# Legislative Budget and Finance Committee

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## Implementation of the PA Safety in Youth Sports Act

Conducted Pursuant to
HR 2014-1064

December 2015

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# Summary and Recommendations

House Resolution 2014-1064 calls on the Legislative Budget and Finance Committee to assess compliance with the Safety in Youth Sports Act (Act 2011-101), determine the best practices for managing concussions and traumatic brain injuries, and make recommendations on provisions of the act that should be strengthened to be more effective.

We found:

***Between 2001 and 2012, the number of emergency room visits for sports- and recreation-related traumatic brain injury increased by 144 percent for children between the ages of 10 to 19.*** Between 2001 and 2012, the number of emergency room visits for sports- and recreation-related traumatic brain injury increased from 54,143 to 128,672 for children aged 10-14 and from 45,886 to 115,650 for children aged 15-19. These include both school and non-school related injuries. The increase is largely attributed to a greater awareness of the seriousness of brain injuries rather than a significant increase in the actual number of such injuries.

***In organized sports, concussions occur most often in football, which nationwide had 64,322 reported emergency room visits for traumatic brain injuries in 2013.*** Football had 2.4 times the number of concussions than men's basketball, the next highest sport. Concussions also occur fairly frequently in baseball, men's and women's soccer, and women's basketball.

***Pennsylvania did not experience any high school deaths due to traumatic brain injuries in recent years, but nationwide 14 such deaths have occurred between 2010 and 2014.*** There were 17 total direct deaths due to football (i.e., excluding deaths caused by exertion or by a complication that was secondary to a non-fatal injury) nationwide during 2010-2014; thus, traumatic brain injuries accounted for 82 percent of these direct deaths.

***Pennsylvania's Safety in Youth Sports Act contains many of the key provisions recommended as best practices when states first began enacting such legislation in 2009.*** The state of Washington was the first state to enact a concussion-related sports law. Other states, including Pennsylvania, quickly followed, and by early 2013, 47 states had enacted such legislation. The three key features of such legislation, all of which are contained in Pennsylvania's Safety in Youth Sports Act, are:

- *Education.* Coaches, athletes, and parents are to be educated about concussions through training and/or a concussion information sheet.

- *Removal From Play.* An athlete who is believed to have a concussion is to be removed from play immediately.
- *Permission to Return to Play.* An athlete can only return to play or practice with permission from a health care professional.

***Current best practices call for a graduated Return to Play (RTP) protocol.*** Some states include a graduated RTP protocol in their concussion statutes, but most states, including Pennsylvania, do not have such a requirement. The New York Department of Education has taken this approach a step further and has developed Return to School protocols in its recommended guidelines.[1] The Centers for Disease Control and Prevention (CDC) has also highlighted the importance of managing the return to learning (not just athletics), and recommends special support for concussed students and concussion management teams to monitor such students for changes in behavior or increased problems with school work.

***Schools appear to have achieved a high level of compliance with the Pennsylvania Safety in Youth Sports Act (SYSA).*** It was not practical for us to review school files (e.g., to determine whether schools had signed brain injury information sheets or that coaches had completed the required annual concussion training) or to attend sporting events to assess whether athletes who exhibit signs of a concussion are removed from play and not allowed to return until receiving medical permission. Instead, we surveyed school athletic directors and school athletic trainers to obtain their assessment of the level of compliance with the Safety in Youth Sports Act. Key findings include:

- *Education of students and parents.* The Pennsylvania Interscholastic Athletic Association (PIAA) requires all students and parents of students who participate in a PIAA sanctioned sport sign a statement that they have read the PIAA's concussion and traumatic brain injury information sheet. This is also a requirement in the SYSA. Our survey of school athletic directors found that 89 percent of athletic directors indicated that they do require students and parents to sign and return to the school a concussion and traumatic brain injury information sheet prior to participating in an athlete activity.
- *Coach concussion training.* Ninety-eight percent of school athletic directors reported that all of their coaches complete a concussion management certification course each year, a requirement of the SYSA.
- *Removal from Play.* All (100 percent) school athletic directors reported that all of their coaches know that any student suspected of a concussion

[1] Pennsylvania's BrainSTEPS program, a collaborative effort between the PA Department of Health, PA Department of Education, and the Brain Injury Association of Pennsylvania, has also developed a Return to Learn protocol called *Returning to School After Concussion: Recommended Protocol*.

must be immediately removed from play or practice. School athletic trainers were more divided, with 59 percent agreeing that coaches immediately remove from play any student suspected of a concussion and 42 percent responding "generally yes, but not always."

- *Return to Play.* Ninety-nine percent of school athletic directors reported that all of their coaches know that any student suspected of a concussion cannot return to play until evaluated and cleared to return to play by an appropriate medical professional. School athletic trainers generally concurred, with 85 percent indicating the coaches they work with do not allow a student suspected of having a concussion to return to play until evaluated and cleared by a medical professional. The remaining 15 percent of athletic trainers responded "generally yes, but not always."

***Athletic trainers and brain injury advocates made several suggestions for strengthening Pennsylvania's Safety in Youth Sports statute.*** Several athletic trainers expressed concern that the Safety in Youth Sports Act does not cover organized sports outside the school setting (e.g., pee-wee football and community-sponsored soccer and basketball leagues) and that school districts should be required to hire at least one full-time athletic trainer (or other appropriate medical professional) for each high school. The Brain Injury Coalition would like to see the Safety in Youth Sports Act be amended to include a required graduated Return to Play, and possibly a mandated Return to Learn policy, as well as more specific record-keeping and reporting requirements.

## Recommendations

Pennsylvania's Safety in Youth Sports Act, passed in November 2011, is only four years old and contains all the key provisions regarding coach, parent, and student education; removal from play; and return to play recommended by the Centers for Disease Control and Prevention. Moreover, the school athletic directors and, to a somewhat lesser extent, the school athletic trainers we surveyed, generally reported that the statute has been successful. For these reasons, we found no compelling reason to recommend changes to Pennsylvania's current Safety in Youth Sports Act.

Nevertheless, concerns remain that concussions are still not taken as seriously as they should be. These concerns appear supported by the response from 42 percent of school athletic trainers that coaches "generally, but not always" remove students suspected of a concussion from play. We, therefore, recommend that the Pennsylvania Department of Education develop additional guidelines and recommended practices for schools to follow with regard to identifying, assessing and managing student athletes suspected of having sustained a concussion. In particular, we recommend PDE consider the guidelines developed by the New York Department of Education (*Guidelines for Concussion Management in the School Setting*) as

a possible model. The New York guidelines "strongly advise" local school boards to develop written concussion management policies that require:

- school adopt safety and preventative strategies;
- students displaying symptoms of a concussion be accompanied to the school nurse;
- progressive steps to be taken as part of a return to school (not just return to play), including making accommodations for missed tests and assignments;
- coordinated communication plan among appropriate staff;
- policies and procedures be put in place related to transitioning students back to school, including that students be monitored by district staff daily following each progressive challenge, physical or cognitive, for any return of signs and symptoms of concussion;
- school medical directors (or the school nurse or certified athletic trainer) to review all medical providers' written clearance for students to begin graduated physical activity; and
- periodic review of the school's concussion management policy.

The guidelines also outline the duties, responsibilities, and expectations of all key persons involved in concussion prevention and management, including students, parents, private medical providers, school administrators, classroom teachers, physical education teachers, school nurses, athletic trainers, and school athletic directors and coaches.

# I. Introduction

House Resolution 2014-1064 directs the Legislative Budget and Finance Committee to review the Commonwealth's program of providing intervention for young athletes who sustain a brain injury, as required under the Safety in Youth Sports Act, Act 2011-101. (Please see Appendix A for a copy of the resolution.) The resolution directed the Committee to issue a report of its findings and recommendations within 12 months of the adoption of the resolution.

## Scope and Objectives Statement

1. To determine best practices for managing concussions and traumatic brain injuries in sports.
2. To identify the extent of compliance with the current law and reasons for noncompliance.
3. To recommend areas of the act that should be strengthened to be more effective.
4. To provide a review of similar laws in other states.
5. To determine the overall effectiveness of the Safety in Youth Sports Act in achieving the goals of protecting public health and safety and promoting safe sports for youth in Pennsylvania.

## Methodology

To determine best practices for managing concussions and traumatic brain injuries in youth sports, we examined pertinent scholarly and medical literature. This included, for example, research on cultural norms in youth sports, national surveillance studies, and data from the Centers for Disease Control and Prevention (CDC).

To identify the extent of compliance with the current law and reasons for non-compliance, we reviewed Department of Health and Department of Education websites for the materials they are required to develop and post and administered a survey via Survey Monkey. The survey queried athletic directors and athletic trainers across Pennsylvania on their experiences and insights on the extent to which the provisions of the Safety in Youth Sports Act are being implemented. The results were analyzed and summarized in this report. We did not attempt to assess compliance through a direct review of school files or by attending school sports games or practices.

To recommend areas of the act that should be strengthened to be more effective, we conducted a comparative analysis of similar laws in other states, reviewed

articles on barriers to concussive symptom reporting, analyzed the current international consensus view of sports concussions, and considered the extent to which compliance appears to be occurring with the current state law.

To provide a review of similar laws in other states, we conducted an assessment of their various statutes and rules. For example, we reviewed information from websites of other states, the National Conference of State Legislatures, and made follow-up phone calls, in some cases, to clarify information provided to us.

To determine the overall effectiveness of the Safety in Youth Sports Act in achieving the goals of protecting public health and safety and promoting safe sports for youth in Pennsylvania, we contacted the Pennsylvania Departments of Health and Education and the Centers for Disease Control and Prevention to obtain sports related traumatic brain injury data and statistics. We also met with the Pennsylvania Brain Injury Coalition, the Pennsylvania Athletic Trainers' Society, and conducted surveys of Pennsylvania school athletic directors and school athletic trainers.

## Acknowledgements

LB&FC staff gratefully acknowledges the cooperation and assistance provided by, among others, the Pennsylvania Department of Health, Pennsylvania Department of Education, Pennsylvania State Athletic Directors Association, Pennsylvania Athletic Trainers' Society, Pennsylvania Interscholastic Athletic Association, and the Pennsylvania Brain Injury Coalition.

## Important Note

*This report was developed by Legislative Budget and Finance Committee staff. The release of this report should not be construed as indicating that the Committee's members endorse all the report's findings and recommendations.*

*Any questions or comments regarding the contents of this report should be directed to Philip R. Durgin, Executive Director, Legislative Budget and Finance Committee, P.O. Box 8737, Harrisburg, Pennsylvania 17105-8737.*

# II. Background Information

Mild traumatic brain injury, or concussion, among youth athletes is a serious public health concern in the United States. Concussions are one of the most commonly reported injuries in children and adolescents who participate in sports and recreational activities. The Centers for Disease Control and Prevention (CDC) estimates that as many as 3.9 million sports-related and recreation-related concussions occur in the United States each year.

The published literature is replete with definitions of concussions which are used inconsistently. In the United States, "mild traumatic brain injury" and "concussion" are often used interchangeably. This presented a challenge for comparing the findings of multiple studies on the subject. For our purposes, we have used the following definition:

"A concussion is [a] type of traumatic brain injury that interferes with normal function of the brain. It occurs when the brain is rocked back and forth or twisted inside the skull as a result of a blow to the head or body."[1]

Usually the blow results in the rapid realization of short-term impairment of neurological function that resolves on its own, but in some cases can result in permanent injury or even death. Symptoms and signs may also materialize over minutes, hours, or days. Symptoms may also evolve over time. Most concussions in athletic competition occur without a loss of consciousness.

## Effect of Traumatic Brain Injury on Youth Athletes

The scientific understanding of sports-related concussion has advanced markedly over time. What participants and enthusiasts once considered simply getting one's "bell rung," concussion or mild traumatic brain injury is now known to possibly result in short- or long-term changes in how the brain performs, or may even cause death.

Sustaining a blow to the head (or body which causes the brain to violently rotate within the skull) can damage brain tissue and set off a cascade of molecular events that disrupt the normal function of brain cells. One such event is a change in brain glucose metabolism and blood flow, which has been shown to be an important biomarker of concussion.

[1] National Federation of State High School Associations. (2011). *Suggested Guidelines for Management of Concussion in Sports*. Indianapolis: National Federation of State High School Associations.

In adults with mild, moderate, and severe traumatic brain injury, 28 percent to 69 percent exhibited pituitary dysfunction between three months and 23 years post injury. The pituitary gland manufactures hormones vital for procreative, intellectual, communal, and emotional maturation.[2]

A concussion interferes with the normal functioning of the brain, causing various signs and symptoms to present from one to seven days. Signs and symptoms usually fall into four categories: physical, cognitive, emotional, and sleep. Specific signs observed by others could include: an inability to recall events before or after the injury, loss of consciousness, confusion about what to do, forgetting plays, appearing dazed or stunned, being slow to answer questions, clumsiness, behavior or personality changes, and being unsure of their opponent.

Particular symptoms may include: headache, nausea, confusion, concentration/memory problems, feeling hazy or sleepy, sluggishness, double vision, balance problems, and sensitivity to light. The most significant symptoms may occur if an athlete returns to activity prior to fully healing from an initial concussion. In this scenario, recovery will be slower, and there is an increased probability of long-term damage, including changes in the ability to learn and remember, or changes in thoughts, feelings, and actions. A repeat concussion can also result in fatally severe swelling and bleeding in the brain.

## Instances of Traumatic Brain Injury/Concussion

Traumatic brain injuries stemming from sports and recreational activities have become a major public health concern in the United States. However, there is no comprehensive system for acquiring accurate data on the incidence of sports- and recreation-related concussions across all youth age groups and sports.

Some estimates indicate that up to 4.1 million sports- and recreation-related injuries are treated annually in emergency rooms (see Exhibits 1 and 2). Of these, roughly 450,000 are a traumatic brain injury. This data, however, only accounts for those individuals who present themselves at an emergency room and should, therefore, be considered incomplete or, at best, an estimate.[3]

As shown in Table 1, the rate of sports- and recreation-related traumatic brain injury emergency department visits has increased from 73 per 100,000 in 2001 to 152 per 100,000 in 2012. Depending on gender, between 89 percent and

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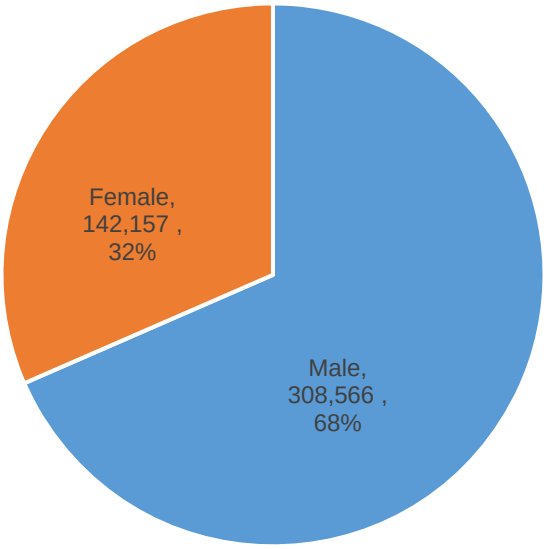
[2] Robert Graham, et al. (2013). *Sports-Related Concussions in Youth: Improving the Science, Changing the Culture.* Washington, DC: National Academies Press.

[3] Victor Coronado, M. M. (2015). Trends in Sports and Recreation-Related Traumatic Brain Injuries Treated in US Emergency Departments: The National Electronic Injury Surveillance System-All Injury Program (NEISS-AIP) 2001-2012. *Journal of Head Trauma Rehabilitation*, 158-197.

Exhibit 1

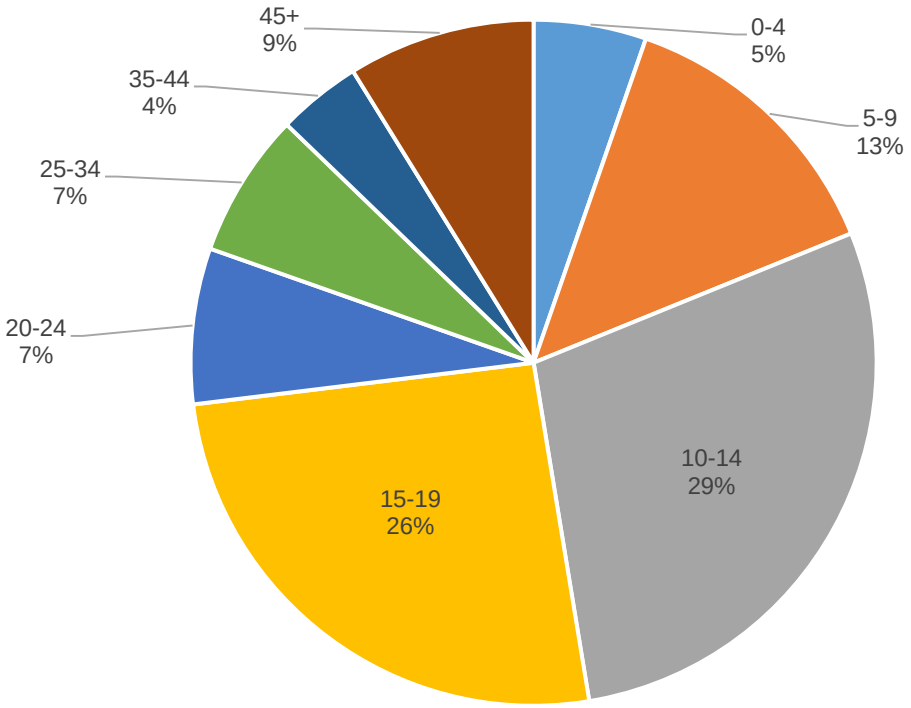
**Estimated Number of Emergency Department Visits for Sports- and Recreation-related Traumatic Brain Injury by Sex, 2012, United States**




Source: National Electronic Injury Surveillance System – All Injury Program.

