	1	0	0	0	0	0	0	1
	% within Employer	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Jamie's Physical Therapy & Sports Medicine	Count	0	0	0	0	0	1	0	0	0	0	0	0	1
	% within Employer	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Kinetic Physical Therapy and Wellness, Inc	Count	1	0	0	0	0	0	0	0	0	0	0	0	1
	% within Employer	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Lehigh Valley Health Network	Count	0	4	1	0	0	0	0	0	0	0	0	0	13
	% within Employer	0.0%	30.8%	7.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	10.3%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%
MossRehab	Count	3	0	0	0	0	0	0	0	0	0	0	0	4
	% within Employer	75.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%
Mount Nitany Health	Count	0	0	0	0	0	2	0	0	0	0	0	0	2
	% within Employer	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
N/A	Count	42	29	54	16	18	29	54	0	22	29	18	81	392
	% within Employer	10.7%	7.4%	13.8%	4.1%	4.6%	7.4%	13.8%	0.0%	5.6%	7.4%	4.6%	20.7%	100.0%
	% within District	45.2%	74.4%	44.3%	34.0%	81.8%	61.7%	39.1%	0.0%	62.9%	64.4%	32.1%	93.1%	53.2%
NovoCare	Count	8	0	0	0	0	2	5	0	1	0	0	1	17
	% within Employer	47.1%	0.0%	0.0%	0.0%	0.0%	11.8%	29.4%	0.0%	5.9%	0.0%	0.0%	5.9%	100.0%
	% within District	8.6%	0.0%	0.0%	0.0%	0.0%	4.3%	3.6%	0.0%	2.9%	0.0%	0.0%	1.1%	2.3%
Orthopedic Associates of Lancaster, LTD	Count	0	0	5	0	0	0	0	0	0	0	0	0	5
	% within Employer	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	4.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%
OSS Health	Count	0	0	5	0	0	0	0	0	0	0	0	0	5
	% within Employer	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	4.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%
Penn Highlands Healthcare	Count	0	0	0	0	0	0	0	0	1	0	0	0	1
	% within Employer	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%	0.0%	0.0%	0.0%	0.1%
Penn Medicine	Count	1	0	0	0	0	0	0	0	0	0	0	2	3
	% within Employer	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	66.7%	100.0%
	% within District	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	0.4%
Penn Medicine Lancaster General Health	Count	1	0	6	0	0	0	0	0	0	0	0	0	7
	% within Employer	14.3%	0.0%	85.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	1.1%	0.0%	4.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%

Table 15 continued

Employer	District												Total	
	1	2	3	4	5	6	7	8	9	10	11	12		
PennState Health	Count	0	0	5	0	0	0	0	0	0	0	0	0	5
	% within Employer	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	4.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%
Pivot Physical Therapy	Count	0	0	0	1	0	0	0	0	0	0	0	0	1
	% within Employer	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.0%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Premier Health	Count	0	0	0	0	0	0	0	0	1	0	0	0	1
	% within Employer	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%	0.0%	0.0%	0.0%	0.1%
Premier Orthopaedics	Count	1	0	0	0	0	0	0	0	0	0	0	0	1
	% within Employer	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Rothman Institute	Count	5	0	0	0	0	0	0	0	0	0	0	0	6
	% within Employer	83.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	5.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%
School District	Count	14	2	11	1	1	4	6	0	3	4	1	1	48
	% within Employer	29.2%	4.2%	22.9%	2.1%	2.1%	8.3%	12.5%	0.0%	6.3%	8.3%	2.1%	2.1%	100.0%
	% within District	15.1%	5.1%	9.0%	2.1%	4.5%	8.5%	4.3%	0.0%	8.6%	8.9%	1.8%	1.1%	6.5%
Select Physical Therapy	Count	0	0	2	0	0	0	0	0	0	0	0	0	2
	% within Employer	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
Shippensburg Physical Therapy	Count	0	0	2	0	0	0	0	0	0	0	0	0	2
	% within Employer	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
St Luke's University Health Network	Count	4	0	8	0	0	0	1	0	0	0	28	0	41
	% within Employer	9.8%	0.0%	19.5%	0.0%	0.0%	0.0%	2.4%	0.0%	0.0%	0.0%	68.3%	0.0%	100.0%
	% within District	4.3%	0.0%	6.6%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	50.0%	0.0%	5.6%
UPMC	Count	0	0	1	16	0	2	37	6	3	11	1	0	77
	% within Employer	0.0%	0.0%	1.3%	20.8%	0.0%	2.6%	48.1%	7.8%	3.9%	14.3%	1.3%	0.0%	100.0%
	% within District	0.0%	0.0%	0.8%	34.0%	0.0%	4.3%	26.8%	100.0%	8.6%	24.4%	1.8%	0.0%	10.4%
WellSpan Health	Count	0	0	10	0	0	0	0	0	0	0	0	0	10
	% within Employer	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	8.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%
Western Pa Sports Medicine Inc	Count	0	0	0	0	1	2	0	0	0	0	0	0	3
	% within Employer	0.0%	0.0%	0.0%	0.0%	33.3%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	% within District	0.0%	0.0%	0.0%	0.0%	4.5%	4.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%
Total	Count	93	39	122	47	22	47	138	6	35	45	56	87	737
	% within Employer	12.6%	5.3%	16.6%	6.4%	3.0%	6.4%	18.7%	0.8%	4.7%	6.1%	7.6%	11.8%	100.0%
	% within District	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

