

THE AVAILABILITY OF CERTIFIED ATHLETIC TRAINERS IN HIGH
SCHOOLS IN MASSACHUSETTS

A THESIS

Submitted to the Faculty of the School of Graduate Studies
and Research

of

California University of Pennsylvania in partial
fulfillment of the requirements for the degree of

Master of Science

by

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California, Pennsylvania

2011

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ACKNOWLEDGEMENTS

First and foremost, I would like to thank my wonderful parents. Thank you for always being there for me and supporting me in whatever I am doing. To Tricia, Andrew and Kristen for being the most amazing older siblings anyone could ever have and for always helping me through anything. To Jojo, thank you for always encouraging me and being there to talk when I needed it. I love you all so much!

To Robbie, you were always there to listen to my problems and help me relax during all those stressful nights working on my thesis. You've helped me through this past year more than you'll ever know and I'm so grateful for you. I love you!

Thank you to my girls Joanna, Jackie, and Kristin. We all became so close in such a short amount of time and made some great memories this year. I'm definitely going to miss living together and complaining about getting our research done! You guys are the best.

I would like to give a huge thanks to my thesis advisor, Dr. Carol Biddington. Thank you for all your dedication to my research and for always pushing me in the right direction. I'm so grateful for all of your help. Also, thank you to my committee members, Dr. Karen Hjerpe and Dr. Joni Roh for all their much needed assistance and hard work.

I have to thank Ms. Martha Jamieson, MSSADA President and Mr. Chris Aufiero, MSSADA Secretary for their help in distributing my survey to all the high school Athletic Directors in Massachusetts. Also, thank you to every Massachusetts high school Athletic Director that was able to take part in my survey. This study could not have been completed without your help.

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INTRODUCTION

When athletes sustain athletic injuries, the certified Athletic Trainer is the first person of contact on the sports medicine team to evaluate the athlete and injury. A certified Athletic Trainer is a sports medicine professional who collaborates with physicians to optimize patient and client activity and participation in athletics, work, and life.¹⁻³ Certified Athletic Trainers are properly educated and trained in the area of sports medicine and have the ability, thus qualifying them to recognize and treat athletic injuries seen at various levels of competition. At a minimum, to become a certified Athletic Trainer, one must hold a bachelor's degree and pass a national certification examination specific to the competencies of a certified Athletic Trainer outlined by the National Athletic Trainers' Association (NATA) and The Board of Certification (BOC).⁴ To maintain certification, certified Athletic Trainers must attend workshops or complete courses yearly and earn 80 continuing education units in a three year period. Certified Athletic trainers are well educated professionals in the field of sports medicine prepared to prevent, evaluate, rehabilitate, and manage athletic injuries at any given participation level

(i.e., high school, college, professional, elite, etc.). In fact, nearly 70% hold a master's degree or higher advanced degree.⁴

High school sports participation is nearly 20 times greater than NCAA participation,⁵ and in 2005, more than 7 million high school students were participating in interscholastic athletics in the United States.⁶ With the large number of students involved in athletics, injuries sustained during practices and competition are inevitable. In the 2005-2006 school year alone; athletes participating in football, soccer, basketball, wrestling, volleyball, baseball, and softball sustained an estimated 1.4 million injuries.⁷ Injuries sustained by high school athletes have resulted in 500,000 doctor visits, 30,000 hospitalizations and a total cost to the healthcare system of nearly 2 billion dollars per year.⁸

While participating in athletics can be beneficial, children are getting injured at a very high rate in the secondary school setting. If a high school athlete sustains an injury and his or her family cannot afford insurance, what option do they have for treatment? Employing a certified Athletic Trainer at all high schools could help reduce doctor visits because a certified Athletic Trainer would be able to differentiate between

acute injuries and injuries that require a referral for more specialized medical attention. One study examined that there is an average of 2.6 million emergency department visits for sports-related injuries per year.⁹ A certified Athletic Trainer in the high school could provide that uninsured child initially with the appropriate medical attention they deserve, thus reducing the number of visits to the emergency room and medical costs.

Many Americans struggle with paying for health insurance for themselves and their families. For example, in the 2008 tax year, about 50,000 Massachusetts residents were still without health insurance because they could not afford it.¹⁰ About 55% of Massachusetts residents stated that there was a time in 2009 that they needed medical care, tests, or treatments but were unable to get them due to being uninsured. Even though Massachusetts has tried to introduce legislature to insure every resident, there is still a significant amount of people living with no health insurance.

With the overwhelming number of student-athletes at the high school level, athletic health care should be accessible to every child participating in athletic competition. Certified Athletic Trainers can provide effective athletic health care and should be available for

athletes at every high school in the United States. However, many high schools across the country do not employ a certified Athletic Trainer. In fact, as of 1999, Hawaii was the only state in the United States that required a certified Athletic Trainer to be employed at all public high schools.¹¹ Certified Athletic Trainers are highly educated medical professionals that can provide exceptional care to athletes of all ages and may help many of these families without health care receive appropriate medical attention without the high costs.

It is not unreasonable to think that a high percentage of certified Athletic Trainers would be employed at the secondary school level. However, according to the NATA only 42% of high schools have access to a certified Athletic Trainer¹² and according to the NATA, about 21 percent of NATA members provide service to secondary schools.¹³

This study will attempt to answer the following questions: 1) Is having a certified Athletic Trainer in Massachusetts dependent on school divisional classification (I, II, III, IV)? 2) Are high schools with a higher athletic budget more likely to employ a certified Athletic Trainer than high schools with lower athletic budgets? and 3) Are high schools with more varsity sports teams more likely to employ a certified Athletic Trainer than high

schools with less varsity sports teams for A) boys' and B) girls'?

METHODS

This section includes the following subsections: Research Design, Subjects, Preliminary Research, Instrument, Procedures, Hypotheses, and Data Analysis.

Research Design

A descriptive design was used in this study. The dependent variables in this study were the athletic budget of the high schools and the number of varsity sports at the high schools. The independent variables of this study were high schools with or without a certified Athletic Trainer and the school's divisional classification (I, II, III, IV).

The strength of this study is that content validity was established for the survey after a review by a panel of experts. The limitation of this study was that only athletic directors in high schools in Massachusetts were surveyed.

Subjects

The number of subjects for this study was 44 out of 371 athletic directors at public and private high schools in Massachusetts for a return rate of 11.8%. Sampling included the entire population of athletic directors in Massachusetts. Informed consent was implied with completion and return of the survey.

Preliminary Research

A review of the survey was conducted by a panel of experts (Appendix C1). This panel reviewed the survey and provided suggestions for improvements and changes. The panel includes a college sports medicine Program Director, a high school Athletic Director and a head high school certified Athletic Trainer.

Instrument

The High School Certified Athletic Trainer Availability Survey (Appendix C2) was used in this study and was available for the Athletic Directors to complete on www.surveymonkey.com. This survey was developed by the

researcher for the purpose of determining the prevalence of certified Athletic Trainers in high schools in Massachusetts. The survey asked for information regarding athletic training coverage by a certified Athletic Trainer at the school. There were questions regarding the amount of hours per week a school's certified Athletic Trainer works and how many full time and part time certified Athletic Trainers are employed at the high school. The Athletic Director indicated the number and type of varsity sports teams and provided information regarding the athletic budget. There were a total of 16 questions the Athletic Directors completed in the survey.

Procedures

The survey was finalized after review by a panel of experts. An application was sent to California University of Pennsylvania's Institutional Review Board for Protection of Human Subjects (Appendix C3) for approval before the study was conducted. A survey was created by the researcher and was sent electronically to 371 high school Athletic Directors in Massachusetts. The researcher contacted the President of the Massachusetts Secondary Schools Athletic Directors Association (MSSADA) to

distribute the survey to all Massachusetts high school Athletic Directors via email. Martha Jamieson, MSSADA President, granted Chris Aufiero, association Secretary, permission to distribute the survey. A Cover Letter to Participants (Appendix C4) was sent explaining the purpose of the study to the Athletic Directors and a link was also provided to access the survey. The researcher did not have the email addresses of the Athletic Directors, therefore responses were anonymous. The researcher allowed the Athletic Directors time to complete and return the survey. The Athletic Directors were sent a second email 7-10 days after the initial email as a reminder to complete the survey before the indicated deadline.

Hypotheses

These hypotheses were formed based on the literature review and the theories of the researcher.

H1: Having a certified Athletic Trainer will be dependent on the school's divisional classification (division I, division II, division III, division IV).

H2: High schools with a higher athletic budget will be more likely to employ a certified Athletic Trainer than high schools with a lower athletic budget.

H3: High schools with more varsity sports teams will be more likely to employ a certified Athletic Trainer than high schools with less varsity sports teams for A) boys and B) girls.

Data Analysis

The level of significance was set at 0.05.

H1: A 2 (Having a certified Athletic Trainer - yes/no) X 4 (School divisional classification- division I, II, III, IV) Chi square test of independence was used to determine if having a certified Athletic Trainer was dependent on a school's divisional classification.

H2 and H3: A MANOVA test was used to determine if high schools with higher athletic budgets were more likely to employ a certified Athletic Trainer than high schools with lower athletic budgets and if high schools with more varsity sports teams were more likely to employ a certified Athletic Trainer than high schools with less varsity sports teams for A) boys and B) girls.

RESULTS

Demographic Data

Massachusetts high school Athletic Directors (N = 44), which was a response rate of 11.9%, voluntarily participated in this survey. Table 1 represents the certified Athletic Trainers employed at high schools. Over half of the Athletic Directors that responded stated they have a certified Athletic Trainer at their high school.

Table 1. Certified Athletic Trainers at High Schools

Characteristic	Frequency	Percent
Yes	25	56.8
No	18	40.9
Other	1	2.3

Table 2 represents the medical personnel that the Athletic Directors reported provided athletic health care to their athletes if they did not employ a certified Athletic Trainer. The most common medical personnel that the Athletic Directors indicated cared for their student athletes were EMTs.

Table 2. Medical Personnel Providing Athletic Health Care

Characteristic	Frequency	Percent
EMT	17	38.6
Nurse	13	29.5
Coach	13	29.5
Physician	4	9.1

Table 3 shows the number of certified Athletic Trainers employed at the Massachusetts high schools, as indicated by the Athletic Directors. Some schools reported that they had no certified Athletic Trainer, while one school's Athletic Director indicated that they had 20.

Table 3. Number of Certified Athletic Trainers at High Schools

Classification	Min.	Max.	Mean	SD
Number of ATC	0	20	1.14	3.041

Table 4 represents the number of years that each high school has employed a certified Athletic Trainer. The highest number of years that a high school employed a certified Athletic Trainer was 33 years.

Table 4. Years ATC has Worked at High School

Classification	Min.	Max.	Mean	SD
Years	0	33	9.08	9.705

Table 5 represents the certified Athletic Trainer employed at high schools full-time and part-time. More schools employed a part-time certified Athletic Trainer over a full-time. There were twice as many part-time certified Athletic Trainers as compared to full-time.