Exhibit 2

**Estimated Percentage of Emergency Department Visits for Sports- and Recreation-related Traumatic Brain Injury by Age Group, 2012, United States**




Source: National Electronic Injury Surveillance System – All Injury Program.

91 percent of patients were treated and released with a diagnosis of mild traumatic brain injury, or concussion. Multiple reasons may explain the increase in visits, although certainly a major reason is the greater awareness of the dangers of concussions, which leads to more emergency room visits.

Table 2 shows the incidence of sport related injury by sporting activity and gender. Concussion rates tend to be higher during competition than in practice (except for cheerleading); higher among female athletes than male athletes in similar sports (boys' and girls' basketball or baseball and softball); and higher in certain sports (football). Of the school-related sports activities, football has the highest rate among males, and soccer has the highest rate among females. See Appendix B for further information on emergency department visits.

Although we found no evidence of a student athlete death caused by traumatic brain injury in Pennsylvania, such deaths have occurred. For purposes of this report, we use direct death statistics, that is, those injuries that resulted directly from participation in the skills of the sport, as opposed to indirect deaths, which are those injuries that were caused by systemic failure as a result of exertion while participating in a sport activity or by a complication that was secondary to a non-fatal injury. The *Annual Survey of Football Injury Research* shows 691 high school athlete direct deaths in the years from 1931 to 2014. Seventeen of those deaths occurred in the years 2010 through 2014. Fourteen of the 17 (82 percent) were due to a head injury (see Exhibit 3).

Table 1

## Estimated Numbers and Rates (Per 100,000 Population) of Emergency Department Visits for Sports- and Recreation-related Traumatic Brain Injury by Sex and Age Group in 2001 and 2012 in the United States

| | 2001[a] | | 2012[a] | | 2001 vs 2012 Rate Change (%) |
|---|---|---|---|---|---|
| | Number | Rate[a] | Number | Rate | |
| **Sex** | | | | | |
| Male | 144,546 | 100 | 308,566 | 205 | 105 |
| Female | 63,257 | 45 | 142,157 | 97 | 115 |
| Total | 207,829 | 73 | 450,724 | 152 | 108 |
| **All age groups** | | | | | |
| 0-4 | 14,176 | 74 | 23,957 | 120 | 63 |
| 5-9 | 39,170 | 194 | 61,011 | 298 | 54 |
| 10-14 | 54,143 | 258 | 128,672 | 623 | 141 |
| 15-19 | 45,886 | 224 | 115,650 | 541 | 141 |
| 20-24 | 12,992 | 66 | 33,072 | 146 | 123 |
| 25-34 | 15,014 | 38 | 30,729 | 73 | 91 |
| 35-44 | 11,734 | 26 | 17,856 | 44 | 70 |
| 45+ | 14,704 | 15 | 39,777 | 32 | 115 |
| **Sex and age group** | | | | | |
| Male | | | | | |
| 0-4 | 8,467 | 86 | 16,553 | 162 | 89 |
| 5-9 | 28,363 | 275 | 41,877 | 400 | 46 |
| 10-14 | 38,827 | 361 | 91,586 | 867 | 140 |
| 15-19 | 34,731 | 329 | 79,171 | 722 | 119 |
| 20-24 | 9,032 | 90 | 22,028 | 191 | 113 |
| 25-34 | 9,517 | 48 | 20,558 | 96 | 102 |
| 35-44 | 6,980[b] | | 11,520 | 57 | |
| 45+ | 8,621 | 19 | 25,274 | 43 | 128 |
| Female | | | | | |
| 0-4 | 5,709 | 61 | 7,404 | 76 | 25 |
| 5-9 | 10,807 | 110 | 19,134 | 191 | 74 |
| 10-14 | 15,316 | 150 | 37,086 | 367 | 145 |
| 15-19 | 11,155 | 113 | 36,479 | 351 | 212 |
| 20-24 | 3,960 | 41 | 11,044 | 100 | 145 |
| 25-34 | 5,498 | 28 | 10,171 | 49 | 73 |
| 35-44 | 4,755 | 21 | 6,336 | 31 | 48 |
| 45+ | 6,057[b] | | 14,503 | 21 | |

[a] Total rates and rates by sex are age-adjusted rates. Rates by age group are crude rates. Rates derived from unstable estimates are not presented. Estimates are considered unstable when the number of unweighted NEISS cases is less than 20 or the national (weighted) estimate is less than 1,200 or the coefficient of variation is more than 30 percent.
[b] The number was derived from an unstable estimate.

Source: *Journal of Head Trauma Rehabilitation*, May-June 2015.

Table 2

## Incidence of U.S. Emergency Department Visits for a Sports- and Recreation-related Traumatic Brain Injury (SRR-TBI)

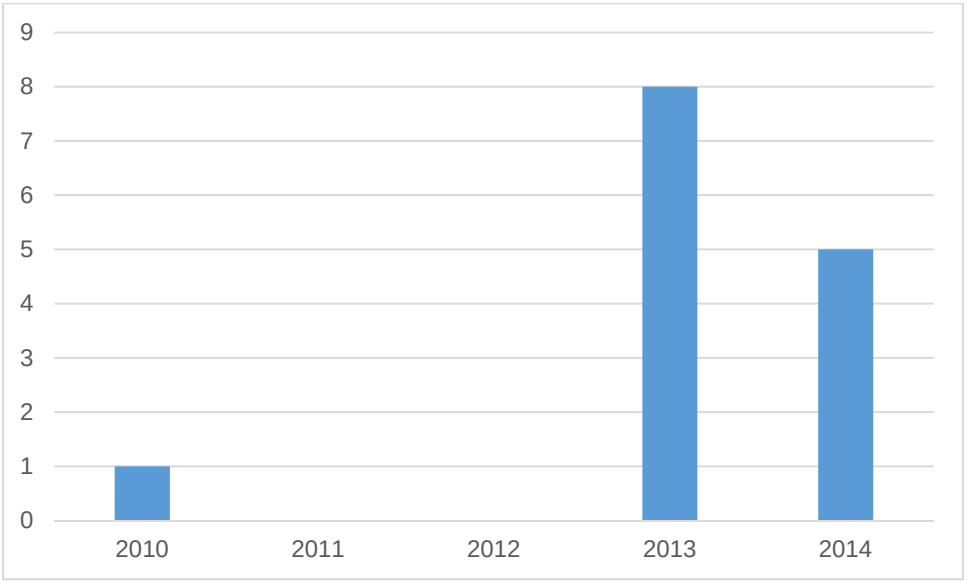
By Sport and Gender

| Top Ten Sporting Activities, by Gender | 2012 Number of Emergency Department Visits for an SRR-TBI | 2012 % |
|---|---|---|
| Male | | |
| Bicycling | 52,077 | 16.9 |
| Football | 64,322 | 20.8 |
| Basketball | 26,530 | 8.6 |
| Playground | 17,379 | 5.6 |
| Baseball | 15,554 | 5.0 |
| ATV | 10,957 | 3.6 |
| Snow sports | 10,184 | 3.3 |
| Skating | 11,546 | 3.7 |
| Soccer | 17,259 | 5.6 |
| Moped | 7,965 | 2.6 |
| All other SRAs | 74,793 | 24.2 |
| Total | 308,566 | 100.0 |
| Female | | |
| Bicycling | 16,395 | 11.5 |
| Playground | 15,041 | 10.6 |
| Horseback | 6,340 | 4.5 |
| Soccer | 14,881 | 10.5 |
| Basketball | 12,506 | 8.8 |
| Snow sports | 7,009 | 4.9 |
| ATV | 5,718 | 4.0 |
| Softball | 7,705 | 5.4 |
| Gymnastics | 10,636 | 7.5 |
| Water sports | 6,355 | 4.5 |
| All other SRAs | 39,572 | 27.8 |
| Total | 142,157 | 100.0 |

Source: *Journal of Head Trauma Rehabilitation*, May-June 2015.

Exhibit 3

**High School Football Deaths Due to Brain Injury**




Source: NCCSIR Annual Football Survey.

During the same time frame, deaths of student athletes have occurred in other sports as well (whether these deaths were due to head injuries is not identified):

- Cross Country: 1
- Soccer: 1
- Ice Hockey: 2
- Baseball: 4
- Softball: 1

## Legal Background

### Safety in Youth Sports Act

The Safety in Youth Sports Act established standards for managing concussions and traumatic brain injuries for students involved in interscholastic athletic activities[4] or in athletic contests or competitions that are sponsored by or associated

[4] Interscholastic athletics is defined as all athletic contests or competitions conducted between or among school entities situated in counties of the second class, second class A, third class, fourth class, fifth class, sixth class, seventh class and eighth class.

with a school entity.[5] This includes cheerleading, school-sponsored club activities, and sports activities sponsored by school-affiliated organizations.[6]

The act assigned specific duties to the Departments of Health and Education. In particular, both departments must develop and post on their websites guidelines and other relevant information to inform students, parents, and coaches about the nature and risk of concussion and traumatic brain injury. This information is to include materials on the risk of continuing to play or practice after a concussion or traumatic brain injury has occurred.

In developing these guidelines and materials, the departments are to utilize information already developed by the CDC. Further, Act 101 requires students who participate and desire to participate in an athletic activity and their parents or guardians, to sign and return to the school an acknowledgement of receipt and review of a "concussion and traumatic brain injury information sheet" developed by the agencies. Such forms are also required by the Pennsylvania Interscholastic Athletic Association (PIAA) to participate in PIAA-regulated sports. See Appendix C for the PIAA concussion information sheet.

In addition to the "concussion and traumatic brain injury information sheet," school entities are encouraged to hold informational meetings prior to the start of each athletic season for all student athletes to provide information regarding (1) concussions and other head injuries; (2) the importance of proper concussion management; and (3) how pre-season baseline assessments can aid in the evaluation, management, and recovery process. In addition to students, parents, coaches, and other school personnel, such meetings may include physicians, neuropsychologists, athletic trainers, and physical therapists.

Act 101 requires a student who exhibits signs or symptoms of a concussion or traumatic brain injury while participating in an athletic activity be removed from play by the coach at that time. A game official, coach, certified athletic trainer, licensed physician, licensed physical therapist, or other official designated by the school entity is authorized to make the decision to remove a student from play. Additionally, the law requires that coaches are not permitted to return a student to participation until the student is evaluated and cleared in writing by an appropriate medical professional.[7]

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[5] A school entity is defined as a public school, school district, nonpublic school or private school in this Commonwealth other than a private or nonpublic school that elects not to become a member of the PIAA.

[6] Sponsors of youth athletic activities that are not specifically included in the act are encouraged to follow the requirements of the act.

[7] Appropriate medical professionals include (1) licensed physicians or licensed or certified health care professionals who are trained in the evaluation and management of concussions; and (2) licensed psychologists trained in neuropsychology or who have postdoctoral training in the evaluation and management of concussions.

Coaches are required to complete the concussion management certification training course offered by either the CDC, the National Federation of State High School Associations, or another provider approved by the Department of Health.[8] This training must be completed once each school year. A person is not permitted to coach an athletic activity until the training is completed.

Act 101 sets penalties for coaches who violate the "removal from play" or the "return to play" provisions of the act.[9] For a first violation, coaches shall be suspended from coaching any athletic activity for the remainder of the season. For a second violation, coaches shall be suspended for the remainder of the current season and for the next season. A third violation requires a permanent suspension from coaching any athletic activity.

Information on our assessment of the extent of compliance with the provisions of the Safety in Youth Sports Act is presented in Chapter V.

[8] Although the term 'coach' is not defined in the Safety in Youth Sports Act, this training requirement is considered to apply to all coaches, including assistant coaches and volunteers.

[9] The act provides that school entities, school employees, and coaches who comply with the requirements of the act are immune from any civil liability under the act.

# III. Pennsylvania Compared to Other States

In 2009, Washington State was the first in the nation to enact laws that addressed concussion education for youth participants in sports, parents, coaches, and the general public. Given the potential for catastrophic results for returning to play too soon after sustaining a concussion, lawmakers across the United States have passed legislation to protect athletes from returning to practice or game play prior to gaining approval by health care professionals.

By April 2014, all states and the District of Columbia enacted laws regarding mild traumatic brain injuries, or concussions, in youth sports. Below is a discussion of the major provisions of these laws. Please see Appendix D for a review of key provisions of all states' statutes.

## Removal From Play

All 50 states' statutes require students to be removed from practice/play if it appears a student has sustained a concussion. A sample provision reads as follows:

> A student athlete shall be promptly removed from play if the athlete is suspected of sustaining a concussion or exhibits signs or symptoms of concussion until completion of assessment by a qualified healthcare professional or medical clearance.

Some states, for example, Connecticut, Louisiana, Nebraska, and Vermont, specifically require parents to be notified (within 24 hours) of the injury and that a concussion is possible. Some states, for example, Missouri, New York, and North Carolina, require that an athlete, once removed, must not be allowed to return to play on the same day as the injury occurred or must be out of the game for a minimum of 24 hours.

Pennsylvania's provision is typical in that it states:

> A student who, as determined by a game official, coach from the student's team, certified athletic trainer, licensed physician, licensed physical therapist or other official designated by the student's school entity, exhibits signs or symptoms of a concussion or traumatic brain injury while participating in an athletic activity shall be removed by the coach from participation at that time.

## Return to Play

All 50 states have a statute governing under what conditions a student who has experienced a concussion may return to play. All states require a written medical clearance in order to return. The following is a typical provision:

> If a youth athlete is removed from play and the signs and symptoms cannot be readily explained by a condition other than concussion, the school coach or private or public recreational facility's designated personnel shall notify the athlete's parent or legal guardian and shall not permit the youth athlete to return to play or participate in any supervised team activities involving physical exertion, including games, competitions, or practices, until he or she is evaluated by a health care provider and receives written clearance to return to play from the health care provider. The health care provider evaluating a youth athlete suspected of having a concussion or brain injury may be a volunteer.

Several states' statutes also contain a provision relating to a "graduated" return to play, including, for example, California, Colorado, Connecticut, Hawaii, Louisiana, Tennessee, and Texas. The following example is from Colorado:

> After a concussed athlete has been evaluated and received clearance to return to play from a health care provider, an organization or association of which a school or school district is a member, a private or public school, a private club, a public recreation facility, or an athletic league may allow a registered athletic trainer with specific knowledge of the athlete's condition to manage the athlete's graduated return to play.

California's graduated return to play policy requires the student be under the supervision of a licensed health care provider for at least seven days prior to returning to play. In Texas, the school district superintendent or his/her designee is required to supervise the athletic trainer or other person responsible for overseeing compliance with the return to play policy. The designee may not be a coach.

In addition to the typical return to play provision, states have other types of restrictions in their return to play provisions. Several states, including Ohio, Oregon, and Indiana, provide that if removed from the game, a student may not return to the game on the day of injury. Mississippi and New York specifically require the student be completely symptom free before returning to play. Nebraska's statute requires that parents give written permission to resume participation in athletic activities, in addition to the written medical clearance. New Mexico's statute requires that a student be excluded from participation for one week prior to return.

Pennsylvania's statute, similar to other states in that it does not require a graduated return to play, reads as follows:

> The coach shall not return a student to participation until the student is evaluated and cleared for return to participation in writing by an appropriate medical professional. The governing body of a school entity may designate a specific person or persons, who must be appropriate medical professionals, to provide written clearance for return to participation. In order to help determine whether a student is ready to return to participation, an appropriate medical professional may consult any other licensed or certified medical professionals.

## Recordkeeping on Students

Not all states explicitly require that records be maintained for students who have suffered a concussion. Pennsylvania's law does not have such a provision. The following nine states do include such provisions:

1. *Connecticut:* For the school year starting on July 1, 2014, and annually thereafter, local and regional school districts are required to collect and report all occurrences of concussions to the State Board of Education. Each report was to contain, if known: the nature and extent of the concussion and the circumstances in which the student sustained the concussion. For the school year starting July 1, 2015, and annually thereafter, the State Board of Education is to send a concussion report to the Department of Public Health containing all of the information collected by the local and regional school districts. Starting on October 15, 2015, and annually thereafter, the Commissioner of Public Health is required to report to the relevant standing committees of the General Assembly on the findings of the Department's concussion report.
2. *Kentucky:* Requires that accurate records showing compliance with the law be kept by each school.
3. *Massachusetts:* provides that the superintendent of a school district or the director of a school shall maintain complete and accurate records of the district's or school's compliance with the requirements of the law. A school that fails to comply, as determined by the Department of Public Health, shall be subject to penalties as determined by the Department.
4. *Michigan:* requires an organizing entity (school, state or local parks and recreation department, other state or local entity, nonprofit or for-profit entity, or public or private entity) to maintain a written medical clearance in a permanent file for the duration of the youth athlete's participation in that entity's athletic activity or until the youth is 18 years old.