N/A = Athletic Trainer Employment Provider Not Found or Known



## **4.0 Discussion**

The purpose of this study was to examine the characteristics of athletic training services and the demographics of secondary schools in Pennsylvania. This data was collected from public domain websites of the Pennsylvania Interscholastic Athletic Association (PIAA) and the individual Pennsylvania secondary schools' websites from November 2023 to January 2024. A diverse sample size of 737 Pennsylvania secondary schools that met the inclusion criteria of being a Pennsylvania secondary schools listed on the Pennsylvania Interscholastic Athletic Association (PIAA) website containing at least one of grades nine to twelve with an interscholastic athletic program of either boys' or girls' basketball were assessed. Each secondary school had 8 data values collected: school name, school address, school type (public, private, charter), school size (PIAA classification: boys' or girls' basketball of 1A-6A), geographic location (PIAA district 1-12), athletic trainer (yes/no), number of athletic trainers (0-3 or more), and athletic trainer employment provider.

### **4.1 School Type**

#### **4.1.1 School Type and Athletic Trainer Employment**

The secondary schools varied by three different school types: 577 public schools, 126 private schools, and 34 charter schools. Regarding having an athletic trainer, 69.2% of public schools, 51.6% of private schools, and 8.8% of charter schools employed an athletic trainer. This

meant that 30.8% of public schools, 48.4% of private schools, and 91.2% of charter schools did not have an athletic trainer. This study's findings regarding public schools are similar to previous studies, but the private schools' data is slightly higher than previous studies.<sup>5,6</sup> Public schools made up over two thirds of the total amount of schools assessed in this study, which may have played a factor into their high rate of athletic trainer employment compared to private and charter schools. The results of the Fisher's exact test ( $p < 0.001$ ) also indicated a significant association between school type and athletic trainer employment. This means that public schools are more likely to employ an athletic trainer, while charter schools are more likely not to employ an athletic trainer. The percentage of private schools employing an athletic trainer is estimated to be about 50%. The Fisher's exact test provided insight that the school type does affect whether a Pennsylvania secondary school employs an athletic trainer or not.

#### **4.1.2 School Type and Number of Athletic Trainers**

Public and private schools had similar findings when comparing the number of athletic trainers employed ranging from 0 to more than 3. Previous public and private school studies conducted by Pryor, et al. as well as Pike, et al. did not report data on how many athletic trainers were employed within each school type.<sup>5,6</sup> In reflection of the low percentage of athletic trainers employed in charter schools, only 8.8% of charter schools were found to have 1 athletic trainer. The reasoning behind charter schools being less likely to employ an athletic trainer could be due to their typical small enrollment size as well as their lack of available funding to employ an athletic trainer for their limited number of athletes. The results of the Fisher's exact test ( $p < 0.001$ ) also indicated a significant association between school type and number of athletic trainers. This means that public schools and private schools are likely to employ a varying number of athletic trainers,

while charter schools are not likely to employ even one athletic trainer. The Fisher's exact test provided insight that the school type does affect the number of athletic trainers a Pennsylvania secondary school employs.