Table 5. Certified Athletic Trainers at High Schools

Characteristic	Frequency	Percent
Part-time	26	59.1
Full-time	13	29.5
No Response	5	11.4

Table 6 represents the approximate hours worked by the certified Athletic Trainers at the high schools. The most hours worked by a certified Athletic Trainer per week was approximately 50 hours.

Table 6. Hours Per Week Worked By ATC

Classification	Min.	Max.	Mean	SD
Hours	0	50	23.53	16.761

Table 7 identifies the reasons why 27.27% of high schools may not employ a certified Athletic Trainer. The primary reason for a high school to not employ a certified Athletic Trainer was that they did not have enough money in their budget. One Athletic Director in particular stated that the administration at his/her school did not realize the importance of having a certified Athletic Trainer on staff.

Table 7. Why High Schools Do Not Have an ATC

Characteristic	Frequency	Percent
Not enough money	7	58.3
Care provided by other personnel	3	25.0
No affiliation with local clinic	1	8.3
Other	1	2.3
Have ATC	32	6.1

Massachusetts high school Athletic Directors were asked to report if they were satisfied with the medical professionals that provided athletic health care to their student-athletes. Over 50 percent of Athletic Directors

indicated that they were satisfied with the medical professionals that provided their student athletes with athletic health care. (See Table 8).

Table 8. Satisfaction with Medical Coverage

Characteristic	Frequency	Percent
Yes	24	54.5
No	10	22.7
Other	10	22.8

The Athletic Directors were asked to state whether their high school was a public or private institution. Only 11% Athletic Directors indicated that their school was private, while 65.9% schools were public institutions. (See Table 9).

Table 9. Type of Institution

Characteristic	Frequency	Percent
Public	29	65.9
Private	5	11.4
Other	10	22.7

The Athletic Directors were asked to report the divisional classification for their high school. They were asked to indicate either division I, division II, division III, or division IV on the survey. The most common division was division I. In Massachusetts, division I schools are the largest while division IV are the smallest. (See Table 10).

Table 10. Divisional Classification

Characteristic	Frequency	Percent
Division I	12	27.3
Division III	9	20.5
Division II	7	15.9
Division IV	6	13.6
Other	10	22.7

Table 11 represents the number of boys' varsity sports at the high schools. In the same question, the Athletic Directors also indicated the sports for their high school. The most boys' varsity sports as reported by the Athletic Directors were 36 sports teams. Some Athletic Directors indicated that they had additional sports than those provided, which included sailing, Alpine skiing, cheerleading, cross country, crew, cross country skiing, Nordic skiing, and fencing. One Athletic Director stated that they had no boys' varsity sports teams because his/her institution was an all girls' school.

Table 11. Boys' Varsity Sports

Classification	Min.	Max.	Mean	SD
Number of boys' sports	0	36	11.97	7.460

Characteristic	Frequency	Percent
Baseball	30	68.2
Basketball	30	68.2
Soccer	29	65.9
Football	28	63.6
Outdoor Track	28	63.6
Golf	27	61.4
Tennis	24	54.5
Ice Hockey	22	50.0
Indoor Track	20	45.5
Wrestling	19	43.2
Swimming/Diving	17	38.6
Lacrosse	15	34.1
Volleyball	13	29.5
Gymnastics	4	9.1
Field Hockey	2	4.5

The Athletic Directors were asked to specify how many girls' varsity sports teams they had at their high school. They also indicated which girls' varsity sports they had. The highest number of girls' varsity sports at the high schools was 18 teams. Some Athletic Directors reported additional sports teams than those provided, which included cheerleading, cross country, Nordic skiing, Alpine skiing, crew, fencing, dance, and sailing. (See Table 12).

Table 12. Girls' Varsity Sports

Classification	Min.	Max.	Mean	SD
Number of girls' sports	5	18	11.27	3.752

Characteristic	Frequency	Percent
Soccer	33	75.0
Softball	33	75.0
Basketball	32	72.7
Outdoor Track	31	70.5
Tennis	28	63.6
Volleyball	26	59.1
Field Hockey	23	52.3
Indoor Track	23	52.3
Swimming/Diving	22	50.0
Lacrosse	20	45.5
Golf	14	31.8
Gymnastics	13	29.5
Ice Hockey	13	29.5
Skiing	12	27.3
Wrestling	4	9.1

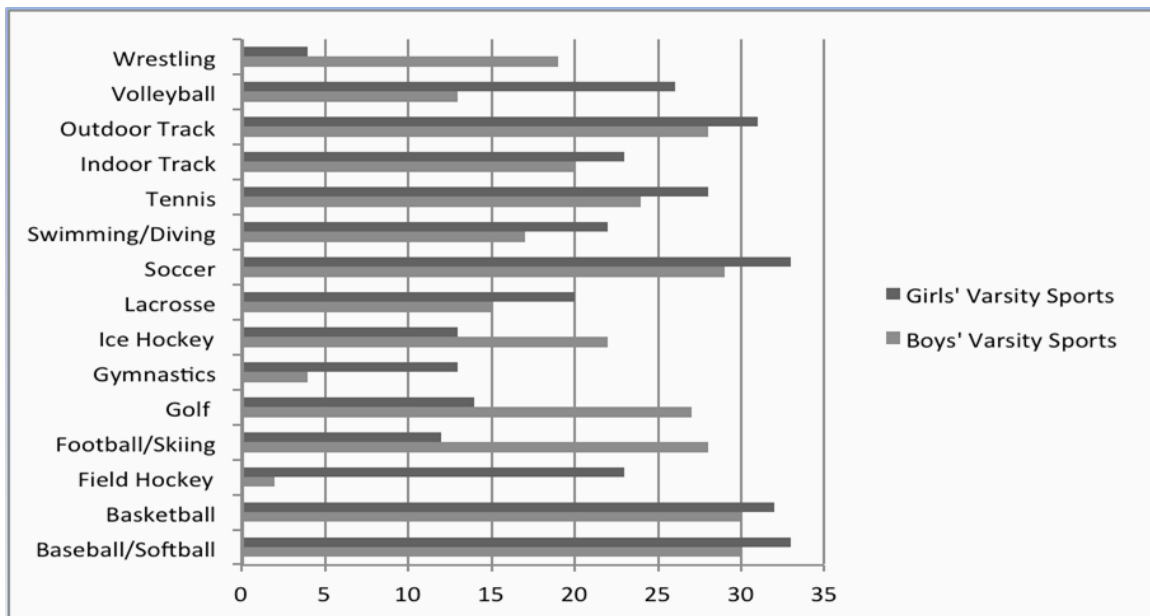
**Figure 1.** Boys' Varsity Sports Versus Girls' Varsity Sports

Table 13 shows the varsity sports that have coverage by a certified Athletic Trainer at their practices. Some Athletic Directors stated that they had practice coverage at sports like cheerleading, cross country, sailing, Nordic skiing, and Alpine skiing.

Table 13. Practice Coverage by Certified Athletic Trainer

Characteristic	Frequency	Percent
Football	20	45.5
Girls Basketball	18	40.9
Girls Soccer	18	40.9
Girls Outdoor Track	17	38.6
Boys Basketball	16	36.4
Softball	16	36.4
Boys Outdoor Track	16	36.4
Baseball	15	34.1
Boys Soccer	15	34.1
Girls Field Hockey	14	31.8
Girls Lacrosse	14	31.8
Boys Lacrosse	13	29.5
Girls Volleyball	13	29.5
Girls Indoor Track	12	27.3
Boys Wrestling	12	27.3
Girls Tennis	11	25.0
Boys Outdoor Track	11	25.0
Boys Tennis	10	22.7
Boys Volleyball	7	15.9
Boys Swimming/Diving	5	11.4
Girls Swimming/Diving	5	11.4
Girls Gymnastics	4	9.1
Boys Ice Hockey	3	6.8
Girls Ice Hockey	3	6.8
Boys Golf	2	4.5
Girls Golf	2	4.5
Boys Gymnastics	2	4.5
Girls Wrestling	2	4.5
Boys Field Hockey	1	2.3
Boys Skiing	1	2.3
Girls Skiing	1	2.3

Table 14 shows the varsity sports that have coverage by a certified Athletic Trainer at their games. The Athletic Directors also indicated sports like cheerleading, cross country, sailing, Nordic skiing, and Alpine skiing had a certified Athletic Trainer covering their games or competitions.

Table 14. Game Coverage by Certified Athletic Trainer

Characteristic	Frequency	Percent
Football	24	54.5
Girls Basketball	24	54.5
Boys Basketball	21	47.7
Girls Soccer	20	45.5
Boys Ice Hockey	19	43.2
Softball	19	43.2
Baseball	18	40.9
Girls Lacrosse	18	40.9
Boys Soccer	18	40.9
Girls Outdoor Track	17	38.6
Girls Field Hockey	16	36.4
Boys Lacrosse	16	36.4
Boys Outdoor Track	16	36.4
Boys Wrestling	16	36.4
Girls Volleyball	16	36.4
Girls Tennis	14	31.8
Girls Ice Hockey	12	27.3
Boys Tennis	11	25.0
Girls Indoor Track	11	25.0
Boys Indoor Track	10	22.7
Boys Volleyball	8	18.2
Girls Gymnastics	7	15.9
Boys Swimming/Diving	4	9.1
Girls Swimming/Diving	4	9.1
Girls Skiing	2	4.5
Girls Wrestling	2	4.5
Boys Golf	1	2.3
Girls Golf	1	2.3
Boys Gymnastics	1	2.3
Boys Skiing	1	2.3

The Athletic Directors were asked to report their school's athletic budget. The highest athletic budget indicated was \$1,000,000 by one Athletic Director. (See Table 15).

Table 15. Athletic Budgets

Classification	Min.	Max.	Mean	SD
Athletic Budget	45,000	1,000,000	373,007.93	272,546.125

Hypotheses Testing

The hypotheses were tested at a level of 0.05.

Hypothesis 1: A chi square test of independence was used to determine if having a certified Athletic Trainer was dependent on the school's divisional classification (DI, DII, DIII, DIV).

Conclusion: There were not enough subjects to run the data analysis.

Hypotheses 2 & 3: A MANOVA test was used to determine if high schools with higher athletic budgets were more likely to employ a certified Athletic Trainer than high schools with lower athletic budgets and if high schools with more varsity sports teams were more likely to employ a certified Athletic Trainer than high schools with less varsity sports teams for A) boys' and B) girls'.

Conclusion: A MANOVA was calculated examining if high schools with a higher athletic budget were more likely to employ a certified Athletic Trainer than high schools with lower athletic budgets and if high schools with more varsity sports teams were more likely to employ a certified Athletic Trainer than high schools with less varsity sports teams for A) boys' and B) girls'. A significant effect was

found ($\Lambda(3,25)=.680, p=.020$). Follow-up univariate ANOVAS indicated that employing a certified Athletic Trainer significantly improved with high athletic budgets ($F(1,27)=7.406, p=.011$) and employing a certified Athletic Trainer significantly improved with more girls' varsity sports ($F(1,27)=11.677, p=.002$). No significant effect was found ($F(1,27)= 3.200, p >.05$) when examining if high schools with more boys' varsity sports were more likely to employ a certified Athletic Trainer.