5. *Missouri:* provides that any statewide athletic organization with a public school district as a member is required to publish an annual report relating to the impact of concussions and head injuries on student athletes that details efforts that may be made to minimize damages from such injuries sustained by students participating in school sports.
6. *New York:* requires medical authorization to return be kept in the student's permanent health record.
7. *North Carolina:* requires schools to maintain accurate records to show its compliance.
8. *North Dakota:* requires the return to practice medical authorization to be retained by the student's school district or school for seven years after the student is no longer enrolled.
9. *West Virginia:* requires all member schools to submit a report to the West Virginia Secondary School Activities Commission within 30 days of an interscholastic athlete suffering or being suspected of suffering a concussion or head injury in a practice or game. The report must state whether an evaluation by a licensed health care professional verified that a concussion was actually suffered, whether the athlete received written clearance to return to play or practice and, if written clearance was given, the number of days between the incident and the actual return to play or practice. If written clearance is given after 30 days of the incident, a report update must be submitted. The Commission is required to compile and submit reports to the appropriate state and national organizations or agencies to analyze and make determinations on whether rules/regulations or equipment worn by athletes need to be changed.

## Training for Coaches

Most states, including Pennsylvania, require coaches and others who are in charge of youth athletes complete training courses on recognition and treatment of concussions and head injuries. The frequency with which this must occur varies, as shown in Exhibit 4.

In California, Delaware, Kentucky, Maine, New Jersey, and New Mexico, coaches are to be trained, however, there is no frequency set in statute. In Connecticut, training is every five years. Idaho requires coaches to review guidelines biannually. In Michigan, training materials are to be made available to the public and to interested individuals including coaches, parents, students, and athletes. Both Nebraska and New Hampshire require training to be made available to coaches. In North Carolina and South Carolina, an information sheet is to be provided to coaches annually. In Wyoming, each school district's board of trustees is to adopt protocols.

Exhibit 4

**State Statutory Training Requirements**

| **Annually** - 12 | **2 Years** - 6 | **3 Years** - 3 | **No Requirement** - 15 | **Other** – 14 |
|---|---|---|---|---|
| | | | | |
| Alabama | Illinois | Arkansas | Alaska | California |
| Colorado | Indiana | Minnesota | Arizona | Connecticut |
| Hawaii | New York | Ohio | | Delaware |
| Louisiana | North Dakota | | Florida | Idaho |
| Massachusetts | Texas | | Georgia | Kentucky |
| Montana | Vermont | | Iowa | Maine |
| Oregon | | | Kansas | Michigan |
| Pennsylvania | | | Maryland | Nebraska |
| Rhode Island | | | Mississippi | New Hampshire |
| South Dakota | | | Missouri | New Jersey |
| Tennessee | | | Nevada | New Mexico |
| West Virginia | | | Oklahoma | North Carolina |
| | | | Utah | South Carolina |
| | | | Virginia | Wyoming |
| | | | Washington | |
| | | | Wisconsin | |

Source: Developed by LB&FC staff from a review of other states' statutes.

## Recordkeeping of Coaches' Training

At least four states specifically require recordkeeping to show compliance with coaches' training requirements:

1. *Indiana:* requires an organizing entity, defined as any person who operates a recreational, intramural, or extracurricular sports program and uses property leased, owned, or maintained by the state, political subdivision, or an agency/instrumentality of the state) to maintain a file of certificates of completion for training by head coaches and assistant coaches.
2. *Massachusetts:* requires the superintendent of a school district or the director of a school to maintain complete and accurate records of the district's or school's compliance with the requirements of law. A school that fails to comply is subject to penalties as determined by the Department.
3. *Tennessee:* requires documentation on the completion of training courses to be maintained for three years.
4. *Texas:* each person who is required to complete a training course must submit proof of timely completion of an approved course to the school district superintendent or his/her designee.

Pennsylvania has no specific recordkeeping requirement.

## Definition of "Concussion"

Pennsylvania's Safety in Youth Sports Act does not have an explicit definition of a concussion. Several state statutes (18) do contain a definition and/or symptoms of concussion. Arkansas' statute is an example of the most common provision:

> A concussion is caused by a blow or motion to the head or body that causes the brain to move rapidly inside the skull. Concussion is a type of brain injury that can range from mild to severe and can disrupt the way the brain normally works. Concussions can occur with or without loss of consciousness, but the vast majority occur without loss of consciousness.

Other examples include:

1. *Hawaii:* A pathophysiological process affecting the brain caused by traumatic biomechanical forces.
2. *Maryland:* Concussion means a traumatic injury to the brain causing an immediate and, usually, short-lived change in mental status or an alteration of normal consciousness resulting from: a fall; a violent blow to the head or body, or the shaking or spinning of the head or body.
3. *Minnesota:* Concussion means a complex pathophysiological process affecting the brain, induced by traumatic bio-kinetic forces caused by a direct blow to either the head, face, or neck, or elsewhere on the body with an impulsive force transmitted to the head, that may involve the rapid onset of short-lived impairment of neurological function and clinical symptoms, loss of consciousness, or prolonged post-concussive symptoms.
4. *Utah:* Traumatic head injury means an injury to the head arising from blunt trauma, an acceleration force, or a deceleration force, with one of the following observed or self-reported conditions attributable to the injury: transient confusion, disorientation, or impaired consciousness; dysfunction of memory; loss of consciousness; or signs of other neurological or neuropsychological dysfunction, including: seizures; irritability; lethargy; vomiting; headache; dizziness; or fatigue.
5. *Vermont:* School personnel shall be alert to cognitive and academic issues that may be experienced by a student-athlete who has suffered a concussion or other head injury, including difficulty with concentration, organization, and long-term and short-term memory; sensitivity to bright lights and sounds; and short-term problems with speech and language, reasoning, planning, and problem solving.

## Penalties

In three states, statutes provide for penalties for violations of the concussion law. These are as follows:

1. *Connecticut:* The State Board of Education may revoke the coaching permit of any coach found to be in violation of the concussion law.
2. *Florida:* The Florida High School Athletic Association (FHSAA) is required to adopt bylaws that establish sanctions for coaches who have committed major violations of the FHSAA's bylaws and policies. Major violations include, but are not limited to, knowingly allowing an ineligible student to participate in a contest representing a member school in an interscholastic contest or committing a violation of the FHSAA's recruiting or sportsmanship policies. Sanctions placed upon an individual coach may include, but are not limited to, prohibiting or suspending the coach from coaching, participating in, or attending any athletic activity sponsored, recognized, or sanctioned by the FHSAA and the member school for which the coach committed the violation. If a coach is sanctioned by the FHSAA and the coach transfers to another member school, those sanctions remain in full force and effect during the term of the sanction. If a member school is assessed a financial penalty as a result of a coach committing a major violation, the coach shall reimburse the member school before being allowed to coach, participate in, or attend any athletic activity sponsored, recognized, or sanctioned by the FHSAA and a member school. The FHSAA shall establish a due process procedure for coaches sanctioned under this paragraph, consistent with the appeals procedures set forth in the law.
3. *Pennsylvania:* The governing body of a school entity is required to establish the following penalties for coaches who violate the removal from play and/or the return to play standards: for a first violation, suspension from coaching any athletic activity for the remainder of the season; for a second violation, suspension from coaching any athletic activity for the remainder of the season and for the next season; for a third violation, permanent suspension from coaching any athletic activity.

## Guidelines, Education, and Information

Many states (38) have a provision in their law that requires the school or other entity (e.g., the state department of health) to develop information and guidelines/protocols for coaches, officials, students, and parents relating to the nature, risks, and handling of concussions. In the 38 states, this provision is separate from the provision relating to informed consent. This is a sample provision from Missouri statutes:

> The department of health and senior services shall work with a statewide association of school boards, a statewide activities association that provides oversight for athletic or activity eligibility for students and school districts, and an organization named by the department of health and senior services that specializes in support services, education, and advocacy of those with brain injuries to promulgate rules which develop guidelines, pertinent information, and forms to educate coaches, youth athletes, and parents or guardians of youth athletes of the nature and risk of concussion and brain injury including continuing to play after concussion or brain injury.
>
> This is Pennsylvania's provision:
>
> The Department of Health and the Department of Education shall develop and post on their Internet websites guidelines and other relevant materials to inform and educate students participating in or desiring to participate in an athletic activity, their parents and their coaches about the nature and risk of concussion and traumatic brain injury, including the risks associated with continuing to play or practice after a concussion or traumatic brain injury. In developing the guidelines and materials, the departments shall utilize existing materials developed by the Centers for Disease Control and Prevention.

In addition, Pennsylvania's law gives school entities specific authorization to hold informational meetings prior to the start of each athletic season for all ages of competitors regarding concussions and other head injuries, the importance of proper concussion management, and how preseason baseline assessments can aid in the evaluation, management, and recovery process. In addition to students, parents, coaches and other school officials, informational meetings may include physicians, neuropsychologists, athletic trainers, and physical therapists.

## Concussion Management Plan

Although Pennsylvania's statute does not require one, some states' statutes specifically require that a "concussion management plan" be developed. We identified the following states as having such a requirement:

1. *Arkansas:* A school district shall develop procedures concerning student physical activity in its public schools that include without limitation the recognition and management of concussions, among others, that may be encountered by a student during athletic training or physical activities.

2. *Delaware:* The Delaware Interscholastic Athletic Association (DIAA) is required to adopt rules and regulations applicable to member schools regarding the appropriate recognition and management of student athletes exhibiting signs or symptoms consistent with a concussion.
3. *Georgia:* Each local board of education, administration of a nonpublic school, and governing body of a charter school shall adopt and implement a concussion management and return to play policy.
4. *Illinois:* Each school board shall adopt a policy regarding student athlete concussions and head injuries that is in compliance with the protocols, policies, and bylaws of the Illinois High Schools Association.
5. *New Jersey:* Each school district shall develop a written policy concerning the prevention and treatment of sports-related concussions and other head injuries among student-athletes and cheerleaders. The policy shall include, but need not be limited to, the procedure to be followed when it is suspected that a student-athlete or cheerleader has sustained a concussion or other head injury.
6. *Texas:* Each concussion oversight team shall establish a return-to-play protocol, based on peer-reviewed scientific evidence, for a student's return to interscholastic athletics practice or competition following the force or impact believed to have caused a concussion.

In response to a 2012 state statute, the New York Department of Education has developed extensive and detailed guidelines for concussion management, including recommendations for graduated return-to-school activities (not just return-to-play). A summary of these guidelines can be found in Appendix E.

## Informed Consent

Forty-two state statutes, including Pennsylvania, include a provision similar to the following example from Connecticut:

> Each school shall provide each participating student athlete's parent/guardian with an informed consent form and obtain such parent's or legal guardian's signature, attesting to the fact that such parent or legal guardian has received a copy of such form and authorizes the student athlete to participate in the athletic activity. Such informed consent form shall include, at a minimum, a summary of the concussion education plan developed or approved and a summary of the applicable local or regional board of education's policies regarding concussions.

Pennsylvania's law requires the following:

> A student participating in or desiring to participate in an athletic activity and the student's parent or guardian shall each school year, prior to participation by the student in an athletic activity, sign and return to the student's school an acknowledgment of receipt and review of a concussion and traumatic brain injury information sheet.

Tennessee's law requires that the signed information sheets be retained for three years.

The seven states that have not included this provision in their law are: Colorado, Georgia (statute contains provision but does not require signature), Idaho (statute contains provision but does not require signature), Illinois (students must annually watch online concussion certification program video), Nebraska (statute does not require signature), New Hampshire (statute does not require signature), Oregon, and Wyoming.

# IV. Best Practices for Concussion Management

House Resolution 1064 directs that our report "determine best practice for managing concussions and traumatic brain injuries in sports." The published literature has identified several practices that could be considered best practices with regard to detecting a concussion, its clinical features, assessment techniques, and principles of safe return to play.

We considered the *Consensus Statement on Concussion in Sport: the 4th International Conference of Concussion in Sport Held in Zurich, November 2012* to be the premier statement of best practices. The *Consensus Statement* is recognized as authoritative by the Centers for Disease Control and Prevention and by the Pennsylvania Brain Injury Coalition.

To help minimize the risk of sports-related concussion, several primary prevention activities should be undertaken.

- Using protective equipment – Protective equipment should be appropriate for the activity in general and the position within the activity in specific. For example, a helmet should fit properly, be in good condition, and used correctly.
- Technique – Coaches must teach proper sport-specific skills. A major emphasis must be on safe habits and proper technique. For example, coaches must teach soccer players the appropriate way to head the ball, or football players the appropriate tackling techniques without using the head as a weapon.
- Sportsmanship – Players must be taught to adhere to the rules of play and good sportsmanship. Referees must strictly enforce the rules to eliminate any incentive to play in an unsafe manner.

## Concussion Education

Over the past several years the Centers for Disease Control and Prevention has developed concussion education materials for coaches, parents, referees, and athletes. The program, called Heads Up, is a collaboration of 26 health, sports, and national organizations.

The research indicates that concussion education programs are an effective way of improving concussion knowledge, and such programs can be considered a best practice. As noted in the *Consensus Statement*:

> Athletes, referees, administrators, parents, coaches, and health-care providers must be educated regarding the detection of concussion, its clinical features, assessment techniques, and principles of safe RTP.

Studies of the effectiveness of various programs have shown that those that include workshops and lectures, videos, and other programs, can improve concussion knowledge in youth. That said, a coach's knowledge of the signs of concussion and what to do if a player is suspected of a concussion is of particular interest. Coaches, especially in youth sports, are in charge at athletic events – often without the presence of qualified medical personnel. Even at schools that have a licensed athletic trainer on staff, the coach can play a significant role in concussion recognition. As such, coaches, in particular, should have at least a basic knowledge of concussions.

Pennsylvania, like most states, requires coaches to receive some form of training on concussion recognition, treatment, and return-to-play benchmarks. Pennsylvania also requires information sheets be provided to parents and students (and returned to the school with signatures) and that the Pennsylvania Departments of Education and Health post information on their websites to inform students, parents, and coaches about the nature and risk of concussion and traumatic brain injury. Schools are also encouraged to hold informational sessions for student athletes, parents, and others at the start of each athletic season regarding the importance of proper concussion management.

## Removal From Play

Most state laws require athletes to be immediately removed from a game or practice if a concussion is suspected, which is widely accepted as a best practice. Even if the damage is considered to be minor, experts say serious injury management is crucial to guard the athlete from experiencing an additional and more serious head injury. Exhibit 5 shows the signs that indicate when a further sideline assessment is warranted.

The seminal challenge facing players, coaches, officials, and medical personnel is recognizing these signs, which may be subtle, that a player may have sustained a concussion in the first place. That is why some advocates are calling for athletes who are merely suspected of sustaining a concussion (been on the receiving end of a big hit, for example) be removed from the activity and receive a medical evaluation.

## Sideline Assessment

After a player has exhibited one or more signs of a possible concussion, the athlete should be assessed by a health care provider at the venue where the injury took place. It should be noted, however, that symptoms do not always present themselves for several hours post injury. Therefore, a large number of concussions are not identified until 24 hours or more after the injury.

Exhibit 5

## Concussion Signs Observed and Symptoms Reported

**Concussion Signs Observed**

- Can't recall events *prior to* or *after* a hit or fall.
- Appears dazed or stunned.
- Forgets an instruction, is confused about an assignment or position, or is unsure of the game, score, or opponent.
- Moves clumsily.
- Answers questions slowly.
- Loses consciousness *(even briefly)*.
- Shows mood, behavior, or personality changes.

**Concussion Symptoms Reported**

- Headache or "pressure" in head.
- Nausea or vomiting.
- Balance problems or dizziness, or double or blurry vision.
- Bothered by light or noise.
- Feeling sluggish, hazy, foggy, or groggy.
- Confusion, or concentration or memory problems.
- Just not "feeling right," or "feeling down."

Source: Centers for Disease Control and Prevention.

Sideline evaluations are further complicated by a player's tendency to underreport symptoms. The culture of sport is to play through an injury or to "tough it out." Athletes also feel a sense of duty to the members of the team and a fear of being taken out of the game.

To work around the tendency to underreport, medical personnel typically use multiple evaluation tools. These include symptom scales, checklists, balance testing, and neurocognitive testing. An example of this can be found in Appendix F of this report.

At a minimum, the sideline evaluation best practice, as identified in the *Consensus Statement*, should include the following best practices:

- The player should be assessed by a doctor or other healthcare professional onsite.
- Once any first aid concerns are dealt with, an evaluation of the injury should be made using a sideline assessment tool such as the SCAT3.[1]
- The player should be observed for the next several hours and should not be left alone.
- Under no conditions should a player be permitted to return to play on the day of the injury if they are determined to have sustained a concussion.

[1] See Appendix F.

- The player should immediately be taken to the emergency room if they have lost consciousness – even for a very short period; show a declining state of awareness; look very lethargic; if they cannot focus their attention; exhibit abnormal breathing; complain of acute or worsening headaches; vomit repeatedly; or have a seizure.