#### **4.1.3 School Type and Athletic Trainer Employment Provider**

The athletic trainer employment provider data differed greatly amongst each school type. Overall, the athletic trainer employment provider was not found or reported for 47.31% of public schools, 69.84% of private schools, and 91.18% of charter schools. The University of Pittsburgh Medical Center (UPMC) was found to be a top five employment providers for public, private, and charter schools. Public and private schools were found to have two other similar employers within their top five: Allegheny Health Network (AHN) and St. Luke's University Health Network. Public schools were found to have the most variance in different employers (n=39). In a study conducted by Pryor and colleagues regarding public schools, the athletic trainer employment provider data was reported as either full-time, part-time, per diem, hospital/clinic, teaching, or daily practice coverage.<sup>5</sup> Private schools were found to have 17 different employers, while charter schools were found to only have three employers. In a previous study regarding private schools, the athletic trainer employment provider data was reported as either school district, school district + teaching, hospital/clinic/university, or independent contractor.<sup>6</sup> Due to the differences in athletic trainer employment provider classifications for this study and previous studies, an accurate comparison cannot be performed. The relationship between the school type and the athletic trainer employment provider was not assessed because the Pearson Chi-Square and Fisher's exact tests could not be conducted due to the large amount of employment providers, making it not significant.

## 4.2 School Size and Athletic Training Services

### 4.2.1 School Size and Athletic Trainer Employment

The schools varied in six different school sizes, but the number of schools in each district were similar, ranging from 115 schools to 127 schools. In a study conducted by Suzuki-Yamanaka, et al., it was reported whether secondary schools had an athletic trainer or not based upon their certain school size classifications. It was found that 38.6% of small schools, 62.6% of medium schools, 84.2% of moderate schools, and 92.1% of large schools had an athletic trainer.<sup>7</sup> These findings are similar to the 29.9% of 1A schools, 62.9% 2A schools, 61.3% 3A schools, 64.8% 4A schools, 77.9% 5A schools, and 84.3% 6A schools in this current study having an athletic trainer. Our investigation revealed similar results pertaining to the percentage of secondary schools employing an athletic trainer increased as the school size increased. Two additional studies regarding public and private schools also reported that athletic training services were found to increase as school size increased.<sup>5,6</sup> The results of the Pearson Chi-Square test ( $X^2(5, N = 737) = 98.175, p < 0.001$ ) indicated a significant association between school size and athletic trainer employment. This means that as the size of the secondary school increases, the likelihood of an athletic trainer being employed also increases. The Chi-Square test provided insight into that the school size does affect whether a Pennsylvania secondary school employs an athletic trainer or not.

#### **4.2.2 School Size and Number of Athletic Trainers**

The number of athletic trainers employed was found to gradually increase as the school size also increased. The previous studies did not report data on the number of athletic trainers employed among different school sizes but found that overall athletic trainer employment increased as school size increased.<sup>5-7</sup> The reasoning behind the likelihood of a higher number of athletic trainers being employed among larger school sizes could be due to the domino effect of enrollment sizes. Larger school sizes will have large school enrollments sizes, which then increases the number of athletes and sports as well as the increased need for multiple athletic trainers to provide healthcare. The results of the Pearson Chi-Square test ( $X^2(15, N = 737) = 243.721, p < 0.001$ ) indicated a significant association between school size and the number of athletic trainers employed. This means that as the school size increases so does the number of athletic trainers employed. The Chi-Square test provided insight into how the school size does affect the number of athletic trainers a Pennsylvania secondary school employs.

#### **4.2.3 School Size and Athletic Trainer Employment Provider**

The athletic trainer employment provider data differed slightly amongst each school size. The number of schools with unknown or not reported athletic trainer employment provider decreased as the school sizes increased. Each of the six different school sizes included the employers of School District, St. Luke's University Health Network, and the University of Pittsburgh Medical Center (UPMC) within their top 5 employers. The other employers amongst each school size varied: Clarion Rehabilitation Services, Inc (1A), NovaCare Rehabilitation (2A), Lehigh Valley Health Network (3A), Geisinger Health System (4A), and Allegheny Health

Network (AHN) (5A and 6A). The number of different employers varied amongst the six school sizes: 15 (1A), 15 (2A), 21 (3A), 24 (4A), 23 (5A), and 25 (6A). The previous studies mentioned before by Pryor, Pike, and Suzuki-Yamanaka also did not report data on the athletic trainer employment providers among different school sizes.<sup>5-7</sup> Due to the differences in athletic trainer employment provider classifications for this study and previous studies, an accurate comparison cannot be performed. The relationship between the school size and the athletic trainer employment provider was not assessed because the Pearson Chi-Square and Fisher's exact tests could not be conducted due to the large amount of employment providers, making it not significant.