Table 16. A MANOVA for Athletic Budget, Girls' Varsity Sports, and Boys' Varsity Sports

Source	Dependent Variable	Type III Sum of Squares	df	MS	F	P
	AB*	4.477E11	1	4.477E11	7.406	.011
	GVS*	130.072	1	22596.891	11.677	.002
	BVS*	170.354	1	170.354	3.200	.085

* AB (Athletic Budget), GVS (Girls' Varsity Sports), BVS (Boys' Varsity Sports)



Figure 2. Employing a Certified Athletic Trainer Based Upon the Number of Girls' Varsity Sports

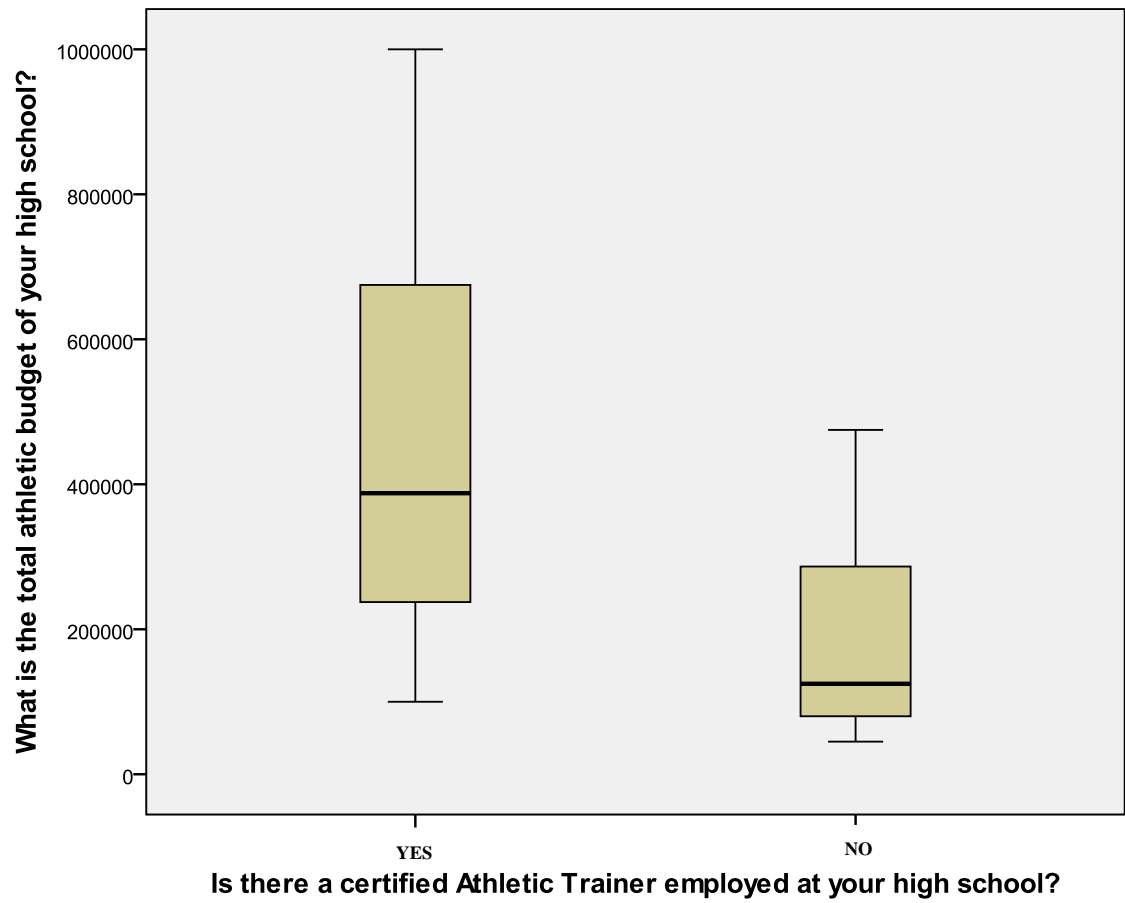


Figure 3. Employing a Certified Athletic Trainer Based Upon Athletic Budget

Additional Findings

Table 17 displays a Pearson correlation between athletic budget of the high schools, the amount of boys' varsity sports, and girls' varsity sports. A moderate correlation was found ($r(31)=.480$, $p < .005$) between the number of boys' varsity sports and the number of girls' varsity sports. A strong positive correlation was found ($r(27)=.751$, $p < .001$) between the athletic budget and the number of boys' varsity sports, indicating a significant linear relationship between the two variables. This indicates that schools with higher athletic budgets tended to have more boys' varsity sports teams. A moderate positive correlation was found ($r(27)= .664$, $p < .001$) between the athletic budget and girls' varsity sports.

Table 17. Pearson Correlation Between Athletic Budget, Boys' Varsity Sports, and Girls' Varsity Sports

	BVS*	GVS*	AB*
BVS			
Pearson			
Sig(2tail)			
N			
GVS			
Pearson	.480		
Sig(2tail)	.005		
N	33		
AB			
Pearson	.751	.664	
Sig(2tail)	.000	.000	
N	29	29	

*BVS (Boys' Varsity Sports), GVS (Girls' Varsity Sports), AB (Athletic Budget)

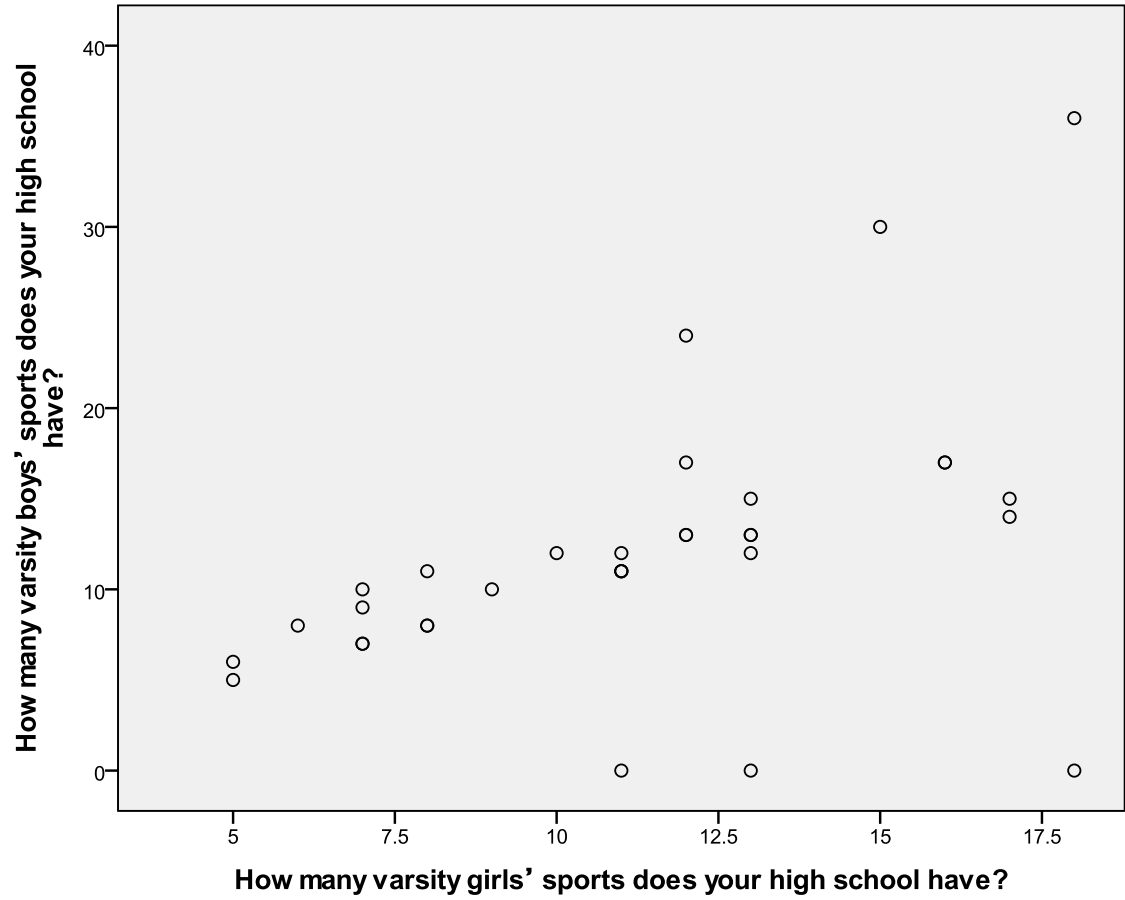


Figure 4. Scatterplot Comparing Boys' Varsity Sports Teams with Girls' Varsity Sports Teams.

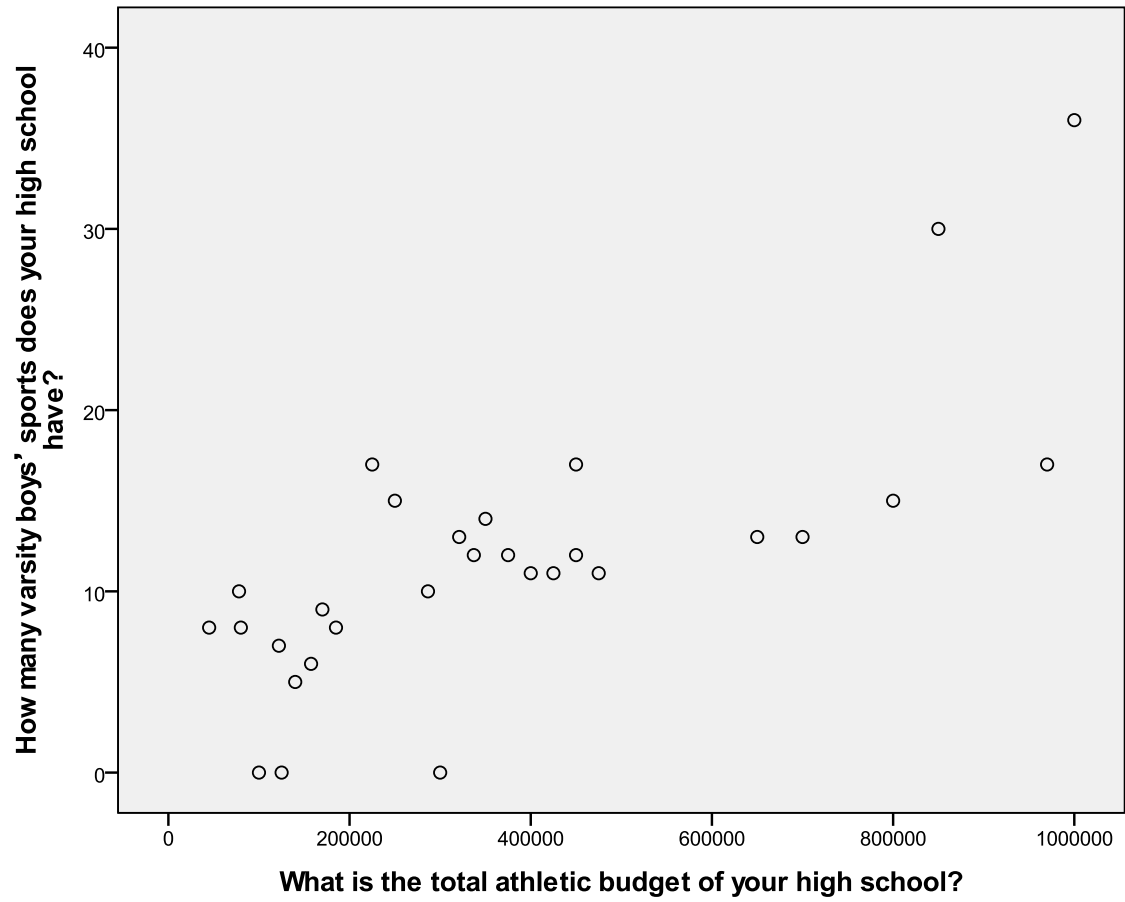


Figure 5. Scatterplot Comparing Boys' Varsity Sports Teams with Athletic Budget.