## Physical & Mental Rest

The consensus expert opinion regarding post-concussion therapy is that athletes should refrain from aerobic workouts, sport-specific physical activity, and competition until the individual is symptom-free at rest and without medication.

During the acute phase of recovery, limitations on cognitive activity is also emphasized in the literature. Cognitive rest is not well defined, and its value in helping recovery has not been resolved.

While this is the expert consensus opinion, it is also important to note that current research is inadequate to ascertain the level and period of physical and cognitive rest needed to encourage healing. Randomized structured trials or studies on the management of concussion in youth are needed in order to develop empirically based procedures regarding the best level and period of rest. Although evidence shows that the brain is more susceptible to injury while recovering, protocols for the best timing and method for resumption of cognitive activity, including guidelines for returning students to school, are lacking.

Even though the science on the optimal amount of physical and mental rest needed to recover from a concussion has not yet been determined, it is widely accepted that concussion symptoms are aggravated by both physical and mental exertion. There is also strong evidence of a period of vulnerability after a concussion when the brain is more susceptible to a second injury.

The best practice with regard to physical and cognitive rest, as expressed in the *Consensus Statement*, is:

> Further research to evaluate the long-term outcome of rest, and the optimal amount and type of rest, is needed. In the absence of evidence-based recommendations, a sensible approach involves the gradual return to school and social activities (prior to contact sports) in a manner that does not result in a significant exacerbation of symptoms.

## Return to Play

While it is not at all clear on the efficacy of physical and cognitive rest in speeding up recovery, it is absolutely clear that the brain is more susceptible to

re-injury while recovering. As such, experts in the field agree that no athlete should return to play on the day the injury was sustained. As stated in the *Consensus Statement*:

> It was unanimously agreed that no RTP on the day of concussive injury should occur.

When returning to play, the athlete should follow a graduated return to play protocol whereby the athlete proceeds through varying levels, progressing so long as symptoms do not return. In the event symptoms do return, the athlete returns to the previous level. Each step should take about 24 hours. The best practice for a graduated return to play, as expressed in the *Consensus Statement*, is shown in Exhibit 6.

Exhibit 6

**Graduated Return to Play**

| Stage | Exercise at Each Stage | Objective |
|---|---|---|
| No Activity | Symptom limited physical and cognitive rest. | Recovery |
| Light aerobic exercise | Walking, swimming, or stationary cycling. Intensity <70% maximum permitted heart rate. No resistance training. | Increase heart rate |
| Sport-specific exercise | Skating drills in ice hockey, running drills in soccer. No head impact activities. | Add movement |
| Non-contact training drills | Progression to more complex training drills, e.g., passing drills in football and ice hockey. May start progressive resistance training. | Exercise, coordination, and cognitive load |
| Full-contact practice | Following medical clearance – participate in normal training activities. | Restore confidence and assess functional skills by coaching staff |
| Return to Play | Normal game play. | |

Source: "Consensus statement on concussion in sport: the 4th International Conference on Concussion in Sport held in Zurich, November 2012," *British Journal of Sports Medicine* 2013 47: 250-258.

## Rules Enforcement

Rules of play are the basis of fair play and safe behavior in sporting contests. They set the expectations for conduct, both sport specific and sportsmanship, and define violations. Application of the rules by coaches and referees and observance of rules by athletes may help decrease the frequency and acuteness of sports-related head injuries.

In 2008, as study focusing on players in 100 high schools in the United States found that 25 percent of the reported concussions were related to violations of the rules.

Other than perhaps the actual players on the field, referees have the best view of play. Their primary responsibilities are to enforce the rules of play, penalize those that violate those rules, and start and stop play when necessary. Given the 2008 study, officials thus have an important role to play in the prevention of sports-related concussions and identifying those players who may be injured.

***Input from school district athletic directors, school athletic trainers, and members of the Pennsylvania Brain Injury Coalition.*** In addition to reviewing the literature for best practices, we also asked school district athletic directors, school athletic trainers, and members of the Pennsylvania Brain Injury Coalition (BIC) for their suggestions as to what changes, if any, they believe should be made to the Pennsylvania Safety in Youth Sports Act (SYSA). Their concerns, suggested changes, and ideas for consideration include:

1. *Recordkeeping.* Unlike several states, Pennsylvania's SYSA does not impose recordkeeping requirements on schools for students found to have experienced a concussion. The BIC would like Pennsylvania to adopt a requirement, similar to that in Connecticut and West Virginia, that requires schools to submit certain information to a statewide body (in Connecticut, it is the State Board of Education; in West Virginia, the Secondary School Activities Commission) for any student found to have had a concussion.[2] If statewide reporting is not feasible, at a minimum the BIC recommends schools be required to retain records on concussed students at the school level, such as is required in states such as New York, Massachusetts, and Michigan.
2. *Concussion management plans.* The BIC would like Pennsylvania to join states such as New Jersey and Texas that require school districts to develop written procedures to be followed when a student athlete is suspected to have or who has sustained a concussion or other head injury.[3]
3. *Full-time athletic trainers.* Both the BIC and the athletic trainers we surveyed believe it important that all high schools hire a full-time certified athletic trainer (or other appropriate medical professional) to be on-site and to make sure concussion guidelines are followed. If a full-time trainer is not feasible, the BIC believes that every high school should at least have access to such services (e.g., on a contracted basis). We found no state, however, that legislates such a requirement.
4. *Nonschool-related sports.* The BIC and several athletic trainers expressed concern that the SYSA does not cover various community/club sponsored sports (e.g., non-school-sponsored football and community recreational

[2] See page 14 for additional information regarding these reporting requirements.
[3] H.R. 2062, a federal bill entitled the *Protecting Student Athletes from Concussions Act of 2015*, requires, as a condition of receiving title IX funds, that states enact laws or regulations that require public schools to develop a standard concussion management plan for students recovering from a concussion.

soccer and basketball leagues).[4] Several states include such programs in their concussion laws, such as Tennessee, whose act includes recreational leagues for children under age 18 that require a fee. Nebraska, Michigan, and Minnesota have similar laws.

5. *Annual concussion training.* Only 54 percent of the athletic directors responding to our questionnaire thought the annual training required by the SYSA was beneficial. Many state athletic directors commented that an annual concussion training requirement is excessive, especially as the training varies little, if any, from year to year. One athletic director suggested requiring all coaches to take the training as a prerequisite to being hired, but then be required to retake the training only every three to five years thereafter. As shown in Chapter III, many states have training requirements that are on less than an annual basis.

6. *Baseline testing.* Most (86 percent) athletic trainers responding to our questionnaire indicated that their schools use some type of pre-season baseline testing, such as ImPACT. These are inexpensive, computerized tests that assess factors such as the student's verbal and visual memory, processing speed and reaction time. The ImPACT test takes about 25 minutes to complete and is typically administered by a trained athletic trainer, school nurse, or athletic director. The baseline scores can then be compared to scores the student receives after a suspected concussion to assess potential changes or damage caused by a concussion. While schools may require their student athletes undergo baseline testing, we heard little support for this to be a statutory mandate, and we found no state that has a baseline testing mandate. We also note that the *Consensus Statement on Concussion in Sport* found that "At present, there is insufficient evidence to recommend the widespread routine use of baseline neuropsychological testing."

7. *Required Return to Learn plan.* According to the *Consensus Statement on Concussion in Sport,* the importance of cognitive rest after a concussion has not been fully researched. In the absence of evidenced-based recommendations, most experts recommend a gradual return to school and social activities even prior to engaging in contact sports. Such protocols can help avoid the complications (both short-term and long-term) that can happen by insufficient response to the concussion in the first place.

   Return to Learn policies are also important because at least a small number of concussed students will exhibit educational impacts for months or years after the concussion. Others may not show symptoms immediately, but will develop educational impacts over the years as their brains mature

[4] The SYSA does, however, "encourage" youth athletic activities not subject to the act to follow the guidance set forth in the act.

and develop. For these students, a Return to Learn policy helps ensure they will receive the help they need throughout their secondary school years.

Return to Learn is a key element in Pennsylvania BrainSTEPS program. This program, a collaborative effort of the Pennsylvania Department of Health, Department of Education, and the Brain Injury Association of Pennsylvania, is now in over 900 schools statewide and works to assist schools in creating educational plans for students following acquired brain injury (including sports-related concussions).

While virtually all states have mandatory Return to Play requirements (e.g., written permission from a medical professional), only Nebraska and Virginia have a specific statutory requirement that schools establish a return to learn protocol for students that sustain a concussion.[5] The protocol must recognize that such students may need informal or formal accommodations and monitoring until they are fully recovered.[6]

8. *Training for physicians.* Both the athletic trainers responding to our questionnaire and members of the Brain Injury Coalition expressed concern that some physicians do not appear to be aware of the latest advances in the detection and treatment of concussions and traumatic brain injuries. To help address this issue, the Pennsylvania Athletic Trainers' Society (PATS), with the assistance of a grant from the Pennsylvania Department of Health, partnered with the Pennsylvania Medical Society, DOH, and Sport Safety International to conduct DOH-approved ConcussionWise™ trainings.

   This training, accredited for Continuing Medical Education credit, is an online education initiative to provide all Pennsylvania physicians with knowledge on current peer-reviewed research about the evaluation and management of concussions. All participants of the ConcussionWise™ training receive a certificate of completion and are placed on the ConcussionWise™ registry. The registry allows the public to find local physicians who have the most up-to-date training in concussion management. PATS reported that about 100 physicians are now on this registry. Additionally, the CDC has developed a Facts for Physicians booklet to assist them in appropriately identifying, diagnosing, and managing concussions.

[5] Massachusetts has a regulatory requirement that each student diagnosed with a concussion have a written graduated reentry plan for both athletic and academic activities (105 CMR Se, 201.010). Additionally, H.R. 2062, a federal bill entitled the Protecting Student Athletes from Concussions Act of 2015, requires, as a condition of receiving title IX funds, that states enact laws or regulations that require schools to have concussion management plans that support students in resuming participation in both athletic and academic activities.

[6] Also, in 2012, New York passed a concussion management law that requires its Department of Education to develop rules and regulations to provide schools with guidelines for limitations and restrictions on school attendance and activities for pupils who have sustained mild traumatic brain injuries.

# V. Compliance With the Safety in Youth Sports Act and Questionnaire Results From Pennsylvania School Athletic Directors and School Athletic Trainers

HR 1064 also asked us to identify the extent of compliance with the Safety in Youth Sports Act. One provision of the act requires compliance from the Departments of Health and Education, but the majority of provisions require action at the school district level.

Both the Department of Health and the Department of Education were required to develop and post on their websites guidelines and other relevant information to inform students, parents, and coaches about the nature and risk of concussion and traumatic brain injury. This information is to include materials on the risk of continuing to play or practice after a concussion or traumatic brain injury has occurred. In developing these guidelines and materials, the departments are to utilize information already developed by the CDC. Both departments have complied with this requirement: websites with information and links may be found here:

- http://www.portal.state.pa.us/portal/server.pt/community/grants__funding/14140/traumatic_brain_injury/666239
- http://www.education.pa.gov/K-12/Safe%20Schools/Pages/default.aspx#.VipZdS6Au4F.

The act has several other requirements for school districts. In order to assess this compliance, we surveyed both school athletic directors and school athletic trainers across Pennsylvania. The results of those surveys are presented below. Appendices G and H show the geographic distribution of the responding athletic directors and trainers.[1]

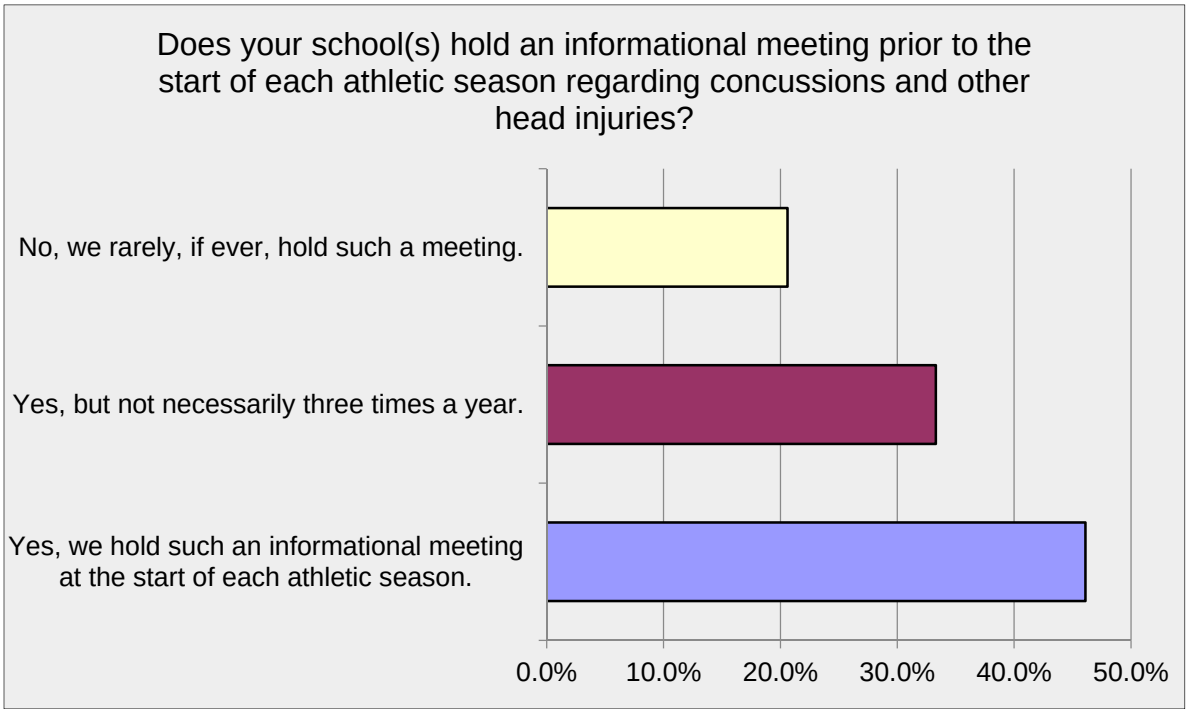
[1] We note that of athletic directors, 39 of 102 respondents to our survey identified their schools or school districts. Of athletic trainers, 47 out of 118 respondents identified their schools or school districts.

## Survey of Athletic Directors

We surveyed the approximately 600 athletic directors who were members of the Pennsylvania State Athletic Directors Association across school districts in Pennsylvania and had about a 17 percent return rate. Responses to each question are below.

### Question 1

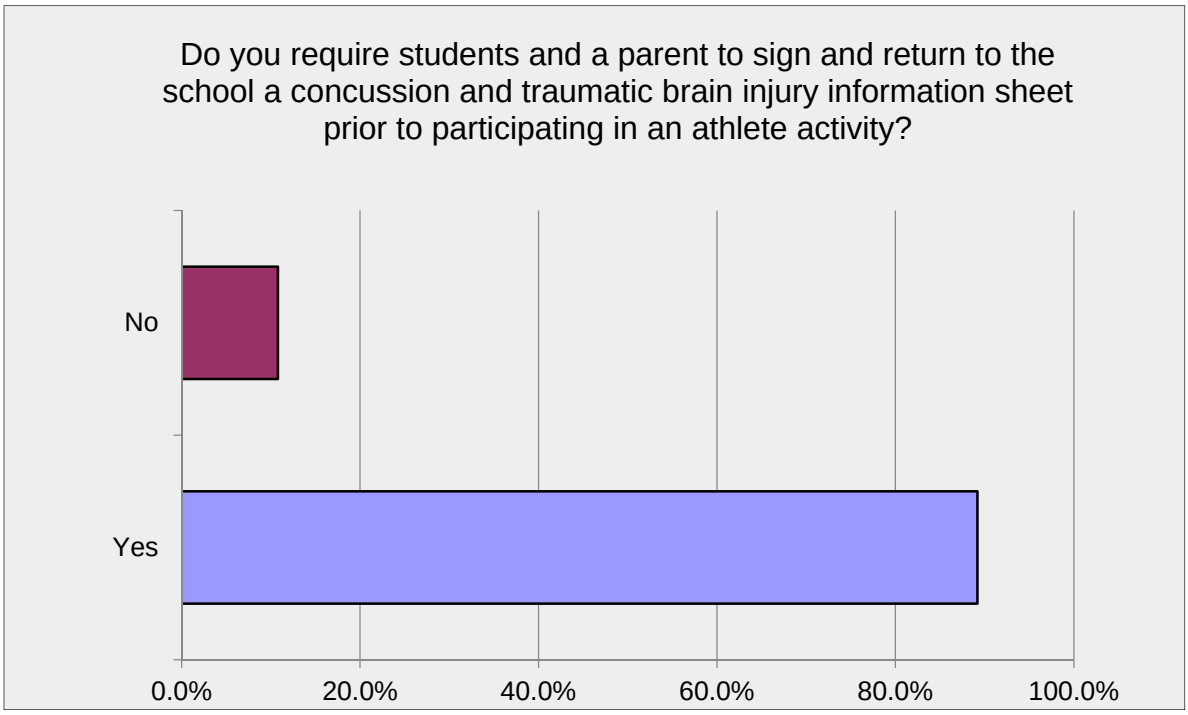
Act 101 provides for, but does not require, school entities to hold information meetings prior to the start of each athletic season for all student athletes to provide information regarding concussions and other head injuries and the importance of concussion management and recovery. Athletic directors report that about 79 percent of respondents have at least one, and often times, multiple meetings throughout the year.