### **4.3 Geographic Location and Athletic Training Services**

The secondary schools in this study varied in twelve different geographic locations: 93 district 1 schools, 39 district 2 schools, 122 district 3 schools, 47 district 4 schools, 22 district 5 schools, 47 district 6 schools, 138 district 7 schools, 6 district 8 schools, 35 district 9 schools, 45 district 10 schools, 56 district 11 schools, and 87 district 12 schools. Each of the twelve PIAA districts included a variety of geographic location types such as city, suburban, town, and/or rural.

#### **4.3.1 Geographic Location and Athletic Trainer Employment**

In a previous study regarding athletic training services amongst geographic locations, it was found that 28.9% of city schools, 19.9% of suburban schools, 31.4% of town schools, and 46.9% of rural schools did not have an athletic trainer.<sup>7</sup> In this current study, PIAA districts 1, 7,

8, and 12 account for the cities of Pittsburgh and Philadelphia as well as their surrounding areas. The percentage of no athletic trainer employed for these four districts ranged from 14.0%, 26.3%, 0.0%, and 82.8% respectively, which is variable compared to the reported 28.9% for city schools. Suburban districts such as districts 6, 10, and 11 were found to have 38.3%, 46.7%, and 25% (respectively) of schools without athletic trainers, while 19% of suburban schools did not employ athletic trainers. Despite these comparisons of percentages, it needs to be reiterated that the PIAA districts encompass multiple types of geographic locations (city, suburban, town, rural) within each district. The results of the Pearson Chi-Square and Fisher's exact tests could not be conducted in order to indicate whether or not there is a significant association between geographic location and athletic trainer employment. This means that geographic location may or may not affect the likelihood that an athletic trainer is employed. The relationship between the geographic location and the athletic trainer employment was not assessed because the Pearson Chi-Square and Fisher's exact tests could not be conducted due to the large amount of PIAA districts, making it not significant.

#### **4.3.2 Geographic Location and Number of Athletic Trainers**

The Suzuki-Yamanaka, et al. study reported data on the number of part-time and full-time athletic trainers employed (1-9) among different geographic locations.<sup>7</sup> Across the majority of city, suburban, town, and rural secondary schools, the number of part-time or full-time athletic trainers employed was just one athletic trainer. It was reported that 28.4%-34.3% of city schools employed one athletic trainer, while 35.5%-36.9% of suburban schools employed one athletic trainer. Additionally, the authors reported that 28.5%-36.8% of town schools, and 16.8%-33.6% of rural schools employed one athletic trainer. These findings were lower than the range of 41.3%-54.8%

of city schools and the range of 23.2%-48.9% suburban schools employing one athletic trainer found in this study. The difference between the previous study compared to the study conducted may be due to the districts including multiple geographic locations (city, suburban, town, rural) within each district. The results of the Pearson Chi-Square and Fisher's exact tests could not be conducted in order to indicate whether or not there is a significant association between geographic location and the number of athletic trainers employed. This means that geographic location may or may not influence the number of athletic trainers employed. The relationship between the geographic location and the number of athletic trainers was not assessed because the Pearson Chi-Square and Fisher's exact tests could not be conducted due to the large amount of PIAA districts, making it not significant.

#### **4.3.3 Geographic Location and Athletic Trainer Employment Provider**

The athletic trainer employment provider data varied depending on each geographic location such as the number of types of employers ranging from 1 employer to 18 different employers. The percentages among the school districts whose athletic trainer employment provider was not found or unknown ranged from 32.1% up to 93.1%. The previous studies did not report data on the athletic trainer employment providers among different geographic locations.<sup>7</sup> Due to the differences in athletic trainer employment provider classifications for this study and previous studies, an accurate comparison cannot be performed. The relationship between the school size and the athletic trainer employment provider was not assessed because the Pearson Chi-Square and Fisher's exact tests could not be conducted due to the large amount of employment providers, making it not significant.



#### **4.4 Limitations**

Despite the applicability of this study's methodology to collect the Pennsylvania secondary school data, it is recognized as a limitation of this study. The Pennsylvania Interscholastic Athletic Association (PIAA) website as well as the individual Pennsylvania secondary school athletic and/or academic websites were utilized to collect the characteristics of the secondary schools and the athletic training services offered. By utilizing public domain information provided on these websites, the data collected provided an insight into how accessible this information is to student-athletes in addition to their support systems and other health care providers. In the situation that a Pennsylvania secondary school athletic trainer needed to be contacted, this study provided a look into how accessible this information was or if this information was available. By utilizing this methodology, it is recognized that it is possible that information was available but not found, or some of the information found may be incorrect or has been changed recently and not updated.