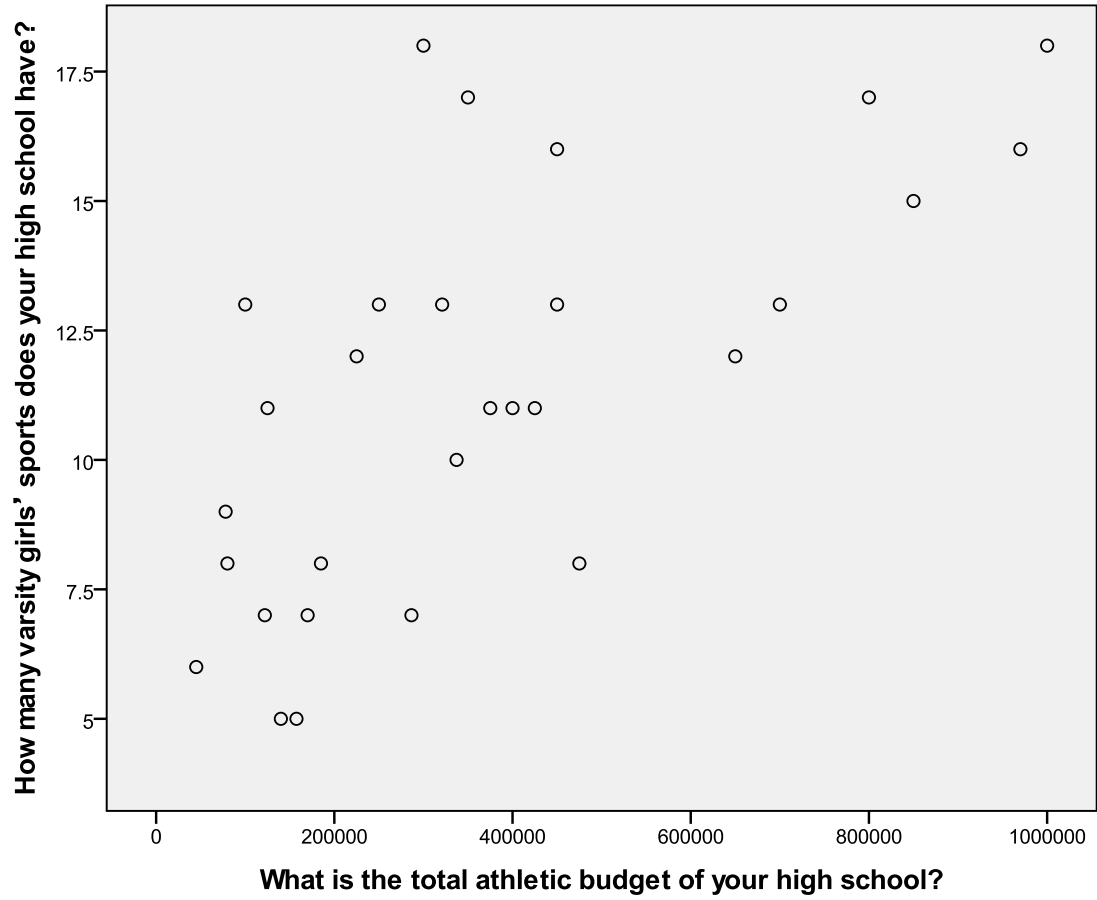


Figure 6. Scatterplot Comparing Girls' Varsity Sports Teams with Athletic Budget.

DISCUSSION

The following section will include: 1) Discussion of Results, 2) Conclusions, and 3) Recommendations.

Discussion of Results

This study focused on certified Athletic Trainers employed at high schools in the Commonwealth of Massachusetts. Certified Athletic Trainers are trained medical professionals that can provide athletes of all ages with appropriate athletic health care. Many high schools across the country do not employ a certified Athletic Trainer and need someone they can rely on to care for their student-athletes.

In 2005, more than 7 million high school students were participating in interscholastic athletics in the United States.⁶ Even with this significantly high amount of students participating in athletics at the secondary school level, according to the National Athletic Trainers' Association only 42% of high schools have access to a certified Athletic Trainer.¹² As of 1999, Hawaii was the only state in the United States that required a certified Athletic Trainer to be employed at all public high

schools.¹¹ With so many high school participants, there needs to be a medical professional available to these athletes to provide effective athletic health care when injuries occur. It was found that 56.8% of the 44 high school Athletic Directors in the commonwealth of Massachusetts that participated in this study have a certified Athletic Trainer on staff. Over half (51.9%) are full-time employees while 29.5% are part-time employees.

Health care coverage has become a growing issue for many Americans. In Massachusetts, about 50,000 residents in the 2008 year were still without any type of health care coverage.¹⁰ Even though legislation was introduced in the state in order to ultimately cover every resident, there are still significant amounts of people without health care coverage. These people without health insurance need to have somewhere to turn when faced with athletic injuries. Having a certified Athletic Trainer at every high school could help those people without any health coverage get the medical attention they need. A certified Athletic Trainer at their institution could help those people without any health insurance and could have somewhere to turn when faced with an injury.

This study tried to determine if having a certified Athletic Trainer was dependent on the school's divisional

classification (DI, DII, DIII, DIV). However, with only 44 Athletic Directors responding to the survey, there was not enough data to run an analysis. Division I schools in Massachusetts are the largest class of schools, so it's not surprising to see that they are more likely to have a certified Athletic Trainer as opposed to smaller schools. In other studies such as Biddington et al,¹⁴ it was found that class AAAA, being the largest in the state of Pennsylvania, were more likely to employ a certified Athletic Trainer as opposed to smaller schools.

The results from this study found that schools with higher athletic budgets were more likely to hire a certified Athletic Trainer. This finding suggests that schools that have more money allotted to their athletic program will probably have extra money to put towards additional costs such as hiring a certified Athletic Trainer. It was also found that employing a certified Athletic Trainer significantly improved with more girls' varsity sports. Emerging evidence indicates that female high school and college athletes in basketball, soccer, lacrosse, field hockey, and skiing experience a greater number of knee and ankle injuries than their male counterparts.¹⁵ This may suggest why schools with a higher number of girls' varsity sports teams may be more likely to

have a certified Athletic Trainer. However, high schools with a higher number of boys' varsity sport were not likely to have a certified Athletic Trainer. It was believed that having a certified Athletic Trainer would be dependent on the number of varsity sports at a high school because with more athletes, there will be more injuries and therefore more need for someone readily available to student-athletes to care for their injuries.

This study asked Athletic Directors to indicate which sports had coverage by certified Athletic Trainers at practices and games. During practices, the sport with the most coverage is football at 45.5%. This seems like an appropriate result since football is considered a high contact sport. However, boy's ice hockey only had 6.8% of coverage at practices. Boy's ice hockey is another high contact sport and should have a certified Athletic Trainer at practices at a higher percentage. For game coverage, football was again the highest at 54.5% of coverage by a certified Athletic Trainer. However, girls' basketball has the same percentage while higher contact sports like boys' ice hockey and boys' lacrosse have lower percentages.

A strong correlation was found between athletic budgets and the number of boys' varsity sports, indicating that high schools with higher athletic budgets tended to

have more boys' varsity sports teams. A moderate correlation was found between athletic budgets and girls' varsity sports. These results show that the more sports a school has, the more money they will need. A moderate correlation was found between boys' varsity sports and girls' varsity sports. This may show that schools are trying to offer the same opportunities to both boys and girls regardless of school size.

In regards to the correlation between boys' varsity sports and girls' varsity sports, it was stated that the maximum amount of boys' varsity sports teams was 36, while the maximum amount of girls' varsity sports was 18. Schools were generally equal in their boys' and girls' sports, where the 36 boys' sports could have been an outlier. Title IX legislation states that girls and women in high school and college should have the same opportunities.¹⁶ These results reflect how Title IX has helped girls' high school sports because the girls seem to have the same opportunity as boys.

Conclusions

After reviewing the results of this study, it can be concluded that high schools in Massachusetts are taking it upon themselves to recognize the need for certified Athletic Trainers at the secondary school level. There is no legislation in the state requiring high schools to employ a certified Athletic Trainer, however over half of the high schools surveyed have one on staff. Of the schools that responded to the study, more division I high schools have certified Athletic Trainers as opposed to division IV, which is the smallest in Massachusetts. While it may be difficult due to budget restraints, smaller schools need to start employing certified Athletic Trainers.

One area which needs improvement is coverage of higher contact sports by each school. There can be devastating injuries during high contact sports competition and there needs to be someone there during play who can aid in helping injured student-athletes. When asked if satisfied with the medical coverage at their high school, more than half of the Athletic Directors participating in this survey responded that they were. Even though high schools in the state are still without a certified Athletic Trainer, the

56.8% of the 44 high schools participating in this study that employ a certified Athletic Trainer are pleased with the services they provide to the student-athletes.

Recommendations

The purpose of this study was to see how many high schools in Massachusetts employed a certified Athletic Trainer. After reviewing the results, a recommendation to Massachusetts would be to introduce legislation that would require all high schools to have a certified Athletic Trainer on staff. To perhaps gain better and more accurate results, a study on this same state with a higher response rate may be necessary. Only 44 (11.9%) of the 371 Athletic Directors contacted to participate in this study completed the survey and therefore a study with more responses may prove more accurate.

It would also be beneficial for future studies to examine other states and their high school athletic health care coverage. Studying more states will give us a better picture of certified Athletic Trainers working at the high school level and which states have better coverage as opposed to others.

Choosing another population to sample may provide researchers with better response rates. This study asked Athletic Directors to respond to a survey about athletic health care at their high schools and there was a low response rate of only 11.9%. Sampling another population might garner high results since Athletic Directors may not have all the information when it comes to certified Athletic Trainers. There may be other personnel in the high school who could provide more accurate results and hopefully higher response rates.