| Does your school(s) hold an informational meeting prior to the start of each athletic season regarding concussions and other head injuries? | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes, we hold such an informational meeting at the start of each athletic season. | 46.1% | 47 |
| Yes, but not necessarily three times a year. | 33.3% | 34 |
| No, we rarely, if ever, hold such a meeting. | 20.6% | 21 |
| ***answered question*** | | **102** |
| ***skipped question*** | | **0** |

Question 2

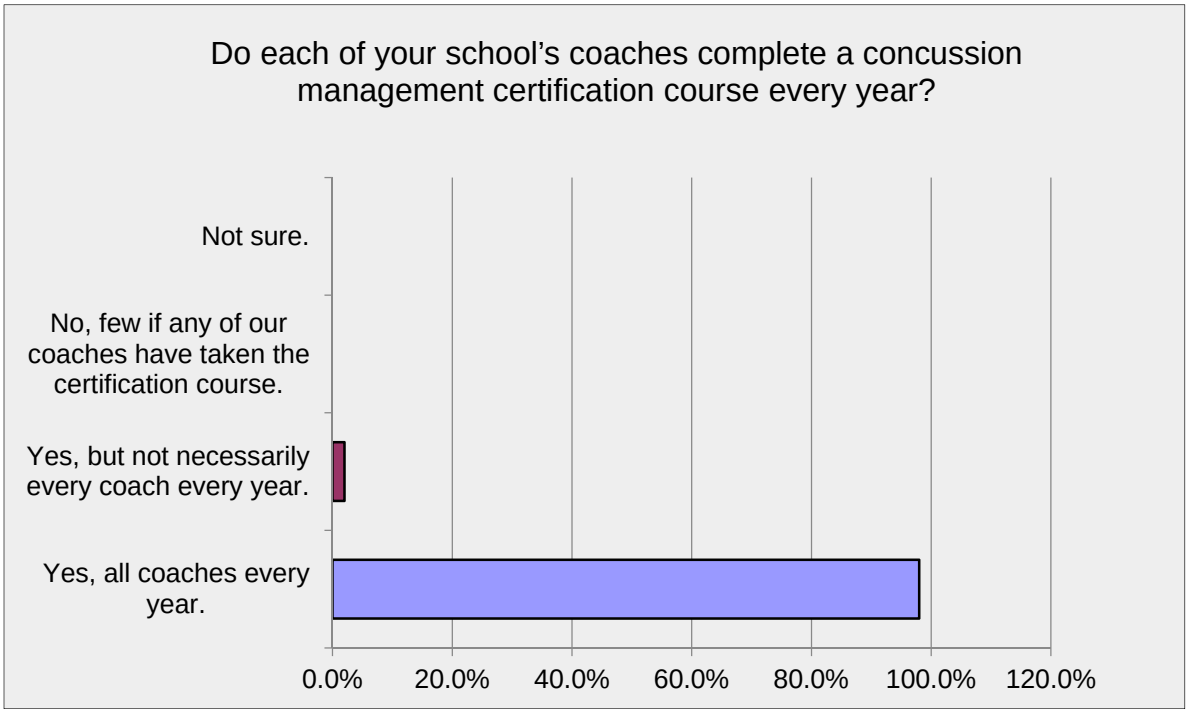
Act 101 requires students who participate and desire to participate in an athletic activity and their parents or guardians, to sign and return to the school an acknowledgement of receipt and review of a "concussion and traumatic brain injury information sheet." Athletic directors report that almost 90 percent of respondents require this sheet to be signed and returned to school.




| Do you require students and a parent to sign and return to the school a concussion and traumatic brain injury information sheet prior to participating in an athlete activity? | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes | 89.2% | 91 |
| No | 10.8% | 11 |
| | ***answered question*** | **102** |
| | ***skipped question*** | **0** |

Question 3

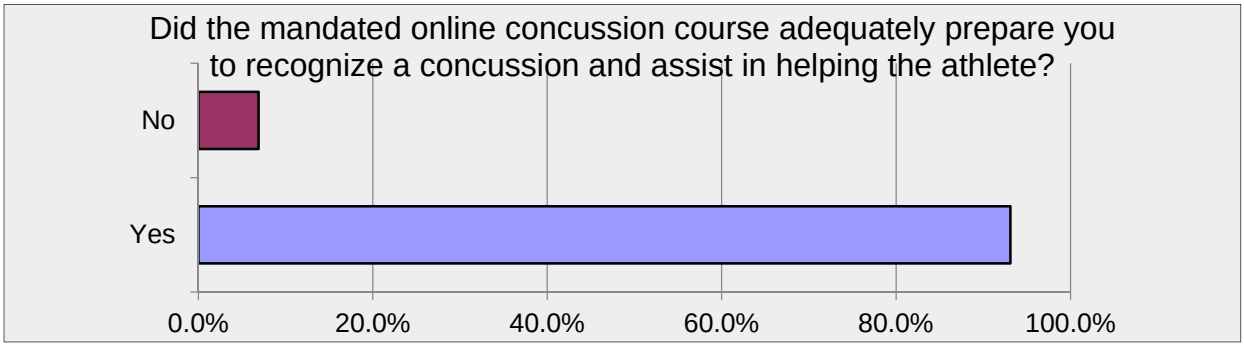
School coaches are required to complete a concussion management course every year. Athletic directors report that 98 percent of coaches meet this requirement.




| **Do each of your school's coaches complete a concussion management certification course every year?** | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes, all coaches every year. | 98.0% | 100 |
| Yes, but not necessarily every coach every year. | 2.0% | 2 |
| No, few if any of our coaches have taken the certification course. | 0.0% | 0 |
| Not sure. | 0.0% | 0 |
| ***answered question*** | | **102** |
| ***skipped question*** | | **0** |

Question 4

Question 4 asked athletic directors if the aforementioned course had prepared them to recognize a concussion, and 93 percent answered in the affirmative.



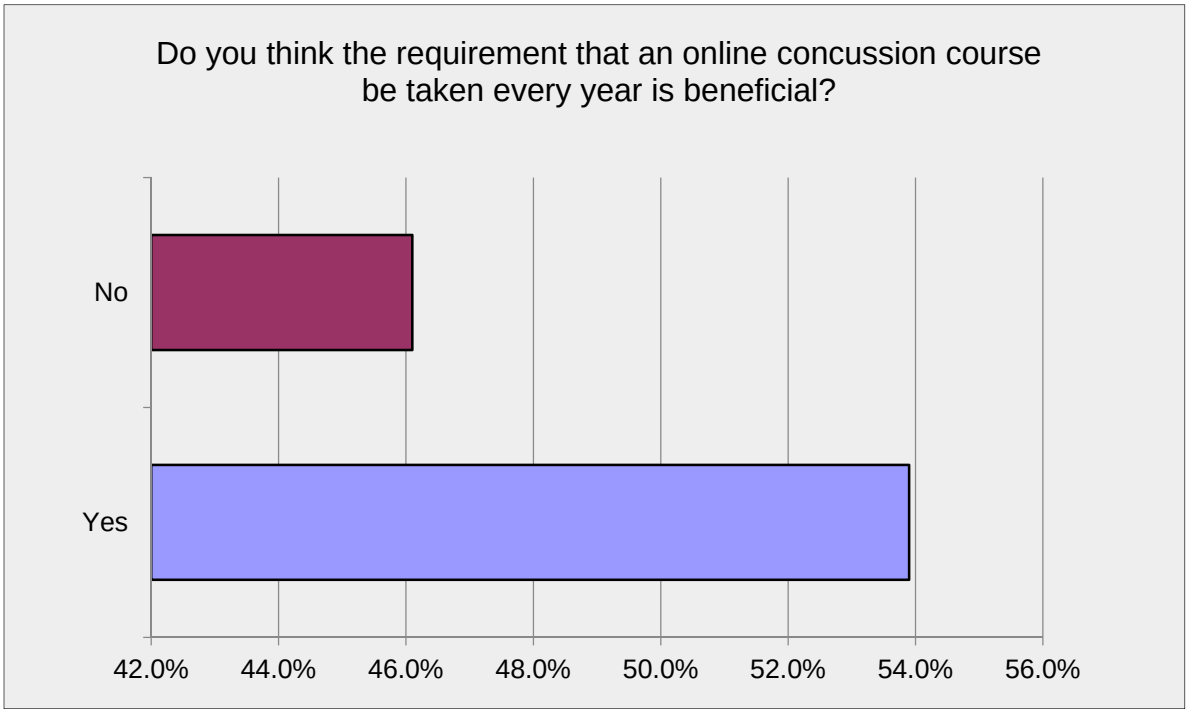

| Did the mandated online concussion course adequately prepare you to recognize a concussion and assist in helping the athlete? | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes | 93.1% | 95 |
| No | 6.9% | 7 |
| If no, please explain | | 9 |
| ***answered question*** | | **102** |
| ***skipped question*** | | **0** |

**If no, please explain**

- I believe that knowing the signs and symptoms is a help but sometimes the student athletes do not present with them right away nor are they completely honest at times with their symptoms.
- It gave our coaches awareness of concussion signs and protocol.
- Instead of an annual requirement, a biannual requirement.
- Many coaches wonder why they have to do the test every year. Especially when it is basically the same test. Yes, it does help them recognize a concussion, but we tell our coaches that any player that gets hit must see the athletic trainer immediately. It has become second nature to immediately send a player to the trainer for assessment. I don't know that the concussion course is playing that big of a role in educating our coaches.
- Simply repeating the same course is a waste of employees' time. A set of informational updates should be provided each year to coaches/advisors instead of the same old stuff.
- I wish the course was updated annually so that they are not repeating the same course-examples of student injuries, by students and the results would really hit home with coaches. Maybe include the LaSalle Football example of what can go wrong when a student returns or does not completely recover from injuries.
- Coaches are adequately prepared the first time they take the course. To annually sit down and take another test, when the information presented is the same, and nothing has changed in the literature, is redundant. It is better suited to be included in the PIAA mandated coaches education class, starting in July 2016 and have update bulletins sent, if and when, anything changes in the literature.
- It is the exact same course, with the same questions, year after year... the first year is okay, but after that the coaches just "go through the motions" of completing it and printing a certificate.
- I have to say no because most of information we already knew the key area we stress with our coaches is send any athlete to the trainer if believe in anyway he took a blow to the head or a very hard hit period.

Question 5

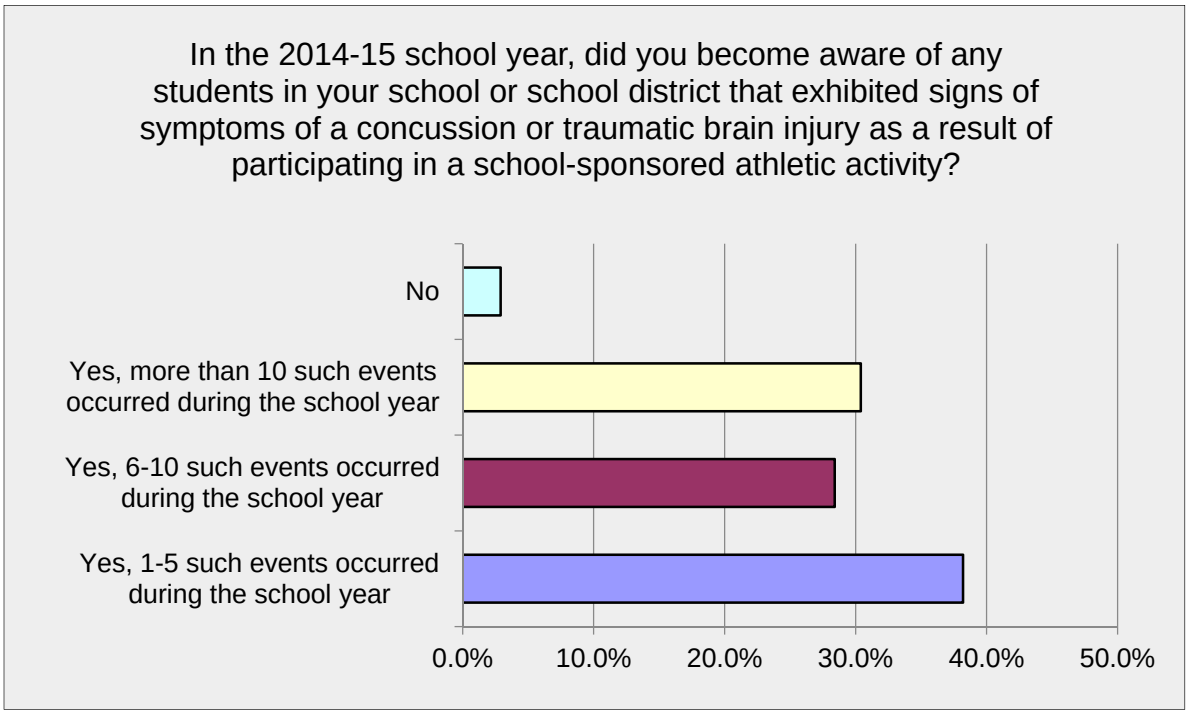
Most of the athletic directors, 54 percent, agreed that taking the concussion course every year is beneficial; 46 percent indicated that every year may be too frequent for this type of education.




| Do you think the requirement that an online concussion course be taken every year is beneficial? | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes | 53.9% | 55 |
| No | 46.1% | 47 |
| ***answered question*** | | **102** |
| ***skipped question*** | | **0** |

Question 6

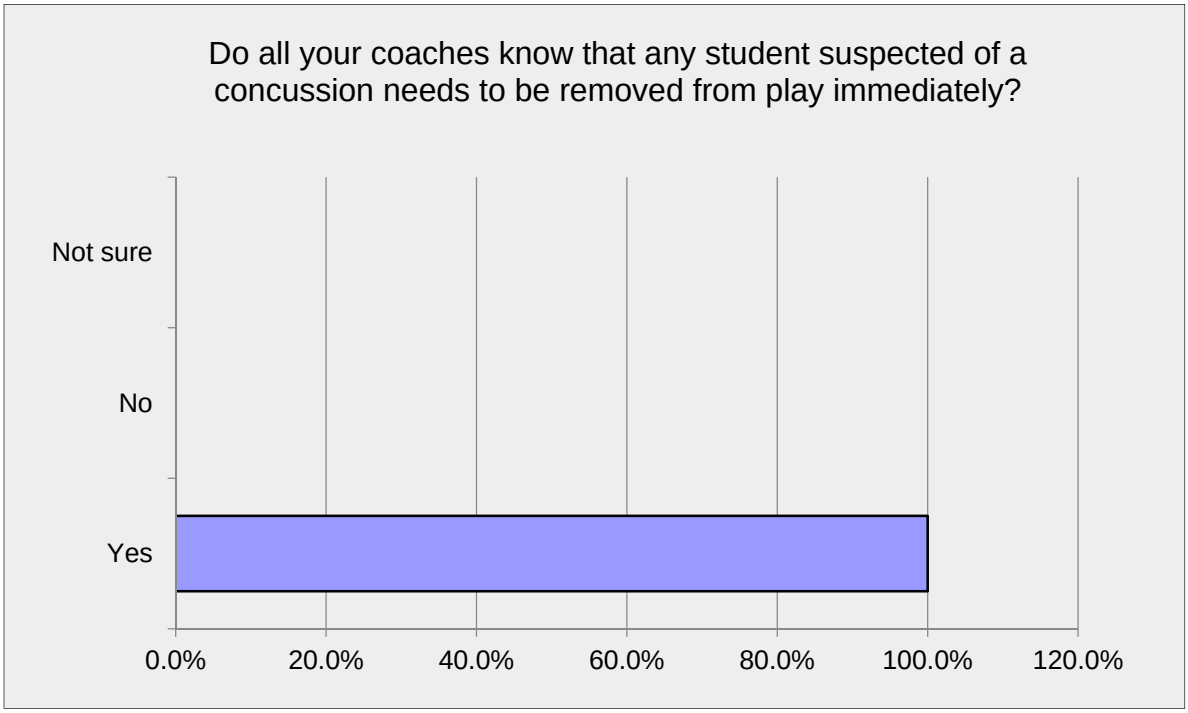
Question 6 asked for the incidence of students exhibiting signs of a concussion. Only three respondents answered that there were none. All other respondents answered that there had been between 1 and 10 such events during the past school year, with about 38 percent reporting between one and five such events.




| **In the 2014-15 school year, did you become aware of any students in your school or school district that exhibited signs of symptoms of a concussion or traumatic brain injury as a result of participating in a school-sponsored athletic activity?** | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes, 1-5 such events occurred during the school year | 38.2% | 39 |
| Yes, 6-10 such events occurred during the school year | 28.4% | 29 |
| Yes, more than 10 such events occurred during the school year | 30.4% | 31 |
| No | 2.9% | 3 |
| ***answered question*** | | **102** |
| ***skipped question*** | | **0** |

