

The Status of Certified Athletic Trainers and Athletic Training Protocols in Mississippi

Public High Schools

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Abstract:

An estimated 7.2 million students participated in high school athletics in 2005-2006. Injuries in practice or games accrued at a rate of 2.4 injuries per 1,000 athlete exposures. These statistics point to the need for available certified athletic trainers in the nation's high schools. A study was undertaken to determine the status of certified athletic training personnel and procedures in Mississippi public high school. A total of 102 MHSAA member schools participated in the study. Results of the study indicate that many high school in the state do not have certified athletic training personnel available for games, with the deficiency being even more pronounced at practices. Also, important safety equipment is not available on site on a consistent basis. Study outcomes can be utilized to determine areas of deficiency and how best to address them in order to protect high school student athletes.

Introduction:

Participation in high school sports has grown exponentially as the physical and social benefits of such activities have been reinforced by empirical data (Conn, Annett and Gilchrist, 2003). An estimated 7.2 million students participated in high school athletics in 2005-2006, compared to 4 million in 1971-72 (National Federation of State High School Associations, 2006). As participation in sports increases, so too does the risk of athletic related injuries. Results from a Centers for Disease Control and Prevention survey show that 37% of athletes reported seeking medical treatment as a result of their participation in high school sports (Kann, Kinchen, Williams, et al., 2000).

Athletes' needs for primary medical care have traditionally been met by athletic trainers. While trainers are typically present at most athletic events, evidence suggests that they may be underrepresented at many high school sports activities. The National Collegiate Athletic Association (2003) reported participation in institution sponsored athletic events by approximately 372,000 student athletes. Approximately 16% of members of the National Athletic Trainers Association are employed full time by colleges and universities. Another 16% are employed full time at the high school level (NATA, 2001). Given the disparity in numbers of participants, it is apparent that high school sports may be underserved in terms of access to athletic training personnel and services

Review of Literature

The need for athletic trainers has been established in numerous injury surveillance studies (Claiborne, Hou and Cappaert, 2007). Research from one study of U.S. high schools (Comstock, Knox, Yard and Gilchrist, 2006) showed that participation in high school athletics resulted in an estimated 1.4 million injuries, which is a rate of 2.4 injuries

per 1,000 athlete exposures. The study showed that the highest rates of injury occurred in football, followed by wrestling, boys soccer, girls soccer and girls basketball. In each of the sports, the injury rate was higher during competition as compared to practice, although actual numbers of injuries were similar in both settings.

Claiborne, Hou and Cappaert (2007) examined sports injuries over a three year period in the Toledo, OH area. Results of the study indicated once again that football had the highest rates of injury, this time followed by boys' basketball, girls' basketball and wrestling. While most injuries in this study were sprains (32.2%) and strains (18.5%), the potential for serious injury was also demonstrated by the fact that 60% of the injured athletes were referred to a physician for follow up care with almost a quarter of those referred (24.8%) receiving further referral to a specialist.

The prevalence of injuries sustained by high school athletes points to the need for certified athletic training personnel in our nation's secondary schools. However, it is not a given that such professionals are available to care for high school sports participants. Aukerman, Aukerman and Browning (2006) found that only about half of high schools in North Carolina employed certified sports medicine personnel such as athletic trainers (ATC). The remainder of schools utilized unlicensed personnel such as teachers and coaches to provide sports medicine care. Bell, Prendergast, Schlichting, Mackey and Mackey, (2005) surveyed 724 Illinois High School Athletic Association (ISHA) sanctioned schools and found that 73% reported having an athletic trainer. However, no medical care providers were available during practice sessions at 34% of the schools surveyed. Availability of certified trainers also varied significantly according to school size and location, with smaller and rural schools being significantly ($p < .0001$) less likely

to have a trainer available than larger and suburban schools. This may have implications for states having a larger number of rural and/or smaller high schools that participate in school sponsored sports.

The purpose of this study was to examine the availability, training and resources for athletic training services in schools belonging to the Mississippi High School Activities Association (MHSAA).

METHODS:

Subjects:

Participants chosen for this study were 235 Mississippi high schools listed as members of the Mississippi High School Activities Association (MHSAA). Each of the schools invited to participate in the study maintained an organized football program. Football was selected as a dependent factor due to the high risk for injury nature of the sport. It is very important that an athletic trainer be on staff at practices and games for emergency purposes.