Future research can focus on state sizes and comparing if bigger states have more high school certified Athletic trainers as opposed to smaller states.

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APPENDICES

APPENDIX A

Review of the Literature

Review of the Literature

Certified Athletic Trainers work in a variety of health care settings. The secondary school setting is commonly overlooked as an environment for employment of an Athletic Trainer often attributed to budget restraints or location of the school. While some high schools do have a full time certified Athletic Trainer on staff, many schools located throughout the United States may rely on services provided by volunteer physicians, chiropractors, physical therapists, and other such health care professionals who do not specialize in appropriate sports medicine techniques. High school student participation in athletics has grown significantly and a growing need for certified Athletic Trainers in high schools to provide medical care to injured athletes should follow. Massachusetts, like many states have no current laws requiring certified Athletic Trainers to work in every high school. With the large increase in athletic participation, more and more high schools will start to need certified Athletic Trainers to care for injured student-athletes.

The topics that will be discussed include: (1) What is Athletic Training? (2) Athletic Trainers in High Schools, (3) Injuries in the High School Setting, and (4)

Massachusetts. Massachusetts will also include two subsections: Budgets and Health care. A summary of the review of the literature will also be included.

What is Athletic Training?

A certified Athletic Trainer is a sports medicine professional who collaborates with physicians to optimize patient and client activity and participation in athletics, work, and life.¹ Certified Athletic Trainers specialize in six domains which include prevention, clinical evaluation and diagnosis, immediate care, treatment, rehabilitation and reconditioning, organization and administration, and professional responsibility.² The profession of athletic training is recognized by the American Medical Association as a healthcare profession.³

Athletic training educational programs are accredited by the Commission on Accreditation of Athletic Training Education (CAATE).^{2,3} Students spend four years in an undergraduate athletic training programs and become knowledgeable in a variety of areas such as assessment and evaluation, acute care, general medical conditions and disabilities, pathology of injury and illness, pharmacological aspects of injury and illness, nutritional

aspects of injury and illness, therapeutic exercise, therapeutic modalities, risk management and injury prevention, health care administration, professional development and responsibility, and psychosocial intervention and referral.³ Upon completion of an undergraduate program, students may sit for a national certification exam to become a certified Athletic Trainer. Many certified Athletic Trainers continue their education and about 70% hold a master's degree or doctoral degree in athletic training or related areas such as exercise physiology, wellness and health promotion, or health care administration.⁴

Certified Athletic Trainers can work in a variety of settings including high schools, college, and sports medicine clinics.⁵ Certified Athletic Trainers have a unique education and set of skills that allow them to properly assess and treat acute and traumatic injuries in athletics.⁶ It is the belief of the National Athletic Trainers Association and many other governing medical bodies that injury situations at the high school level should not be handled by laypersons that do not possess the necessary skills in order to care for athletic injuries and therefore high schools nationwide should employ a certified Athletic Trainer.⁷

Certified Athletic Trainers in High Schools

There has been a 98% increase in high school athletic participation between the years 1971 and 2005.⁸ With such a drastic jump in student involvement in extracurricular activities, certified Athletic Trainers in the secondary school setting needs to increase as well. The American Medical Association issued a statement that the athletic medicine unit of every high school should include an athletic health coordinator who is preferably a certified Athletic Trainer.⁹ A certified Athletic Trainer can reduce injury occurrences and help to prevent re-injuries, thus decreasing time lost from practice and game time. Full-time secondary school certified Athletic Trainers offer the additional benefit of being available during the school-day to assist the injured athlete with recovery by implementing the instructions from the team or personal physician for treatment of that injury.¹⁰ Providing these services on campus can help to reduce lost instructional time for the student athlete. However, As of 1999, Hawaii was the only state in the country that mandates athletic trainers in every public high school.¹¹ Every state in the United States should have stricter regulations and laws that would require certified Athletic Trainers in every high school.

Appropriate medical care of the secondary school-aged individual involves more than basic emergency care during sports participation.¹² Many schools throughout the country however rely on persons other than qualified sports medicine professionals to handle athletic injuries. Kentucky legislature has mandated that a coach from each team in high schools must undergo advanced emergency sports medicine training.¹³ Should parents feel that their children are in good hands because a coach has a certification that took them a few hours or weeks to complete, when they could have a certified Athletic Trainer, who has completed four or more years of school, caring for their children? Nurses are also being called in to care for students beyond normal school hours and are being put in charge of responding to athletic injuries. Nursing, as a profession, does not have an extensive knowledge of injury prevention or assessment of orthopaedic injuries provided during basic nursing education.¹⁴ Certified Athletic Trainers are well educated in the prevention of athletic injuries and how to properly evaluate and assess athletic injury situations. The health, safety, and well-being of those participating in high school athletics should be the priority of high schools nationwide and therefore adequate personnel should

be on site to ensure that injuries are recognized early, treated immediately, and allowed to heal properly.¹⁵

As high school athletics grow, the need for certified Athletic Trainers to tend to athletic injuries grows as well. In a recent study, athletic health care coverage in Pennsylvania found that 88.4% of high schools stated that they had access to a certified Athletic Trainer.¹⁶ Even with this number being relatively high, there were 17% of schools without certified Athletic Trainers. It was also concluded that public schools were more likely to have certified Athletic Trainers compared to private. A study identified the preparedness among Illinois high school athletic departments, 73% of schools had a certified Athletic Trainer.¹⁷ It was also found that 32% of schools reported having coverage at practices, while 50% of schools had coverage at games. A study that examined medical coverage in California revealed that 62% of high schools reported some form of a certified Athletic Trainer on campus either full time or part time.¹⁸ A study examining medical coverage of high schools in North Carolina revealed that only 56% of schools had coverage by a state certified Athletic Trainer.¹⁹

No matter the type or size of high schools, a certified Athletic Trainer should be employed at every high

school in the United States. High schools should also not differentiate between practices or games, requiring a certified Athletic Trainer on school property at all times. The remaining 49 states should join Hawaii in mandating that certified Athletic Trainers be employed at all high schools in order to keep athletic participation safe for all student-athletes.

Injuries in the High School Setting

While the number of student-athletes in the secondary setting has been growing over the past few decades, the number of injuries sustained by participants has increased as well. The National Athletic Trainers' Association estimates that about one-third of the 7.5 million students who play interscholastic sports will get hurt.²⁰ Injuries sustained by high school athletes have resulted in 500,000 doctor visits, 30,000 hospitalizations and a total cost to the healthcare system of nearly 2 billion dollars per year.²¹ To deal with the high amount of injuries seen at the high school level, the Appropriate Medical Care for Secondary School-Aged Athletes Task Force (AMCSSAA) was developed in 2002 by the National Athletic Trainers' Association to ensure young athletes were receiving

adequate medical care while participating in practices and games.²² The task force is responsible for addressing concerns like emergency care, prevention, and activities of ongoing daily athletic health care in the secondary school setting.

One study examining ankle injuries among high school athletes found that approximately 326,396 ankles injuries occurred nationally in 2005-2006, yielding an injury rate of 5.23 ankle injuries per 10,000 athlete-exposures.²³ Researchers found that sports that require jumping and quick movements resulted in higher incidences of ankle injuries. While this study mainly focused on football, soccer, volleyball, basketball, wrestling, baseball, and softball, it can be concluded that any sport will require jumping and fast movements and therefore, injuries can occur while participating in any sport.

A certified Athletic Trainer who has been trained to handle athletic injuries should be a staple at all high schools. However, many schools that do not employ certified Athletic Trainers at their schools have to rely on others to care for athletes. This could be detrimental to athletes because not only are personnel like school nurses or coaches not educated to properly recognize and treat athletic injuries, they also do not possess the

knowledge to properly prevent injuries and later record information about them.

A study examining the assessment of high school coaches' knowledge of sports related concussions found that there is a need for educating coaches in all areas of sports related concussions, with particular emphasis placed on prevention and basic early management of sports related concussions.²⁴ Certified Athletic Trainers are thoroughly educated on early prevention of injuries, while coaches may only attend various workshops to learn basic first aid knowledge of sports injuries. It is also an important aspect of all medical professions to document injuries that have been reported and record what treatment is given. One study examined the possibility of relying on coaches as data reporters, which found that only 43% of enrolled coaches completed necessary documents on injuries, but all enrolled certified Athletic Trainers participated.²⁵ High schools should not have to rely on employees or outside volunteers who are not trained to properly handle athletic injury situations.

Massachusetts

With physical activity participation in Massachusetts at 63%, the need for certified Athletic Trainers is a concern.²⁶ There are 7,536,753 students in the United States participating in high school athletics, which represents 55.2% of all enrolled students.²⁷ With this large amount of students participating in athletic activities, injuries are inevitable and should be cared for by certified Athletic Trainers. Many high schools across the country, including those in the Commonwealth of Massachusetts, are not always able to benefit from the services of a certified Athletic Trainer. Two thirds of the nation's public school sports programs lack a full-time, certified Athletic Trainer.²⁸

Budgets

Budgetary problems are often the main cause of high schools throughout the country lacking a full-time Athletic Trainer. MetroWest Medical Center in Massachusetts provides certified Athletic Trainers at a discount to seven high schools who do not already employ a certified Athletic Trainer. Still, this program is limited in the amount of certified Athletic Trainers they can lend out to area high

schools, with many of their employees working extra-long hours to cover high school athletic events. A high school in Bellingham, Massachusetts left the program when they hired a full-time certified athletic trainer several years ago. However, returned when budget cuts forced them to let go of their certified Athletic Trainer this year. Many schools around the state and country are faced with the same problem of a lack of athletic budgets to fund the hiring of a certified Athletic Trainer. Budgetary problems plague high school programs, but just as coaches are employed to develop skills and implement strategies, certified Athletic Trainers are required to ensure safety of the athletes and optimize their participation.²⁹

While hiring a certified Athletic Trainer may pose an increased cost to a high school, having one on staff would be extremely beneficial. Many schools have compared the cost of treating their injured athletes at local clinics with treating them on-site under the supervision of an ATC. They have found that their certified Athletic Trainers are providing the equivalent to thousands of dollars of athletic training services per year to their athletes.^{30,31,32} These comparisons suggest that it is financially feasible and fiscally responsible to invest in employing a certified Athletic Trainer.

Health Care

Health care coverage has been a growing issue among Americans in the past few years. In 2000, 83% of people ages 18 or older had health care coverage in the United States.³³ Massachusetts is one of the few states that had a higher number of people 18 years or older with health care coverage at 92% in 2000. In 2006, Massachusetts introduced a healthcare reform effort to complement existing coverage programs.³⁴ The goal was to provide near-universal coverage of the Massachusetts population. For tax year 2008, over 95% of tax filers were insured for the full year while 96.4% were insured at some point during the year, according to the Massachusetts Department of Revenue. An estimate by the Division of Health Care Finance and Policy published in October 2009 showed that 2.7% of Massachusetts residents remain uninsured as of spring of 2009. Even though this number may be lower than the national average of uninsured Americans, everyone in the United States should be able to benefit from health care.