Question 7

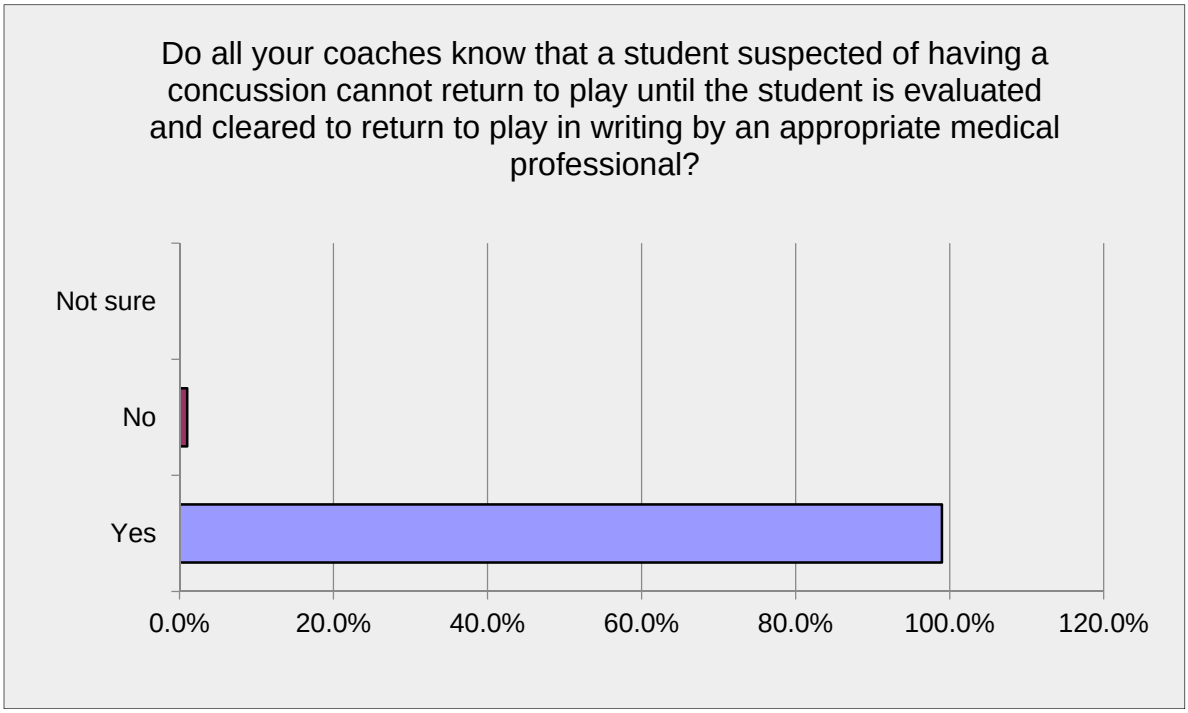
All respondents in Question 7 stated that their coaches understood that a student should be immediately removed from play if a concussion is suspected.




| Do all your coaches know that any student suspected of a concussion needs to be removed from play immediately? | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes | 100.0% | 102 |
| No | 0.0% | 0 |
| Not sure | 0.0% | 0 |
| ***answered question*** | | **102** |
| ***skipped question*** | | **0** |

Question 8

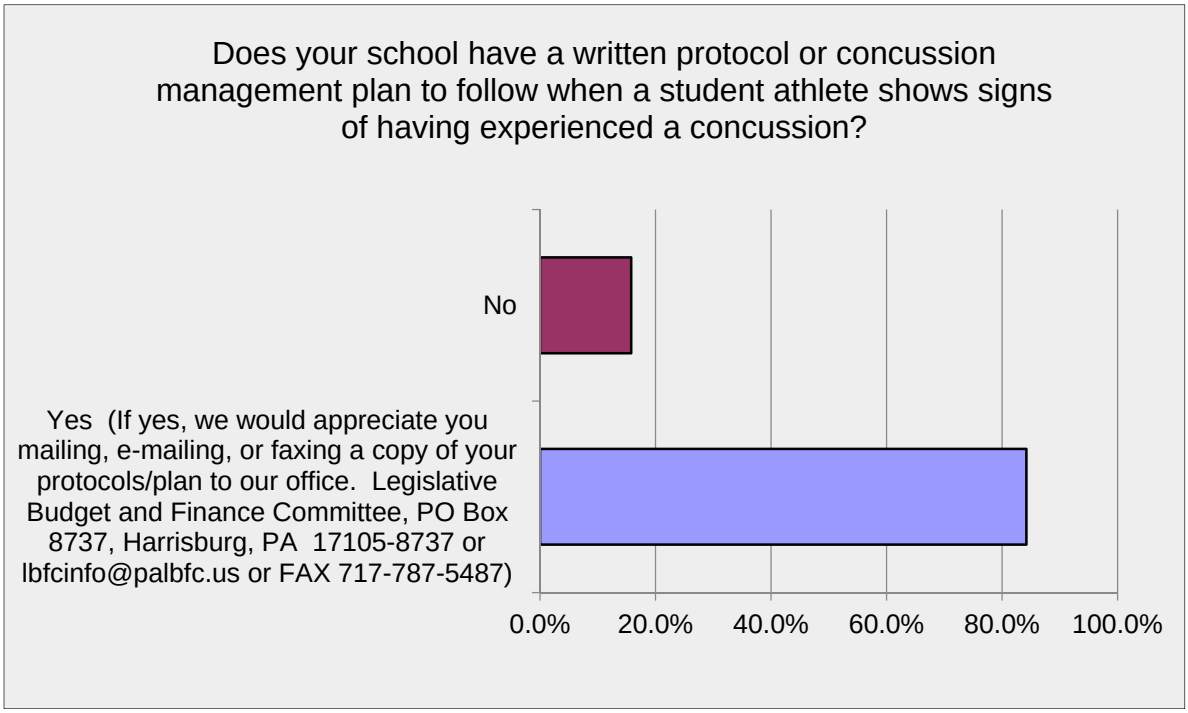
All but one respondent answered that all coaches know that a student suspected of having a concussion cannot return to play without an evaluation by a medical professional.




| **Do all your coaches know that a student suspected of having a concussion cannot return to play until the student is evaluated and cleared to return to play in writing by an appropriate medical professional?** | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes | 99.0% | 101 |
| No | 1.0% | 1 |
| Not sure | 0.0% | 0 |
| ***answered question*** | | **102** |
| ***skipped question*** | | **0** |

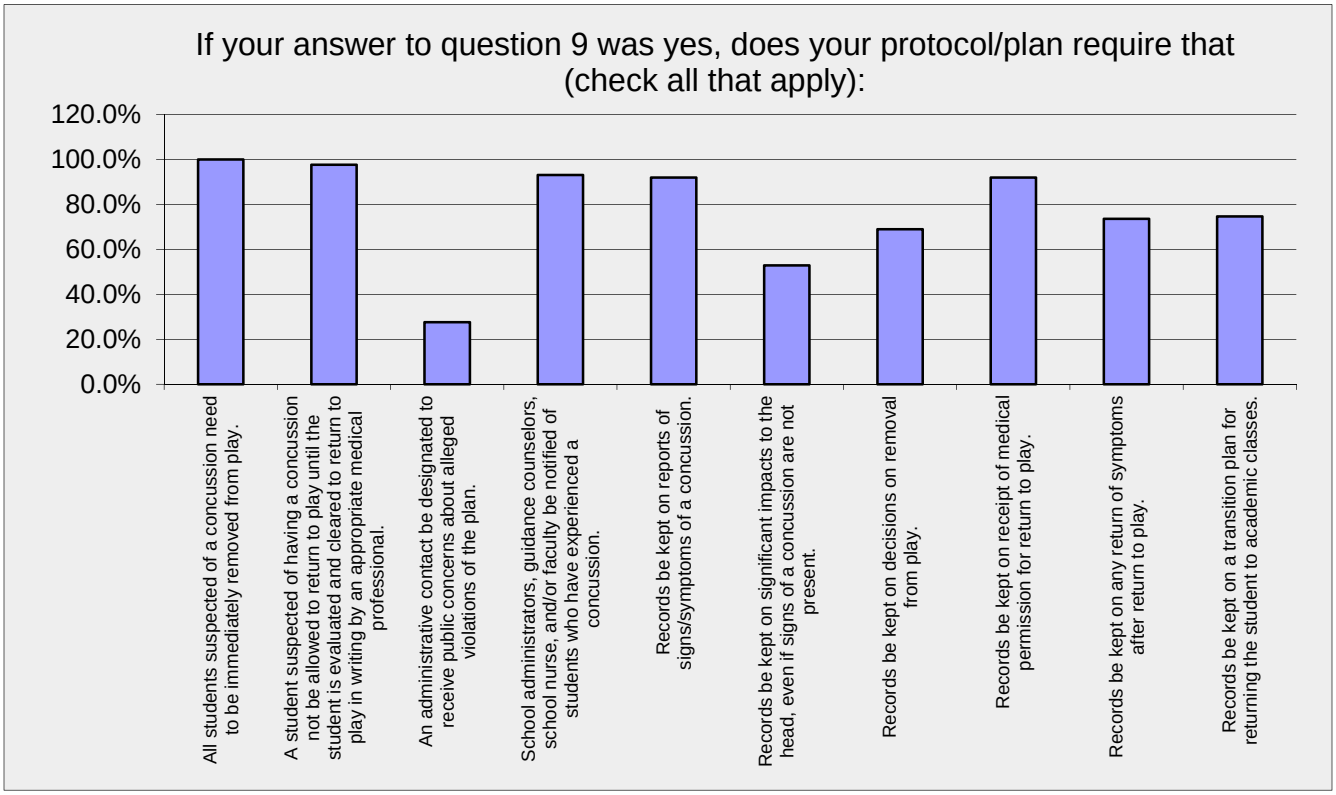
Question 9

Question 9 asked if a respondent's school has a written protocol to follow if a student shows signs of a concussion. The majority, 84 percent, answered in the affirmative.




| **Does your school have a written protocol or concussion management plan to follow when a student athlete shows signs of having experienced a concussion?** | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes (If yes, we would appreciate you mailing, e-mailing, or faxing a copy of your protocols/plan to our office. Legislative Budget and Finance Committee, PO Box 8737, Harrisburg, PA 17105-8737 or lbfcinfo@palbfc.us or FAX 717-787-5487) | 84.2% | 85 |
| No | 15.8% | 16 |
| ***answered question*** | | **101** |
| ***skipped question*** | | **1** |

Question 10




| **If your answer to question 9 was yes, does your protocol/plan require that (check all that apply):** | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| All students suspected of a concussion need to be immediately removed from play. | 100.0% | 87 |
| A student suspected of having a concussion not be allowed to return to play until the student is evaluated and cleared to return to play in writing by an appropriate medical professional. | 97.7% | 85 |
| An administrative contact be designated to receive public concerns about alleged violations of the plan. | 27.6% | 24 |
| School administrators, guidance counselors, school nurse, and/or faculty be notified of students who have experienced a concussion. | 93.1% | 81 |
| Records be kept on reports of signs/symptoms of a concussion. | 92.0% | 80 |
| Records be kept on significant impacts to the head, even if signs of a concussion are not present. | 52.9% | 46 |
| Records be kept on decisions on removal from play. | 69.0% | 60 |
| Records be kept on receipt of medical permission for return to play. | 92.0% | 80 |
| Records be kept on any return of symptoms after return to play. | 73.6% | 64 |
| Records be kept on a transition plan for returning the student to academic classes. | 74.7% | 65 |
| Comment | | 13 |
| ***answered question*** | | **87** |
| ***skipped question*** | | **15** |

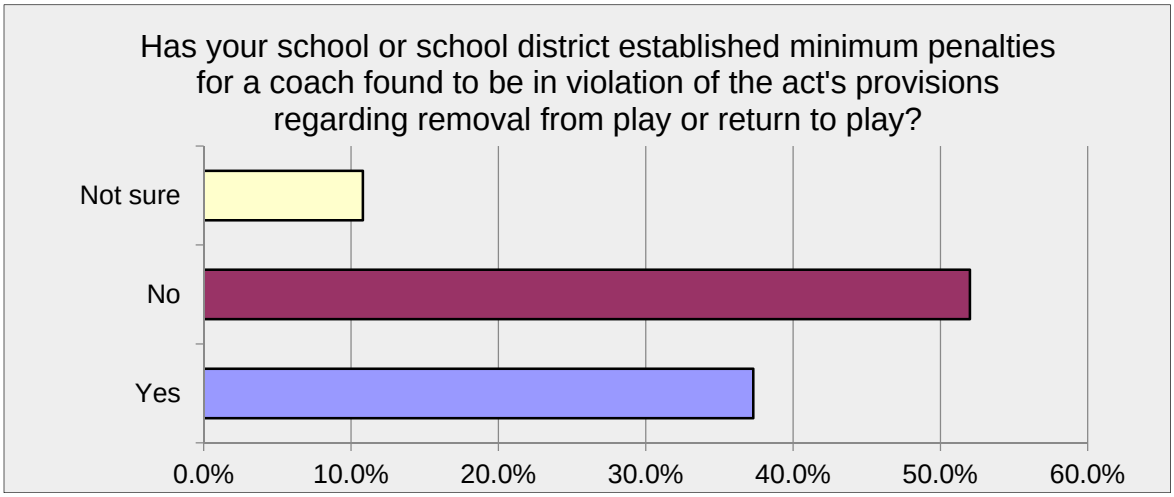
Question 10 (Continued)

Comments

- Our practice is that we keep records of the above, but it is not written in our protocol to do so.
- Athletic Trainers keep records of all injuries (Concussions included, so this is not necessary in our concussion protocol).
- We do keep records for all of the areas not checked but our plan does not require this in writing.
- School counselors keep records for academic restrictions/return to classes.
- We use ImPact protocol.
- All injuries including head injuries have a report form and records are kept. If an athlete does not see an athletic trainer then there would be no record.
- The plan does not specify the items not checked but we do all of them as part of our concussion management process.
- Follow up by Trainer/ School Nurse is in place.
- To make an attempt to keep track of some of these things listed above with very limited resources is difficult at best for schools to achieve.
- Our guidelines and policy do not specifically state many of these items, however our Athletic Trainer does each of these steps in terms of recording and communication with parents, teachers, etc.
- Significant impacts of head are recorded if they are a part of an injury report. In football, there is a good probability that there are significant impacts to multiple players' heads every play of the game.
- We Impact Test all athletes before they can participate in a sport - our trainer is provided by OSS in York and they have all the protocol set-up with our trainer and we follow all the orders of the doctors both in sports and in the classroom.
- Athletic trainer handles most of this and is in constant contact with coaches and AD.

Question 11

Penalties against coaches are defined in the Act, and athletic directors were asked if their districts have adopted these penalties. Sixty-one percent of respondents answered that they do not have or are unsure that such penalties are in place.



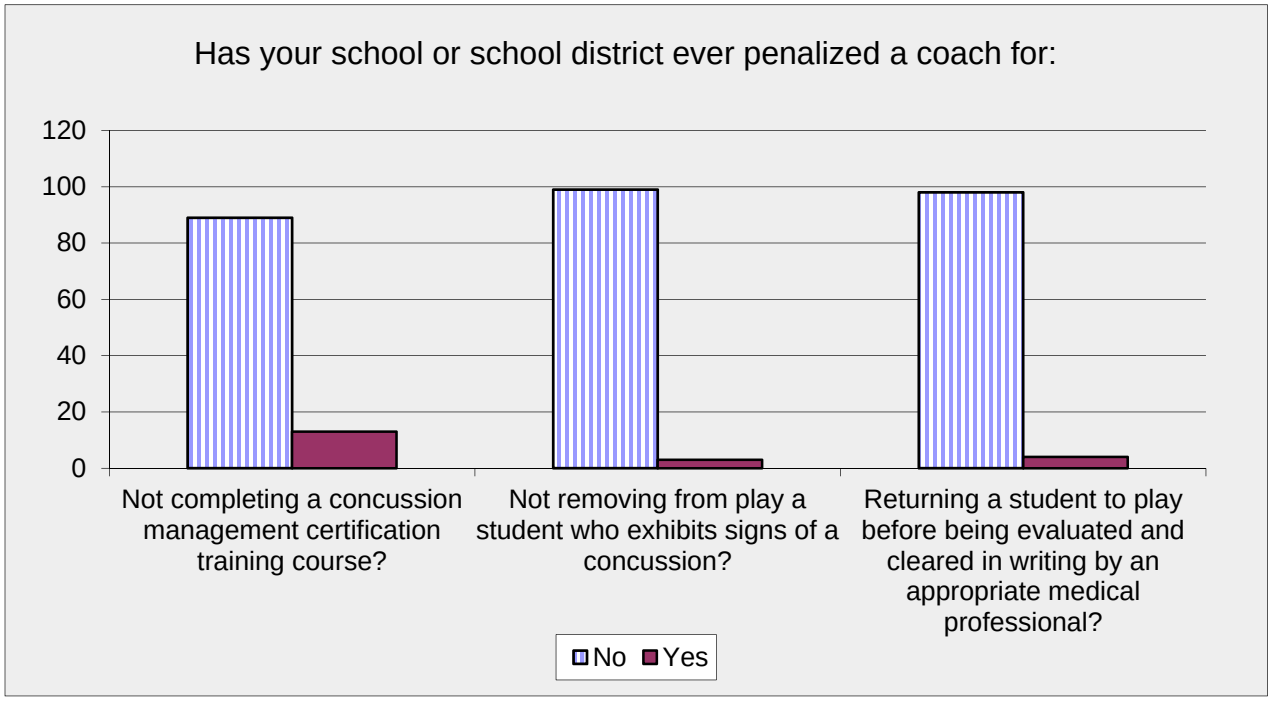

| Has your school or school district established minimum penalties for a coach found to be in violation of the act's provisions regarding removal from play or return to play? | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes | 37.3% | 38 |
| No | 52.0% | 53 |
| Not sure | 10.8% | 11 |
| Comment | | 10 |
| ***answered question*** | | **102** |
| ***skipped question*** | | **0** |

Comments

- As stated in the law.
- Need to follow protocol to return. End of story.
- If this was an intentional act in which a coach knew an athlete was suspected to have a concussion then termination would be recommended.
- As per outlined in legislation.
- We have not had any violations, but if we did, we would act and penalize accordingly, with possible dismissal from coaching.
- Coach's Training is awareness of their responsibilities.
- If occurs; I'm sure a suspension would result. Thankfully, it has not happened.
- We follow the state law.
- They are terminated.
- We utilize progressive discipline and address each scenario based on the situation. If it is determined that a coach willfully places a child in a harmful situation, the coach will be recommended for immediate dismissal- regardless of what the content source of harm was.