Another consideration to make is that there may be turnover amongst athletic training jobs and contracts between secondary schools and athletic trainer employment providers. For example, an athletic trainer may be transitioning from one athletic training position to another in the middle of a sports season and/or middle of a school year, which causes athletic training services information to be incorrect if not updated in a timely manner. In addition, secondary schools may change their athletic trainer employment providers in an attempt to have their athletic training services needs met.

Additionally, the inability to conduct inferential statistics between the school type, school size, and geographic location and the athletic trainer employment provider leaves the significance between these data values to be questioned. The choice to not reallocate the employment providers into vague categories was chosen in order to assess the specific Pennsylvania athletic trainer

employment providers. The amount of important data collected within this study cannot be overstated, but the existing research that combines the variety of secondary school characteristics and athletic training services assessed is limited. Due to the lack of research, only certain findings were compared to preexisting relevant data: school type, school size, and geographic location.<sup>5-7</sup> Due to limited research on athletic training services in secondary schools, future research and recommendations are warranted.

#### **4.5 Future Research and Recommendations**

Future research should aim to continue to explore and gather information regarding state-specific secondary school demographics and the athletic training services provided. The availability and the accuracy of this information will allow for high quality athletic training services to be provided and proper communication amongst the involved individuals. To assess a secondary school's school size, the specific state's school size classifications should be utilized to be more applicable. Previous studies have classified school sizes in only broad terms such as small, moderate, medium, and large.<sup>7</sup> The geographic location of secondary schools should be assessed by the state's classifications of sections, regions, and/or districts, but previous studies classifying them as either city, suburban, town, or rural could also be used.<sup>7</sup> Athletic training services have encompassed athletic trainer employment (yes/no and number of athletic trainers) as well as athletic trainer employment provider previously.<sup>5-7</sup> The inconsistency of how the athletic trainer employment providers are categorized by either their actual employer or the athletic training services they provide needs to be reviewed. It is suggested that the employment provider be categorized by school district, school district + teaching/other job, clinic/hospital/university, or

independent contractor. Within the categories of school district + teaching/other job, clinic/hospital/university, and independent contractor, specifications should be made of the job title and the specific employment provider. These specifications will provide a better understanding of the athletic trainer employment providers, and it may reveal opportunities for certain employers to acquire additional contracts with secondary schools. It may also provide insight regarding the proximity of these secondary schools to healthcare facilities, especially amongst secondary schools in rural areas and communities.

Further recommendations should focus on how to make the athletic training services information accessible for each secondary school. The athletic trainer employment providers should provide information on which secondary schools and colleges/universities they provide athletic training services for as well as listing the contact information for these athletic trainers on their website. Each individual secondary school should strive to have their athletic trainer(s) information available on their academic and athletic websites amongst the school staff directory, in addition to having a page dedicated to specifically athletic training information. Athletic trainers should continue advocating for themselves and the profession, but their student-athletes, coaches, athletic directors, principals, employers, etc. must be aware of the role they have to play in the accessibility of athletic training information and advocacy for athletic trainers. The increased accessibility and accuracy of athletic training information allows for better awareness and positive associations to be made regarding athletic trainers.

## 4.6 Conclusion

This study aimed to reveal how the athletic training services vary amongst secondary schools in the state of Pennsylvania. A sample size of 737 Pennsylvania secondary schools was collected from public domain websites of the Pennsylvania Interscholastic Athletic Association (PIAA) and the individual Pennsylvania secondary schools. Specifically, this study gave insight as to how the characteristics of the secondary schools influence the athletic training services offered.

Based on the findings of this study, it was apparent that previous studies are limited as well as lacking details into the specifics of school size, school type, and geographic location and their athletic training services. The rates of athletic training employment for public schools and the differing school sizes reflected previous research. The rates of athletic training employment for private schools and the ranging geographic locations varied from previous reports. Specifics regarding the number of athletic trainers employed and the athletic trainer employment providers were limited due to the lack and consistency of research. It was found that the relationship between the school type, school size, and geographic location and the athletic trainer employment and number of athletic trainers was statistically significant. The relationships including the athletic trainer employment providers were found to not be statistically significant due to the number of employment providers assessed. Further efforts need to be made to ensure accessibility and accurate athletic training information is available by athletic training employment providers and the athletic trainer's site of employment. Further research needs to continue assessing state-specific secondary school demographics and the athletic training services provided.

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