With the number of people in the United States still without health care, it becomes difficult to find ways to treat athletic injuries without paying too much to see a health care professional. Having certified Athletic Trainers in the high school setting allows adolescents to

be seen by a qualified health care professional without having to visit a hospital, clinic, or their personal physician, thus saving a co-pay or examination payment. In states with fewer certified Athletic Trainers, a greater share of injuries generally viewed as minor contusions, abrasions, and dislocations were likely sent to the emergency room than in states with more certified Athletic Trainers.³⁵ Having someone trained to know what requires minor medical attention on site or what kind of injury requires a 911 call can make all the difference.

Summary

The review of literature focuses on what athletic training is, certified Athletic Trainers in high schools, injuries at the high school level, and budgets and health care in the Commonwealth of Massachusetts. Certified Athletic Trainers are allied health professionals that are well educated in sports medicine health care. Certified Athletic Trainers become knowledgeable in a variety of areas such as assessment and evaluation, acute care, general medical conditions and disabilities, pathology of injury and illness, pharmacological aspects of injury and illness, nutritional aspects of injury and illness,

therapeutic exercise, therapeutic modalities, risk management and injury prevention, health care administration, professional development and responsibility, and psychosocial intervention and referral.³

There should be a certified Athletic Trainer available to student-athletes at all high schools across the country. Only one state in the country currently requires certified Athletic Trainers in every high school, but all student-athletes should be able to benefit from certified Athletic Trainers.

With the large amount of participation in athletics in the secondary school setting, injuries are an inevitable part of competition. Certified Athletic Trainers are skilled in providing health care to athletes and could help reduce and treat the injuries seen every year.

Like many states, Massachusetts has problems putting certified Athletic Trainers in every high school due to budget constraints. Many schools have low athletic budgets and cannot afford to hire certified Athletic Trainers.

Having a certified Athletic Trainer in a high school could help to reduce hospital visits because they can provide the appropriate care to student-athletes. While the initial hire of a certified Athletic trainer can cost a substantial amount for a high school, costs can be reduced in the long

run by providing athletic health care services free of charge on campus that were previously performed off campus and for a fee.^{30,31} Schools that currently employ certified athletic trainers have been able to show cost savings of as much as \$70,000-\$80,000/year to student-athletes and their families by providing on campus athletic training services. A certified Athletic Trainer is the most appropriate medical professional to have on staff at a high school to care for student-athletes.

Appendix B

The Problem

The Problem

Statement of the Problem

Every student-athlete should have an equal opportunity to benefit from proper athletic health care when they are faced with an injury. In order to better serve student-athletes, a certified Athletic Trainer should be employed at every high school across the country. Certified Athletic Trainers have extensive backgrounds in sports medicine techniques, are nationally certified, and can be a vital addition to any high school athletic department.

There are a significant number of adolescents that are participating in high school athletics and with that, there will inevitably be a high number of injuries. These injuries should not be left to an untrained individual. Certified Athletic Trainers are educated in providing initial injury assessment, first aid, rehabilitation, and can make return to play decisions. High schools should recognize the need for hiring medical personnel who can provide effective athletic health care for their student-athletes. The purpose of this study is to examine the factors influencing the availability of certified Athletic Trainers in high schools in Massachusetts.

Definition of Terms

The following terms have been identified for the purpose of this study:

1. Athletic health care- health care that is provided to athletes.
2. Certified athletic trainer- a sports medicine professional who collaborates with physicians to optimize patient and client activity and participation in athletics, work, and life.¹ These professionals have received a minimum of a bachelor's degree and passed a national examination.
3. School divisional classification- based on the amount of students where division IV is the smallest and division I is the largest.

Basic Assumptions

There are several basic assumptions the researcher will use during this study.

1. The subjects will respond honestly to the survey.
2. The survey will have content validity after being reviewed by the panel of experts.
3. There will be a high rate of return because Athletic Directors care about their school's athletic health care.

Limitations of the Study

The following are possible limitations of the study:

1. Only Massachusetts high school Athletic Directors are participating in the study.
2. Some subjects may not respond to the survey.
3. The results will be restricted based on the questions asked in the survey.

Significance of the Study

With the significant amount of high school student-athletes, injuries are bound to occur. Certified Athletic Trainers should be employed by every high school in order to provide effective athletic health care to these student-athletes. Factors such as school divisional classification (I, II, III, IV), athletic budgets, and the number of varsity sports at a high school may have an affect on whether or not a certified Athletic Trainer is present at a school.

Student-athletes deserve to have medical professionals who are thoroughly educated in providing effective athletic health care caring for them. High schools need to recognize the growing need for certified Athletic Trainers at the high school level. There is a high number of physically active individuals in the United States and high

school athletics should not be overlooked as an area in which sports medicine professionals such as certified Athletic Trainers should be hired. In Massachusetts like many other states, there are no laws requiring certified Athletic Trainers to work at every high school. By evaluating the factors which influence if a high school has a certified Athletic Trainer or not, it should help governing bodies improve laws and mandate certified Athletic Trainers be hired at every high school in Massachusetts.

Appendix C
Additional Methods

Appendix C1

Panel of Experts Letter

December 2010

Dear _____:

I am a graduate athletic training student at California University of Pennsylvania pursuing a Master of Science degree in athletic training. To fulfill the thesis requirement for this program, I am conducting a descriptive study. The objective of this study is to determine the factors that influence whether high schools have a certified athletic trainer or not.

In order to increase the content validity of the instrument, a panel of experts has been chosen to review the survey. You have been selected as one of the three professionals to be on this panel. Your feedback is vital to the success of this study. The information obtained by this panel of experts review will be used to make revisions and create the final survey to be distributed to the population sample. Your responses are voluntary and will be confidential.

Please answer the following questions based on the attached survey and make any other additional comments you deem appropriate. Please return your comments and revisions via email no later than _____. If you have any questions or concerns, please do not hesitate to contact me.

1. Are the questions appropriate, valid, and understandable? Please Explain.
2. Comment on the overall presentation of the survey.
3. Which questions, if any, should be restated from the survey? Why? What suggestions would you make?
4. Which questions, if any, should be added to the survey? Why? What suggestions would you make?

Thank you in advance for your time and efforts.
Sincerely,

Kathryn Annunziata, ATC
California University of Pennsylvania

Appendix C2

High School Certified Athletic Trainer Availability Survey

High School Certified Athletic Trainer Availability Survey

1. Is there a certified Athletic Trainer employed at your high school? Yes No

2. If your high school does not have a certified Athletic Trainer, what medical professional provides athletic health care to your student-athletes? Please check all that apply.

Physician	Nurse
Physician's Assistant	EMT
Coach	Physical Therapist
None	Other _____

3. How many certified Athletic Trainers work at your high school? _____

4. How long has your school employed a certified Athletic Trainer? _____

5. Is your certified Athletic Trainer full-time or part-time? Full-time Part-time

6. If you have more than one certified Athletic Trainer, identify the number of full-time and part-time certified Athletic Trainers. Full-time Part-time

7. Approximately, how many hours a week do your certified Athletic Trainer(s) work at your high school? _____

8. If your high school does not have a certified Athletic Trainer, please specify why not. Please check all that apply.
 - Not enough money in budget
 - Total number of varsity sports
 - No affiliation with a local clinic
 - Care provided by other personnel
 - No place to house a certified Athletic Trainer
 - Other _____

9. Are you satisfied with the number of medical personnel that provide athletic health care coverage to your student-athletes? Yes No
10. Is your high school public or private?
Public Private
11. What is the divisional classification of your high school?
I II III IV Other_____
12. How many varsity boys' sports does your high school have?

Please indicate which varsity boys' sports your high school has. Please check all that apply:

Baseball	Soccer
Basketball	Swimming/Diving
Field Hockey	Tennis
Football	Indoor Track
Golf	Outdoor Track
Gymnastics	Volleyball
Ice Hockey	Wrestling
Lacrosse	Other_____
Skiing	

13. How many varsity girls' sports does your high school have?

Please indicate which varsity girls' sports your high school has. Please check all that apply:

Basketball	Soccer
Field Hockey	Softball
Football	Swimming/Diving
Golf	Tennis
Gymnastics	Indoor Track
Ice Hockey	Outdoor Track
Lacrosse	Volleyball

Skiing

Wrestling

Other _____

14. Which of these varsity sports have a certified Athletic Trainer providing athletic health care coverage during practices? Please check all that apply.

Baseball	Softball
Boys Basketball	Boys Soccer
Girls Basketball	Girls Soccer
Boys Golf	Boys Swimming/Diving
Girls Golf	Girls Swimming/Diving
Boys Field Hockey	Boys Tennis
Girls Field Hockey	Girls Tennis
Football	Boys Indoor Track
Boys Gymnastics	Girls Indoor Track
Girls Gymnastics	Boys Outdoor Track
Boys Ice Hockey	Girls Outdoor Track
Girls Ice Hockey	Boys Wrestling
Boys Lacrosse	Girls Wrestling
Girls Lacrosse	Boys Volleyball
Boys Skiing	Girls Volleyball
Girls Skiing	Other _____
	None

15. Which of these varsity sports have a certified Athletic Trainer providing athletic health care coverage during games? Please check all that apply.

Baseball	Softball
Boys Basketball	Boys Soccer
Girls Basketball	Girls Soccer
Boys Golf	Boys Swimming/Diving
Girls Golf	Girls Swimming/Diving
Boys Field Hockey	Boys Tennis
Girls Field Hockey	Girls Tennis
Football	Boys Indoor Track
Boys Gymnastics	Girls Indoor Track
Girls Gymnastics	Boys Outdoor Track
Boys Ice Hockey	Girls Outdoor Track
Girls Ice Hockey	Boys Wrestling
Boys Lacrosse	Girls Wrestling
Girls Lacrosse	Boys Volleyball
Boys Skiing	Girls Volleyball

Girls Skiing

Other _____
None

16. What is the total athletic budget of your high school?

Please provide any additional comments:

Approved by the California University of Pennsylvania IRB

APPENDIX C3

Institutional Review Board
California University of Pennsylvania



California University
of Pennsylvania

Proposal Number

Date Received

PROTOCOL for Research Involving
Human Subjects

Institutional Review Board (IRB) approval is required before beginning any research and/or data collection involving human subjects

(Reference IRB Policies and Procedures for clarification)

Project Title The Availability of Certified Athletic Trainers in High Schools in Massachusetts

Researcher/Project Director Kathryn Annunziata

Phone # 2034441450 *E-mail Address* Ann2828@cupa.edu

Faculty Sponsor (if required) Dr. Carol Biddington

Department Health Science

Project Dates January 2011 to April 2011

Sponsoring Agent (if applicable) _____

Project to be Conducted at California University of Pennsylvania

Project Purpose: *Thesis* *Research* *Class Project* *Other*

Keep a copy of this form for your records.

Please attach a typed, detailed summary of your project AND complete items 2 through 6.