Question 12

Following up on Question 11, athletic directors were asked if any of their coaches had ever been penalized for various reasons. As shown below, very few report that they have ever had to penalize a coach under the provisions of the Act.




| Has your school or school district ever penalized a coach for: | | | |
|---|---|---|---|
| **Answer Options** | **Yes** | **No** | **Response Count** |
| Not completing a concussion management certification training course? | 13 | 89 | 102 |
| Not removing from play a student who exhibits signs of a concussion? | 3 | 99 | 102 |
| Returning a student to play before being evaluated and cleared in writing by an appropriate medical professional? | 4 | 98 | 102 |
| Comment | | | 26 |
| | | ***answered question*** | **102** |
| | | ***skipped question*** | **0** |

Comments

- Our coaches have always followed the rules and protocol, so there has been no need for any such penalties.
- We have not because we have not had to.
- Not Applicable.
- They are all no because we have not had that situation, not because a coach did so and was not reprimanded.

Question 12 (Continued)

- Never had to.
- We have not had to do that as our coaches are in compliance.
- Coach was immediately suspended for the duration of the season and at the end of the season fired.
- We never had to do any of the above questions.
- No violations have occurred due to requirements for course completion.
- Need to follow protocol to return. End of story.
- All coaches must complete "ConcussionWise" before they can attend a practice or event. I have removed coaches from the 1st day of practice for failing to complete the test in a timely manner.
- Never happened before in my school district, but such a coach would be penalized for any of these offenses.
- There have been no violations of the procedure.
- All Coaches have completed courses before their season has started.
- None of the above have happened here.
- Coaches may not start the season without the concussion training completed.
- We have never had any of these situations arise.
- No instances of the two "NO"
- Not permitted on all accounts.
- These have never been an issue.
- The state law basically describes that we are to punish the coaches and mine won't be because they are required to take the course or they don't coach.
- All of our coaches have been 100% compliant.
- None of these this have ever happened thus far.
- They must complete the course as mandated before they can coach each season and our coaches all work well with our trainer on all medical issues.
- Has never been an issue. Coaches have always followed the rules.
- We have never had a coach in this position.

Question 13

Ninety-six percent of athletic directors report that they have received no complaints from parents regarding concussions.


| **In the past two years, have you received any complaints from students, parents, or others regarding student athletes who may have shown signs of a concussion but were not removed from play or that were allowed to resume play without having received clearance from an appropriate medical professional?** | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes | 4.9% | 5 |
| No | 96.1% | 98 |
| Comment | | 10 |
| ***answered question*** | | **102** |
| ***skipped question*** | | **0** |

Comments

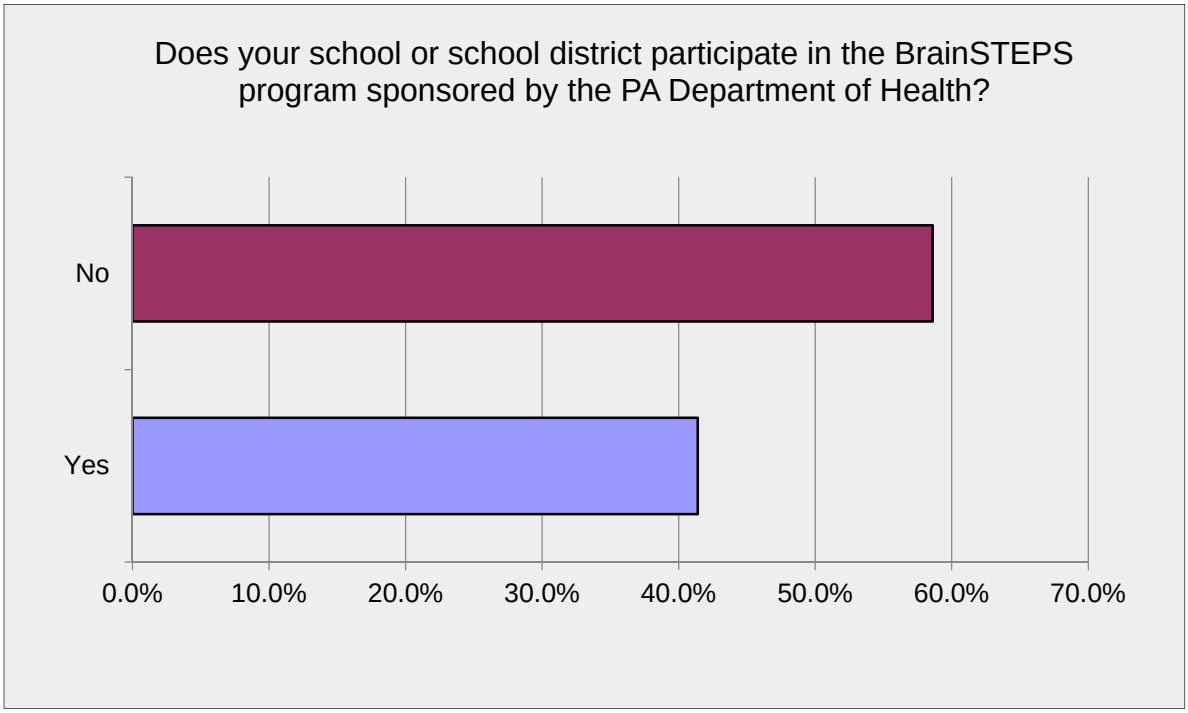
- Our parent complaints are when we follow our return to play protocol following release by physician.
- Parental concern.
- Once, from a visiting player in regards to their team not our team.
- We have received many complaints of the complete opposite. Parents complaining that students are fine and healthy to play, and asking why their child needs to sit out longer from participation than what they believe to be necessary.
- Always have a trainer review - side of caution is our game plan.
- We have certified athletic trainers at all athletic activities and they ensure that players are appropriately treated for all medical issues.
- Parents understand concussions are serious.

Question 13 (Continued)

- We actually have received a few complaints from parents who wanted their student(s) to return to play before being cleared by the medical professionals. We had on two different situations just last year a parent indicating they would be "willing to sign a waiver or anything removing liability" so we would allow their student to return to play... we did not allow the student to return in any of these situations.
- No...actually the reverse. They get angry when we force the removal of an athlete exhibiting concussion signs.
- Just the opposite, we have had complaints from parents when we did not allow their child to return to play without the clearance from a physician.

Question 14

In Question 14, respondents answered that about 41 percent of their districts participate in the BrainSTEPS program.




| Does your school or school district participate in the BrainSTEPS program sponsored by the PA Department of Health? | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes | 41.4% | 41 |
| No | 58.6% | 58 |
| | ***answered question*** | **99** |
| | ***skipped question*** | **3** |

Question 15

Respondents were given the opportunity to make any additional comments that they might like to offer. Respondents offered that the Safety in Youth Sports Act is working to protect students and to disseminate information regarding concussions and concussion care. Many coaches also commented that the requirement for annual concussion training was too frequent and was an imposition on coaches who already have many time constraints.

| **Would you like to make any additional comments or recommendations regarding the implementation of or modifications needed to Pennsylvania's Safety in Youth Sports Act?** | |
|---|---|
| **Answer Options** | **Response Count** |
| | 26 |
| ***answered question*** | **26** |
| ***skipped question*** | **76** |

Comments

- No. I think this has really guided us to develop a plan and share that with coaches, administration, student-athletes, and families so that everyone is informed on the serious nature of concussions and traumatic brain injuries. Our protocol is comprehensive and research based to protect our students' health and to track occurrences of head related injuries to make informed decisions with medical and family input for future participation of our students. I believe the law needs more teeth at the non-school (youth) level to make coaches and parents there more cognizant to the severity of concussions and traumatic brain injuries.
- Question 5 - I feel it would be sufficient to have coaches complete the training as a prerequisite to being hired and then once every 3 years thereafter.

  Question 9 - We follow the prescribed return to play protocol established by PIAA.
- I think the mandate for coaches to do this online test EVERY YEAR is a bit excessive. This course should be required every 3-5 years as refreshers, the overkill of doing it every year loses its worth because people look at it more as a "chore" than something to actually learn from.
- I think making coaches do annual training is too frequent.
- I do not believe all coaches need to take the concussion course every year.
- No you about covered it.
- We have all of our athletes take the "Impact Test." We feel this has been a valuable tool for their doctors during a recovery from a concussion. The baseline test is taken every 3 years to accommodate maturity and development.
- More emphasis needs to be placed on the recommended return to play because most parents do not understand that when a doctor signs off that they still need a gradual return to play. Also the coaching requirement to complete the course every year makes it a joke to the coaches and they do not take it seriously then. The concussion education and sudden cardiac arrest training should be a 1-time training with maybe a refresher course needed every 3-5 years.
- The mandated course should only be an annual update if the material in the course is updated from year to year. Asking coaches to repeat the course annually is frustrating when the information hasn't changed.
- Coaches get information about concussions from both the PIAA and NFHS. We work with local doctors and our athletic trainer to take care of sufficient documentation. Parents are kept up to speed on all signs, symptoms, and activities relating to concussion protocol.

Question 15 (Continued)

- Our coaches participate in ConcussionWise sponsored by PA Athletic Trainers. Every coach takes the course every year.
  To be honest, our coaches are overwhelmed by the number of things that are required by the Commonwealth, PIAA, District XI, Conference and School District. They barely have enough time to do what they were hired to do...coach. They are familiar with concussions and let the medical staffs handle concussions. The athletic trainer does the initial evaluation and then a concussion specialist handles each case individually. Coaches stay out of it until the athlete is cleared.
- It is working well, don't make unnecessary changes.
- Athletic Trainer is on site for any athletic event and ensures the safety of the athletes by closely monitoring practices and competitions.
- The requirement for yearly certifications in concussion (state legislation) and cardiac arrest (PIAA) is far too redundant. The need for a coach to re-take the certification every 3-5 years would be far more effective, especially with all the responsibilities and items coaches must complete on a yearly basis.

  In addition, with the PIAA's new coaching education requirement that goes into effect for all coaches, there is already another form of medical/safety education in place.

  If State Legislators and the PIAA wish to make stride in three major areas in Interscholastic Athletics, here are the 3 major priorities:

  1. Have a "1 stop shop" for all needed coaching education/safety training where 1 certificate can be earned to signify that all requirements have been met. Make this requirement to complete this certificate once every 5 years.

  2. Have a "1 stop shop" for all needed clearances for coaches and volunteers to be able to enter information in one program and all needed clearances are taken care of. The current process for clearances (for all school employees) is far too cumbersome.

  3. State legislation currently does not allow for the PIAA to discuss the need to split PIAA Championship into a Public school championship and a Private school championship. School Code needs to be amended to allow this much needed discussion to take place.
- The requirement to take the same concussion course each year for coaches seems redundant. Perhaps this could be done before their first season of coaching and then a refresher course every 3 - 5 years. In addition, coaches are also required to take a Sudden Cardiac Arrest course each year. It would be helpful for these two courses to be combined into one online course to makes things easier for coaches.

  Further, it has gotten increasingly challenging to get and retain coaches. In addition to the concussion course and sudden cardiac arrest course, coaches must also take 3 - 4 hours of Child Abuse Recognition training, and starting in 2016, coaching education and CPR/Sport First Aid (approx. 8 hours). Coaches also have to get a TB test done and be Red Cross certified in First Aid in many districts. With a stipend of probably $2,000 for all the aforementioned requirements and having to deal with ever-increasing parent pressures, coaching longevity is extremely short and finding coaches is extremely challenging.
- Each of our sports holds a parent meeting at the beginning of each season rather than one large one with multiple sports present. Repeating the same information each year is a ridiculous waste of time. Once every three to five years with new information would be better. Then each year a new topic can be covered (i.e. sickle cell athletes, heat illness, CPR, strength and conditioning programs, coaching ethics, coaching methods, etc.). This would provide coaches true continuing education rather than the same 25 minute presentation. I am not a fan!
- Concussion awareness form is a section of the PIAA Physical that is required by Athletes.
- Question 5: I think every 2 years (same as Red Cross CPR/AED/First Aid is sufficient

  Question 14: School does not. Not sure if district does for sports we do not have.

Question 15 (Continued)

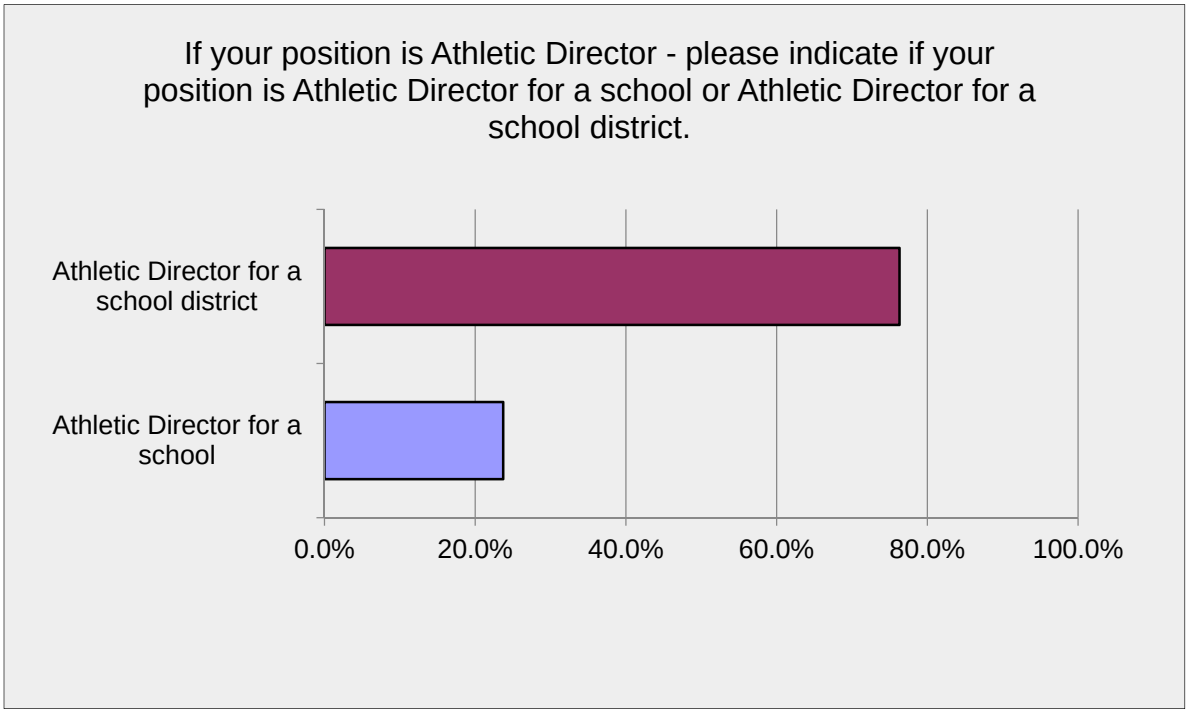
- Many of your questions are redundant as these are included in the state law and must be followed, such as coaches' education, parent sign off, etc.

  The parents and students MUST sign the CIPPE form or they can't participate. Coaches are required to take the tests or they can't coach.

  The law has merit but to have intelligent individuals annually take a course on the basics of care and common sense in beyond me. Coaches, who have any sense about them, are to be on the side of caution and remove an athlete from participation. They stay within their scope of practice, which is basically a first responder at best, and refer to the License Athletic Trainer or another appropriate medical facility for further evaluation.
- I think being proactive and always error on the side of protecting the athlete needs to be the priority... and if that is the case coaches need to understand the importance of training and being prepared. Having coaches "go through the motions" to complete a training is not impacting coaches. They view this as a hoop that needs to be jumped through so they can coach and the fact the videos and questions are the same from year to year provides reinforcement that this training is not important. I think it is vital that the training materials be reevaluated and updated.
- Question 5. I do not feel that the online concussion test is beneficial for coaches every year because it has not changed at all. I think the training should change as the information changes and if the training doesn't change it should only be mandatory that they take it every 2 years.