Instrument:

A 3-page questionnaire was administered to the high schools. The questionnaire assessed the following: number of sports at each school, the availability of athletic trainers at the schools, emergency resource information (such as first aid, CPR training, and emergency equipment), injury equipment available, and the athletic program budget. The questionnaire consisted of 19 “yes” or “no” and fill-in-the blank answers.

A pilot study was conducted at local high schools to assess the readability of the survey items. Several items were identified as needing revision and were reworded so that the participants could understand the material and answer questions precisely.

Procedure:

The researchers followed Mississippi State University Office of Regulatory Compliance approved procedures for this study. During January 2007 the athletic director or head football coach at each high school was mailed a cover letter explaining the intent of the study and confidential nature of their responses, a 3-page questionnaire, and a self-addressed stamped return envelope. One month later, a follow up mailing was sent to the non-respondents, including another cover letter urging for the athletic director or head football coach to respond, another copy of the survey, and another self-addressed stamped envelope. Surveys returned as undeliverable were excluded from the study.

Data Analysis:

Responses from the surveys were analyzed by using the SPSS 14.0 software. For purposes of this study, the SPSS frequency procedure was used to calculate percentages of the overall survey responses.

Results:

A total of 235 high schools were invited to participate in this study. Of the 235 surveys mailed, 102 completed surveys were received in a response rate of 43.9%.

The number of team sports offered by schools participating in the study varied considerably, ranging from a low of 4 to a high of 32 sports. The average number of

sports offered by Mississippi High School Athletic Association member institutions included in this study was 10.9.

Table 1
Availability of a Certified Athletic Trainer at Each High School

Category	Yes%
Full Time Certified Athletic Trainer	6.9
Part Time Certified Athletic Trainer	15.3
Certified Athletic Trainer Employed by Clinic	76.2

Table 1 describes the availability of a certified athletic trainer at each high school that responded to the survey. Only 6.9% of high schools reported having a full-time athletic trainer on staff. Only 15.3% of high schools have a part-time athletic trainer on staff, and 76.2% have an athletic trainer, employed by a hospital or physical therapy clinic, who reports to the high schools on a regular basis.

Table 2.
Coverage of Sports by a Certified Athletic Trainer

Category	Yes%
Full Time Coverage of Sports	15.7
Afternoon Coverage Only of Sports	27.5
Game Coverage Only	65.7

While most high schools in the study (65.7%) reported having a certified athletic trainer available at games, very few of the schools (15.7%) had full time coverage of school sponsored sports. Given that research (Comstock, Knox, Yard and Gilchrist, 2006) has indicated that actual numbers of injuries in high school sports are similar in practice and game settings, the variance in athletic trainer availability shown in Table 2 could be problematic.

Table 3.
CPR Training of School Staff

Category	Yes%
CPR Training Required of A.T. Staff	46.1
CPR Training Required of Administrator	32.4
CPR Training Required of All Coaches	79.4

Given that high school sport activities are not routinely staffed by certified athletic trainers, it is imperative that other school staff present at these activities be able to handle emergencies. Table 3 describes the individuals who are required to have CPR training among the athletic and other school staff. Respondents indicated that 46.1% of the athletic trainers are required to have CPR training, 32.4% of the athletic administrators are required to have CPR training, and 79.4% of the coaches are required to have CPR training.

Table 4.
First Aid Training

Category	Yes%
First Aid Training Required of Athletic Trainer	49.5
First Aid Training Required of Administrator	35.6
First Aid Training Required of All Coaches	78.2

Aside from potentially having to perform Cardio Pulmonary Resuscitation (CPR), it is reasonable to expect that athletic trainers or other school personnel present at athletic events might have to perform basic first aid on players and/or fans. It is a given that certified athletic trainers have the requisite skills to perform basic first aid, however, results shown in Table 4 show indicate that relatively few (35.6%) athletic administrators are required to have first aid training. A larger percentage, (78.2%), of all the coaches are required to have first aid training.

Table 5.
Emergency Equipment Available at High School Games/Practices

Category	Yes%
AED	25.5
Long Spine Board	27.5
Hard Neck Collar	34.3
Face Mask Removal Equipment	61.8
Resuscitation Mask	27.5
Crutches	71.6
Blood Pressure Cuff	27.5
Latex Gloves	87.3
First Aid Kit	100

Data presented in Table 5 describe the availability of emergency equipment in the Mississippi high schools. Results indicate that many high schools in Mississippi lack sufficient emergency equipment to handle potentially serious injury situations. Approximately 25.5% of the high schools in the state have an Automated External Defibrillator (AED), a portable electronic device that diagnoses and treats signs of cardiac arrhythmias by applying electrical therapy that allows the heart to re-establish an effective rhythm. Approximately 27.5% of the high schools have a long spine board, 34.3% have a hard neck collar, 61.8% of the schools have face mask removal equipment, 27.5% have a resuscitation mask, 71.6% have crutches, 27.5% have a blood pressure cuff, 87.3% have latex gloves, and 100% have a first aid kit.