1. *Provide an overview of your project-proposal describing what you plan to do and how you will go about doing it. Include any hypothesis(es) or research questions that might be involved and explain how the information you gather will be analyzed. For a complete list of what should be included in your summary, please refer to Appendix B of the IRB Policies and Procedures Manual.*

The purpose of this study is to examine the factors influencing the availability of certified athletic trainers in high schools in Massachusetts.

The survey will be finalized after review by a panel of experts. The California University of Pennsylvania's Institutional Review Board for Protection of Human Subjects application (Appendix C3) will be sent for approval before the study will be conducted. A survey was created by the researcher and will be sent electronically to all high school athletic directors in Massachusetts. The researcher contacted the President of the Massachusetts Secondary Schools Athletic Directors Association (MSSADA) to distribute the survey to all Massachusetts high school athletic directors. Martha Jamieson, MSSADA President, granted Chris Aufiero, association secretary, permission to distribute the survey. The Cover Letter to Participants (Appendix C4) will be sent explaining the purpose of the study to the athletic directors and a link will also be provided to access the survey. The researcher will not have the email addresses of the athletic directors, therefore responses will be anonymous. The survey will be distributed following approval and the researcher will allow the athletic directors time to complete and return the survey.

Hypotheses:

These hypotheses were formed based on the literature review and the theories of the researcher.

H1: Having a certified athletic trainer will be dependent on the school's division classification (Division I, Division II, Division III, Division IV).

H2: High schools with a higher athletic budget will be more likely to employ a certified athletic trainer than high schools with a lower athletic budget.

H3: High schools with more varsity sports teams will be more likely to employ a certified athletic trainer than high schools with less varsity sports teams.

The level of significance will be set at 0.05.

H1: A 2 (Having a certified athletic trainer – yes/no) X 4 (School division classification- Div I, Div II, Div III, Div IV) Chi square test of independence will be used to determine if having a certified athletic trainer was dependent on a school's classification.

H2 and H3: A MANOVA test will be used to determine if high schools with higher athletic budgets will be more likely to employ a certified athletic trainer than high schools with lower athletic budgets and if high schools with more varsity sports teams will be more likely to employ a certified athletic trainer than high schools with less varsity sports teams.

2. *Section 46.11 of the Federal Regulations state that research proposals involving human subjects must satisfy certain requirements before the IRB can grant approval. You should describe in detail how the following requirements will be satisfied. Be sure to address each area separately.*
 - a. *How will you insure that any risks to subjects are minimized? If there are potential risks, describe what will be done to minimize these risks. If there are risks, describe why the risks to participants are reasonable in relation to the anticipated benefits.*

No research will be conducted until approval is granted by the IRB. There are also no risks involved with completion of survey questions.
 - b. *How will you insure that the selection of subjects is equitable? Take into account your purpose(s). Be sure you address research problems involving vulnerable populations such as children.*

Approved, September 12, 2005 / (updated 02-09-09)

3

prisoners, pregnant women, mentally disabled persons, and economically or educationally disadvantaged persons. If this is an in-class project describe how you will minimize the possibility that students will feel coerced.

The survey will be sent to all Massachusetts high school athletic directors of both public and private high schools using an email list from the Massachusetts Secondary School Athletic Directors Association (MSSADA).

- c. *How will you obtain informed consent from each participant or the subject's legally authorized representative and ensure that all consent forms are appropriately documented? Be sure to attach a copy of your consent form to the project summary.*

Informed consent is implied upon completing and returning the survey. Subjects have the right to choose not to participate in the study. This is stated in the cover letter accompanying the survey.

- d. *Show that the research plan makes provisions to monitor the data collected to insure the safety of all subjects. This includes the privacy of subjects' responses and provisions for maintaining the security and confidentiality of the data.*

This is an anonymous questionnaire and upon submission, neither the name of the subject nor email address will be attached to their answers. The information will be kept confidential. The data will be kept in a secure location where only the researcher and advisor will have access.

3. *Check the appropriate box(es) that describe the subjects you plan to use.*

<input checked="" type="checkbox"/> <i>Adult volunteers</i>	<input type="checkbox"/> <i>Mentally Disabled People</i>
<input type="checkbox"/> <i>CAL University Students</i>	<input type="checkbox"/> <i>Economically Disadvantaged People</i>
<input type="checkbox"/> <i>Other Students</i>	<input type="checkbox"/> <i>Educationally Disadvantaged People</i>
<input type="checkbox"/> <i>Prisoners</i>	<input type="checkbox"/> <i>Fetuses or fetal material</i>
<input type="checkbox"/> <i>Pregnant Women</i>	<input type="checkbox"/> <i>Children Under 18</i>
<input type="checkbox"/> <i>Physically Handicapped People</i>	<input type="checkbox"/> <i>Neonates</i>

4. *Is remuneration involved in your project?* *Yes* or *No. If yes, Explain here.*

5. *Is this project part of a grant?* *Yes* or *No. If yes, provide the following information:*

Title of the Grant Proposal _____

Name of the Funding Agency _____

Dates of the Project Period _____

6. *Does your project involve the debriefing of those who participated?* *Yes* or *No*

If Yes, explain the debriefing process here.

7. *If your project involves a questionnaire interview, ensure that it meets the requirements of Appendix ___ in the Policies and Procedures Manual.*

California University of Pennsylvania Institutional Review Board
Survey/Interview/Questionnaire Consent Checklist (v12/2005)

This form **MUST** accompany all IRB review requests

Does your research involve **ONLY** a survey, interview or questionnaire?

YES—Complete this form

NO—You **MUST** complete the "Informed Consent Checklist"—skip the remainder of this form

Does your survey/interview/questionnaire cover letter or explanatory statement include:

(1) Statement about the general nature of the survey and how the data will be used?

(2) Statement as to who the primary researcher is, including name, phone, and email address?

(3) **FOR ALL STUDENTS:** Is the faculty advisor's name and contact information provided?

(4) Statement that participation is voluntary?

(5) Statement that participation may be discontinued at any time without penalty and all data discarded?

(6) Statement that the results are confidential?

(7) Statement that results are anonymous?

(8) Statement as to level of risk anticipated or that minimal risk is anticipated? (NOTE: If more than minimal risk is anticipated, a full consent form is required—and the Informed Consent Checklist must be completed)

(9) Statement that returning the survey is an indication of consent to use the data?

(10) Who to contact regarding the project and how to contact this person?

(11) Statement as to where the results will be housed and how maintained? (unless otherwise approved by the IRB, must be a secure location on University premises)

(12) Is there text equivalent to: "Approved by the California University of Pennsylvania Institutional Review Board. This approval is effective *nn/nn/nn* and expires *mm/mm/mm*"? (the actual dates will be specified in the approval notice from the IRB)?

(13) **FOR ELECTRONIC/WEBSITE SURVEYS:** Does the text of the cover letter or explanatory statement appear before any data is requested from the participant?

(14) **FOR ELECTRONIC/WEBSITE SURVEYS:** Can the participant discontinue participation at any point in the process and all data is immediately discarded?

**California University of Pennsylvania Institutional Review Board
Informed Consent Checklist (v021209)**

This form **MUST** accompany all IRB review requests

Does your research involve **ONLY** a survey, interview, or questionnaire?

- YES**—DO NOT complete this form. You **MUST** complete the "Survey/Interview/Questionnaire Consent Checklist" instead.
- NO**—Complete the remainder of this form.

1. Introduction (check each)

- (1.1) Is there a statement that the study involves research?
- (1.2) Is there an explanation of the purpose of the research?

2. Is the participant. (check each)

- (2.1) Given an invitation to participate?
- (2.2) Told why he/she was selected.
- (2.3) Told the expected duration of the participation.
- (2.4) Informed that participation is voluntary?
- (2.5) Informed that all records are confidential?
- (2.6) Told that he/she may withdraw from the research at any time without penalty or loss of benefits?
- (2.7) 18 years of age or older? (if not, see Section #9, Special Considerations below)

3. Procedures (check each).

- (3.1) Are the procedures identified and explained?
- (3.2) Are the procedures that are being investigated clearly identified?
- (3.3) Are treatment conditions identified?

4. Risks and discomforts. (check each)

- (4.1) Are foreseeable risks or discomforts identified?
- (4.2) Is the likelihood of any risks or discomforts identified?
- (4.3) Is there a description of the steps that will be taken to minimize any risks or discomforts?
- (4.4) Is there an acknowledgement of potentially unforeseeable risks?
- (4.5) Is the participant informed about what treatment or follow up courses of action are available should there be some physical, emotional, or psychological harm?
- (4.6) Is there a description of the benefits, if any, to the participant or to others that may be reasonably expected from the research and an estimate of the likelihood of these benefits?
- (4.7) Is there a disclosure of any appropriate alternative procedures or courses of treatment that might be advantageous to the participant?

5. Records and documentation. (check each)

- (5.1) Is there a statement describing how records will be kept confidential?
- (5.2) Is there a statement as to where the records will be kept and that this is a secure location?
- (5.3) Is there a statement as to who will have access to the records?

6. For research involving more than minimal risk (check each),

- (6.1) Is there an explanation and description of any compensation and other medical or counseling treatments that are available if the participants are injured through participation?
- (6.2) Is there a statement where further information can be obtained regarding the treatments?
- (6.3) Is there information regarding who to contact in the event of research-related injury?

7. Contacts (check each)

- (7.1) Is the participant given a list of contacts for answers to questions about the research and the participant's rights?
- (7.2) Is the principal researcher identified with name and phone number and email address?
- (7.3) FOR ALL STUDENTS: Is the faculty advisor's name and contact information provided?

8. General Considerations (check each)

- (8.1) Is there a statement indicating that the participant is making a decision whether or not to participate, and that his/her signature indicates that he/she has decided to participate having read and discussed the information in the informed consent?
- (8.2) Are all technical terms fully explained to the participant?
- (8.3) Is the informed consent written at a level that the participant can understand?
- (8.4) Is there text equivalent to: "Approved by the California University of Pennsylvania Institutional Review Board. This approval is effective mm/nn/nn and expires mm/mm/nn" (the actual dates will be specified in the approval notice from the IRB)

9. Specific Considerations (check as appropriate)

- (9.1) If the participant is or may become pregnant is there a statement that the particular treatment or procedure may involve risks, foreseeable or currently unforeseeable, to the participant or to the embryo or fetus?
- (9.2) Is there a statement specifying the circumstances in which the participation may be terminated by the investigator without the participant's consent?
- (9.3) Are any costs to the participant clearly spelled out?
- (9.4) If the participant desires to withdraw from the research, are procedures for orderly termination spelled out?
- (9.5) Is there a statement that the Principal Investigator will inform the participant or any significant new findings developed during the research that may affect them and influence their willingness to continue participation?
- (9.6) Is the participant is less than 18 years of age? If so, a parent or guardian must sign the consent form and assent must be obtained from the child
 - Is the consent form written in such a manner that it is clear that the parent/guardian is giving permission for their child to participate?
 - Is a child assent form being used?
 - Does the assent form (if used) clearly indicate that the child can freely refuse to participate or discontinue participation at any time without penalty or coercion?
- (9.7) Are all consent and assent forms written at a level that the intended participant can understand? (generally, 8th grade level for adults, age-appropriate for children)

California University of Pennsylvania Institutional Review Board
Review Request Checklist (4-02-2009)

This form **MUST** accompany all IRB review requests.
 Unless otherwise specified, **ALL** items must be present in your review request.

Have you:

(1.0) FOR ALL STUDIES: Completed ALL items on the Review Request Form?

Pay particular attention to:

- (1.1) Names and email addresses of all investigators
 - (1.1.1) FOR ALL STUDENTS: use only your CalU email address)
 - (1.1.2) FOR ALL STUDENTS: Name and email address of your faculty research advisor
 - (1.2) Project dates (must be in the future—no studies will be approved which have already begun or scheduled to begin before final IRB approval—NO EXCEPTIONS)
 - (1.3) Answered completely and in detail, the questions in items 2a through 2d?
 - 2a: NOTE: No studies can have zero risk, the lowest risk is "minimal risk". If more than minimal risk is involved you MUST:
 - i. Define all anticipated risks in detail;
 - ii. Explain in detail how these risks will be minimized;
 - iii. Detail the procedures for dealing with adverse outcomes due to these risks.
 - iv. Cite peer reviewed references in support of your explanation.
 - 2b. Complete all items.
 - 2c. Describe informed consent procedures in detail.
 - 2d. NOTE: to maintain security and confidentiality of data, all study records must be housed in a secure (locked) location ON UNIVERSITY PREMISES. The actual location (department, office, etc.) must be specified in your explanation and be listed on any consent forms or cover letters.
 - (1.4) Checked all appropriate boxes in Section 3? If participants under the age of 18 years are to be included (regardless of what the study involves) you MUST:
 - (1.4.1) Obtain informed consent from the parent or guardian—consent forms must be written so that it is clear that the parent/guardian is giving permission for their child to participate.
 - (1.4.2) Document how you will obtain assent from the child—This must be done in an age-appropriate manner. Regardless of whether the parent/guardian has given permission, a child is completely free to refuse to participate, so the investigator must document how the child indicated agreement to participate ("assent").
 - (1.5) Included all grant information in section 5?
 - (1.6) Included ALL signatures?
- (2.0) FOR STUDIES INVOLVING MORE THAN JUST SURVEYS, INTERVIEWS, OR QUESTIONNAIRES:
- (2.1) Attached a copy of all consent form(s)?
 - (2.2) FOR STUDIES INVOLVING INDIVIDUALS LESS THAN 18 YEARS OF AGE: attached a copy of all assent forms (if such a form is used)?
 - (2.3) Completed and attached a copy of the Consent Form Checklist? (as appropriate—see that checklist for instructions)

- (3.0) FOR STUDIES INVOLVING ONLY SURVEYS, INTERVIEWS, OR QUESTIONNAIRES:
- (3.1) Attached a copy of the cover letter/information sheet?
 - (3.2) Completed and attached a copy of the Survey/Interview/Questionnaire Consent Checklist? (see that checklist for instructions)
 - (3.3) Attached a copy of the actual survey, interview, or questionnaire questions in their final form?
- (4.0) FOR ALL STUDENTS: Has your faculty research advisor:
- (4.1) Thoroughly reviewed and approved your study?
 - (4.2) Thoroughly reviewed and approved your IRB paperwork? including:
 - (4.2.1) Review request form,
 - (4.2.2) All consent forms, (if used)
 - (4.2.3) All assent forms (if used)
 - (4.2.4) All Survey/Interview/Questionnaire cover letters (if used)
 - (4.2.5) All checklists
 - (4.3) IMPORTANT NOTE: Your advisor's signature on the review request form indicates that they have thoroughly reviewed your proposal and verified that it meets all IRB and University requirements.
- (5.0) Have you retained a copy of all submitted documentation for your records?

Project Director's Certification
Program Involving HUMAN SUBJECTS

The proposed investigation involves the use of human subjects and I am submitting the complete application form and project description to the Institutional Review Board for Research Involving Human Subjects.

I understand that Institutional Review Board (IRB) approval is required before beginning any research and/or data collection involving human subjects. If the Board grants approval of this application, I agree to:

1. Abide by any conditions or changes in the project required by the Board.
2. Report to the Board any change in the research plan that affects the method of using human subjects before such change is instituted.
3. Report to the Board any problems that arise in connection with the use of human subjects.
4. Seek advice of the Board whenever I believe such advice is necessary or would be helpful.
5. Secure the informed, written consent of all human subjects participating in the project.
6. Cooperate with the Board in its effort to provide a continuing review after investigations have been initiated.

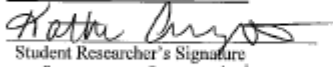
I have reviewed the Federal and State regulations concerning the use of human subjects in research and training programs and the guidelines. I agree to abide by the regulations and guidelines aforementioned and will adhere to policies and procedures described in my application. I understand that changes to the research must be approved by the IRB before they are implemented.

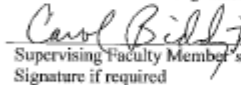
Professional Research

Project Director's Signature

Department Chairperson's Signature

Student or Class Research


Student Researcher's Signature


Supervising Faculty Member's
Signature if required


Department Chairperson's Signature

ACTION OF REVIEW BOARD (IRB use only)

The Institutional Review Board for Research Involving Human Subjects has reviewed this application to ascertain whether or not the proposed project:

1. provides adequate safeguards of the rights and welfare of human subjects involved in the investigations;
2. uses appropriate methods to obtain informed, written consent;
3. indicates that the potential benefits of the investigation substantially outweigh the risk involved.
4. provides adequate debriefing of human participants.
5. provides adequate follow-up services to participants who may have incurred physical, mental, or emotional harm.

Approved [_____]

Disapproved

Chairperson, Institutional Review Board

Date

Approved, September 12, 2005 / (updated 02-09-09)

IRB 10-034 approval
instreviewboard
Sent: Thursday, February 03, 2011 3:07 PM
To: ANN2828 - ANNUNZIATA, KATHRYN NICOLE
Cc: Biddington, Carol; Skwarecki, Robert

**Institutional Review Board
California University of Pennsylvania
Psychology Department LRC, Room 310
250 University Avenue
California, PA 15419
instreviewboard@cup.edu
instreviewboard@calu.edu
Robert Skwarecki, Ph.D., CCC-SLP, Chair**

Ms. Annunziata ,

Please consider this email as official notification that your proposal titled "The Availability of Certified Athletic Trainers in High Schools in Massachusetts" (Proposal #10-034) has been approved by the California University of Pennsylvania Institutional Review Board as submitted.

The effective date of the approval is 02-03-2011 and the expiration date is 02-02-2012. These dates must appear on the consent form. Please note that Federal Policy requires that you notify the IRB promptly regarding any of the following:

- (1) Any additions or changes in procedures you might wish for your study (additions or changes must be approved by the IRB before they are implemented)**
- (2) Any events that affect the safety or well-being of subjects**
- (3) Any modifications of your study or other responses that are necessitated by any events reported in (2).**

- (4) To continue your research beyond the approval expiration date of 02-02-2012 you must file additional information to be considered for continuing review. Please contact instreviewboard@calu.edu**

Please notify the Board when data collection is complete.

Regards,

**Robert Skwarecki, Ph.D., CCC-SLP
Chair, Institutional Review Board**

APPENDIX C4

Cover Letter to Participants

Dear Participants:

I am a master's degree candidate at California University of Pennsylvania, requesting your help to complete part of my degree requirements. There is a high number of student-athletes at the secondary school setting participating in athletics and there needs to be a medical professional readily available to them who is properly educated in caring for athletic injuries. Certified Athletic Trainers are trained to recognize and treat injuries sustained in the athletic setting. The results of this study (not including individual information) may be published in medical journals to inform the medical community of the factors that influence whether high schools in Massachusetts employ a certified Athletic Trainer. Massachusetts high school Athletic Directors have been chosen as the subjects for this study because the researcher feels they can accurately provide information about their school's athletic health care coverage. Please follow the link at the end of this letter to an online survey titled: High School Certified Athletic Trainer Availability Survey.

The questionnaire consists of 16 questions, which will take about 10 minutes to complete. Due to this being a survey there is minimal risk involved as confidentiality will be maintained.

All Massachusetts high school Athletic Directors are being asked to complete this questionnaire, although you do have the right to choose not to participate or to discontinue participation at any time. If the participant chooses to discontinue the survey (by clicking the EXIT THIS SURVEY button on the top of the webpage) then all information will be discarded. The California University of Pennsylvania Institutional Review Board has approved this study for the Protection of Human Subjects. This approval is effective MM/DD/YEAR and expires MM/DD/YEAR.

This is an anonymous questionnaire and upon submission, neither your name nor email address will be attached to your answers. Your information will be kept strictly confidential and it will only be accessible to the researcher. All survey information will be stored on a password protected online database that only the researcher will have access to. Upon completion of the study all

individual survey results will be deleted. By completion of the survey, you are giving the researcher consent to use the results of your survey in the study.

As a Massachusetts high school Athletic Director, your information and opinions regarding this topic makes your input invaluable. Please take a few minutes to fill out the anonymous questionnaire you will find by clicking on this link:

LINK

If you have any concerns or questions please feel free to contact me through email at Ann2828@calu.edu or by phone at (203)444-1450. Thank you for your time and consideration.

Sincerely,

Kathryn Annunziata, ATC

California University of Pennsylvania

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California, PA 15419

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(203)444-1450

Carol Biddington, EdD

Faculty Advisor

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Biddington@calu.edu

724-938-4356

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ABSTRACT

TITLE: THE AVAILABILITY OF CERTIFIED ATHLETIC TRAINERS IN HIGH SCHOOLS IN MASSACHUSETTS

RESEARCHER: Kathryn Annunziata, ATC

ADVISOR: Dr. Carol Biddington

PURPOSE: To determine the number of certified Athletic Trainers working at the secondary school level in Massachusetts.

METHODS: Massachusetts high school athletic directors (N=44) were surveyed using www.surveymonkey.com. The survey consisted of 16 questions regarding certified Athletic Trainers and athletic health care availability to student-athletes in Massachusetts high schools.

FINDINGS: Division I high schools were more likely to employ a certified Athletic Trainer than divisions II, III, or IV schools. High schools with more varsity boys' and girls' sports teams were more likely to have a certified Athletic Trainer than schools with less sports teams. Schools that indicated larger athletic budgets were more likely to have a certified Athletic Trainer than schools with less financial means. Also, the likelihood of certified Athletic Trainer employment significantly improved with more girls' varsity sports. Finally, a majority (54.1%) of hired certified Athletic Trainers were part-time.

CONCLUSION: After review of the results, it is concluded that 56.8% of high schools in Massachusetts have certified Athletic trainers available to their student-athletes. Schools of all sizes have begun to recognize the need for certified Athletic Trainers at the secondary school level. Many Athletic Directors (54.5%) at high schools in Massachusetts are satisfied with the athletic health care provided to their student-athletes.