Table 6
Accident Reports

Category	Yes%
Accident Reports Filled Out By Coaches	89.2
Accident Reports Filled Out By Athletic Trainer	27.5
Accident Reports Filled Out By Administrator	36.3
Accident Reports Filled Out By Other	13.7

Table 6 states that nearly 90% of the coaches are responsible for filling out the accident reports, while, only 27.5% of the athletic trainers in Mississippi are required to file these reports. In addition, 36.3% of the athletic administrators are responsible for filling out the accidents reports, whereas, some other individual (13.7%) is required to fill out the reports.

Table 7
Returning to Sport

Category	Yes%
Determined By Athletic Trainer	70.1
Determined By Coaches/Other personnel	29.9

Table 7 indicates which individual determines when the injured athlete returns to his/her sport. In 70.1% of the cases, the athletic trainer determines when the athlete returns to their sport. Approximately 29.9% of the coaches in Mississippi determine when their athletes return to the sport. In some cases, “other” school personnel made the determination of readiness to resume participation. Some respondents listed such personnel as school nurses and administrators as fulfilling this responsibilities

Table 8
Injury Equipment

Category	Yes%
Ice Machine	96.1
Refrigerator	80.4
Sink/Hand Washing Area	97.1
Whirlpools	50.0
Heat Packs	60.8
Treatment/Taping Tables	90.2
Storage Cabinets	94.1

The data from Table 8 list the basic injury management equipment listed by the study participants. Data indicate that the study participants maintain adequate supplies to treat the basic injuries that the majority of the athletes may receive.

Other Selected Findings

- 62.4% of the coaches or teachers in the Mississippi high schools (that responded) provide medical services to injured athletes.
- 74.2% of the Mississippi high schools that responded had some type of emergency medical action plan.
- 83% of the high school that responded had a specific protocol for an injured athlete to be referred to the doctor.
- 93.1% of the high schools that responded required the injured athlete to have a written medical release from a doctor before returning to his/her sport.
- 55.4% of the high schools had a functional athletic training room at their school.
- 75.2% of the high schools had a booster club that provided money for the teams for improvements.

Discussion

A total of 102 member institutions of the Mississippi High School Athletics Association (MHSAA) responded to this survey concerning athletic training personnel and practices. Results of the study indicate that there are an insufficient number of certified athletic training personnel available. Most certified trainers who are made available are offered through the auspices of a local hospital or sports medicine clinic. While this commitment is admirable, it makes available most personnel for game

competitions only and not for practice sessions in most sports. Given the evidence provided earlier in this manuscript that actual numbers of injuries are similar in both practice and game settings it is apparent that a need exists for full time certified trainers employed by the high schools, thus increasing availability to student athletes. This is important not only due to the acute risk of injury during practices as well as games but also for the long term rehabilitative programs that may be required. High school athletes may also benefit from the presence of a certified trainer in terms of preventive programs that could augment strength and conditioning and other proactive efforts to avoid injury.

Potential problems were also noted in the area of emergency equipment availability. All schools reported having a first aid kit on location, and other basic care necessities (ice machine, treatment tables, etc) were typically available, however numerous other forms of basic equipment were available much less often. Potentially life threatening injuries such as those involving spinal or neck trauma cannot be adequately addressed, even by certified personnel, without the presence of neck collars and spine boards. Such equipment represents a relatively minor financial investment and one that schools should perhaps be mandated to make. Other emergency equipment, such as Automatic External Defibrillators (AED) may be cost prohibitive for individual schools but could be made available, at least in game settings, by sponsoring hospitals or sports medicine clinics.

Another note of caution should be raised by survey results that indicated that coaches or other school personnel determined the appropriate time for injured athletes' to return to participation at approximately 30% of schools. Perhaps a team approach to

making this determination is warranted, however, the certified athletic trainer would logically seem to be an appropriate member of this team in all cases.

Results of this study provide insights into athletic training personnel and practices at Mississippi public high schools. This information should be used to consider the development of new policies and procedures that may further enhance the safety of adolescent student athletes.

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