  Question 9. We use ImPact testing as our guide and our trainer is wonderful.
- I really believe the course needs to be changed to once every third year--so a certificate would state that it is good for a three year period.
- Strongly suggest as I did to my local State Representative, that a comprehensive course be developed to include all the mandatory coaching education (Principles, First Aid & Safety, Concussion, and Cardiac Arrest). The courses are supported, but as a Nationally Certified Instructor, the piece mail structure of the continuing education of coaches is inefficient. I would be happy to come out to Harrisburg to discuss this matter in more detail. I am a strong supporter of coaching education and would be willing to assist PDE, the state legislature, etc. in implementing a more efficient method of delivering this material to our coaches.
- It should not be required to be completed every year. Unless Concussion Protocol changes then once you complete the requirement you should be fine.
- Our school requires all athletes to have a baseline test on file before being allowed to participate. I think all schools should do this. In the event of a head injury, it allows our trainer to gain valuable information on the progress of the injured players' condition.
- We do baseline testing for middle school students as well as high school students prior to every athletic season. We make this mandatory as part of the physical form required paperwork.

Question 16



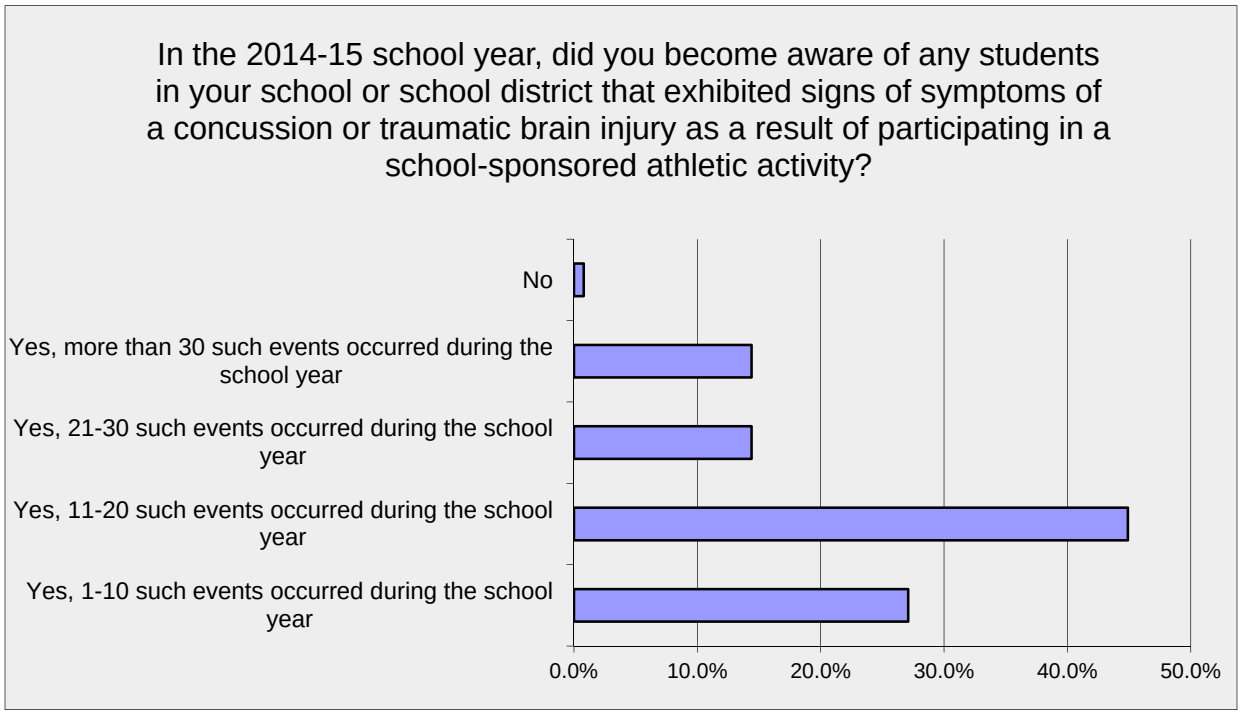

| If your position is Athletic Director - please indicate if your position is Athletic Director for a school or Athletic Director for a school district. | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Athletic Director for a school | 23.7% | 22 |
| Athletic Director for a school district | 76.3% | 71 |
| ***answered question*** | | **93** |
| ***skipped question*** | | **9** |

Source: Responses to Legislative Budget and Finance Committee questionnaire to school athletic directors.

## Survey of Athletic Trainers

We surveyed the 552 athletic trainers who were members of the Pennsylvania Athletic Trainers' Society and had a response rate of over 21 percent. Responses to each question are below.

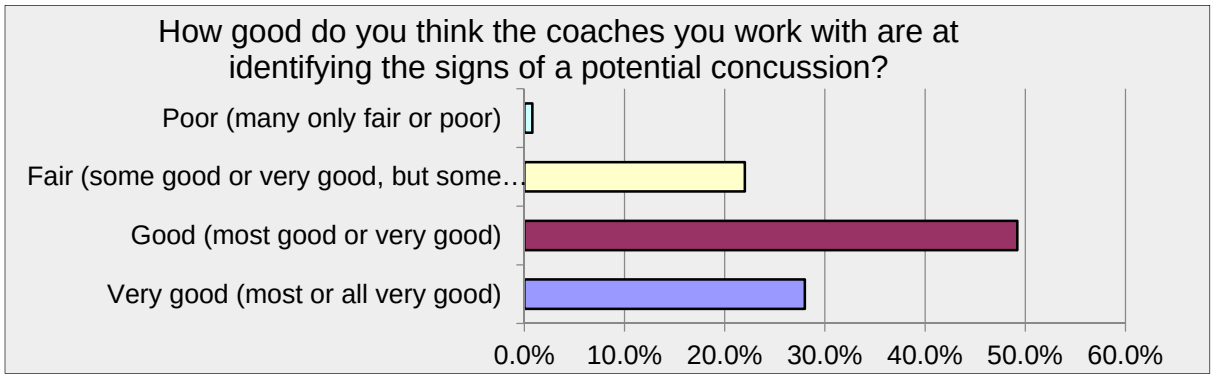
Question 1




| **In the 2014-15 school year, did you become aware of any students in your school or school district that exhibited signs of symptoms of a concussion or traumatic brain injury as a result of participating in a school-sponsored athletic activity?** | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes, 1-10 such events occurred during the school year | 27.1% | 32 |
| Yes, 11-20 such events occurred during the school year | 44.9% | 53 |
| Yes, 21-30 such events occurred during the school year | 14.4% | 17 |
| Yes, more than 30 such events occurred during the school year | 14.4% | 17 |
| No | 0.8% | 1 |
| ***answered question*** | | **118** |
| ***skipped question*** | | **1** |

Question 2

When asked about how good coaches are at identifying signs of concussion, 77 percent of athletic trainers responded that coaches are good or very good at identification.



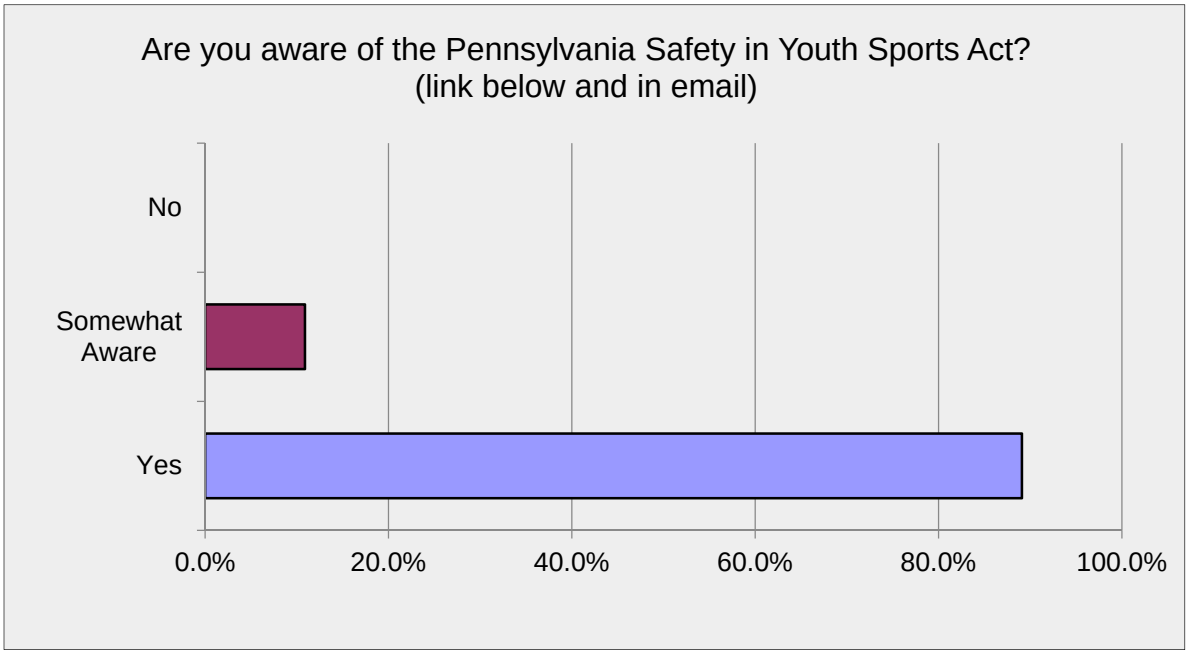

| How good do you think the coaches you work with are at identifying the signs of a potential concussion? | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Very good (most or all very good) | 28.0% | 33 |
| Good (most good or very good) | 49.2% | 58 |
| Fair (some good or very good, but some fair or poor) | 22.0% | 26 |
| Poor (many only fair or poor) | 0.8% | 1 |
| Comment | | 13 |
| ***answered question*** | | **118** |
| ***skipped question*** | | **1** |

Comments

- All of our coaches must complete the ConcussionWise course prior to their season.
- Some still choose to ignore when their players report having headaches.
- Tend to "error on the side of caution."
- Coaches are made aware of concussion signs and symptoms before every season at the coaches' meeting.
- I think the coaches prefer to act as though they don't see the incident so they can deny knowing it happened.
- Coaches are trained to notify AT immediately at any sign or symptom of concussion for full evaluation.
- They are better at recognizing the more obvious, outward signs.
- Coaches comply with the law of completing training courses; I also review signs/symptoms of concussion with all my coaches at the Coaches meetings prior to each season.
- They are good at identifying symptoms if they are reported by the athlete. They could be better at recognizing plays that could lead to possible concussions and checking with athletes (i.e. subbing an athlete if they are drilled in the face with a soccer ball to check them).
- If an athlete is acting differently they do not hesitate to call on the ATs to make sure everything is ok.
- There is a continued need to have a trained medical professional available to evaluate such injuries. This is not a coach's job.
- Some coaches take the time to learn and some just go through the motions.
- Being a school teacher/athletic trainer in the school is a huge benefit. Coaches and parents know to see me first thing in the morning or ASAP.

Question 3

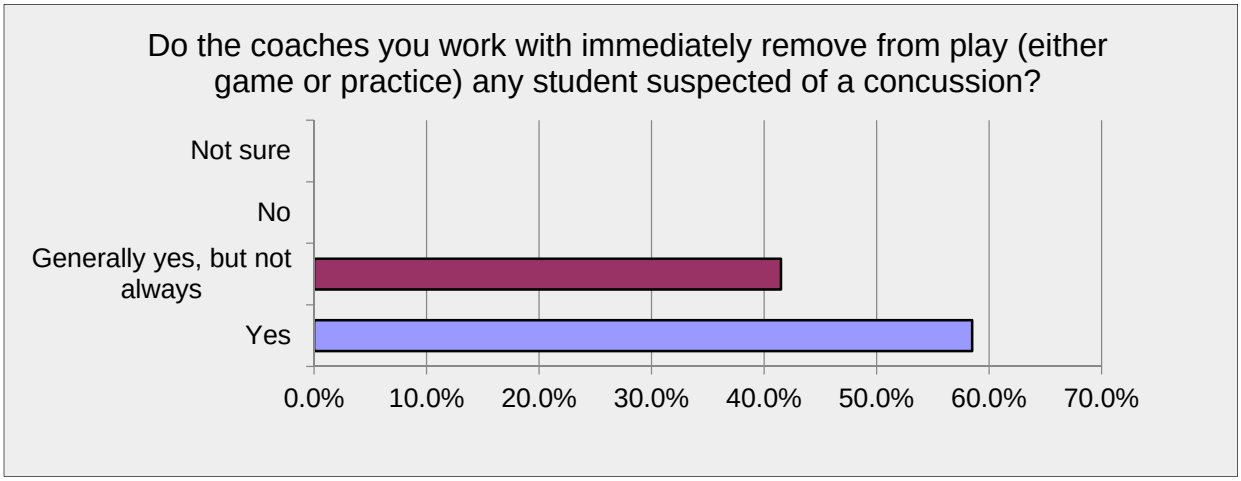
Eighty-nine percent of athletic trainers reported that they are aware of the Safety in Youth Sports Act, with the remainder being somewhat aware, suggesting that the act has made strides in concussion education and awareness.




| Are you aware of the Pennsylvania Safety in Youth Sports Act? | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes | 89.1% | 106 |
| Somewhat Aware | 10.9% | 13 |
| No | 0.0% | 0 |
| ***answered question*** | | **119** |
| ***skipped question*** | | **0** |

Question 4

In Question 4, 42 percent of athletic trainers say that coaches generally, but not always, remove a player from play after a suspected concussion.



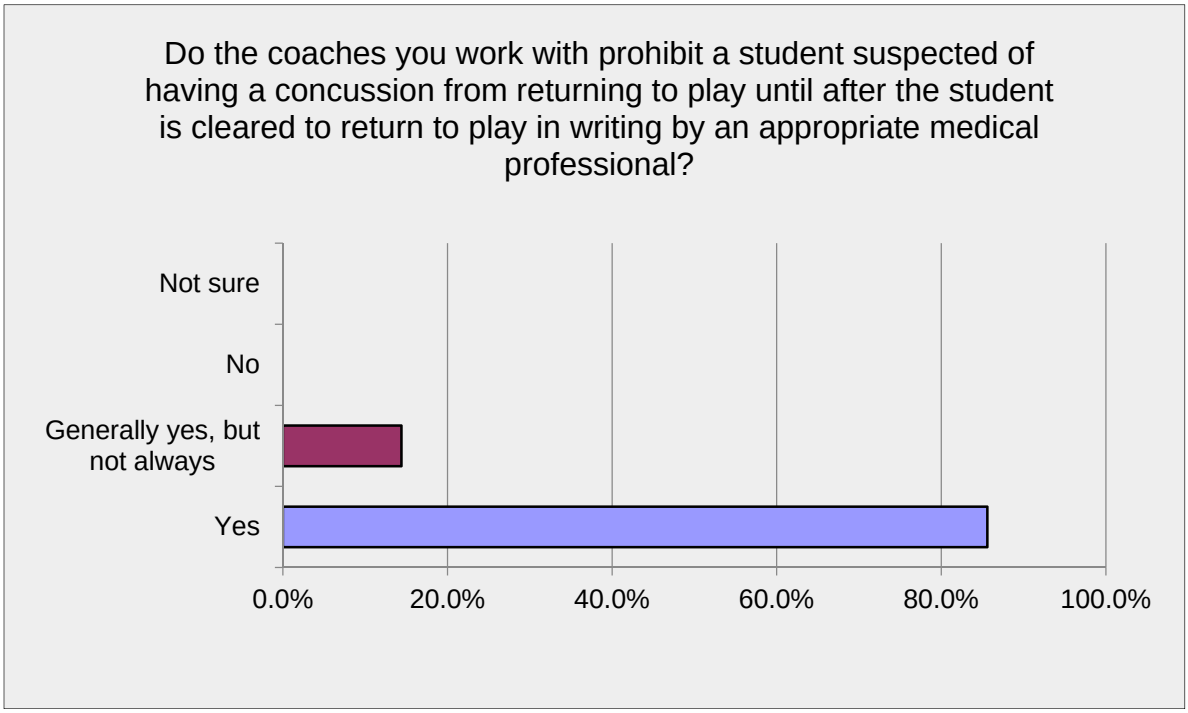

| Do the coaches you work with immediately remove from play (either game or practice) any student suspected of a concussion? | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes | 58.5% | 69 |
| Generally yes, but not always | 41.5% | 49 |
| No | 0.0% | 0 |
| Not sure | 0.0% | 0 |
| Comment | | 7 |
| | ***answered question*** | **118** |
| | ***skipped question*** | **1** |

Comments

- Sometimes they needed the medical staff to definitively tell them to stay out.
- Vast majority of coaches always do, 1-2 rely on kids to report.
- I'm fortunate to have coaches who take concussions very seriously and err on the side of caution.
- It is a hard thing to take a competitive, experienced athlete out of play when they don't want to come out of the game.
- We had one instance where the coaches removed them from play and had them see the host ATC. The host ATC did a super quick eval (per coaches and athlete) and told athlete they could return to play. Athlete returned to play even though they were still symptomatic. Coaches thought they were fine since host ATC said they were. Have since educated coaches that they know their athletes better than host ATC and that it is better to err on side of caution. Have not had any issues since.
- No risk is ever taken if we see something that could be wrong.
- Coaches are not trained extensively enough to recognize subtle variations that can be signs of a more serious issue.

Question 5

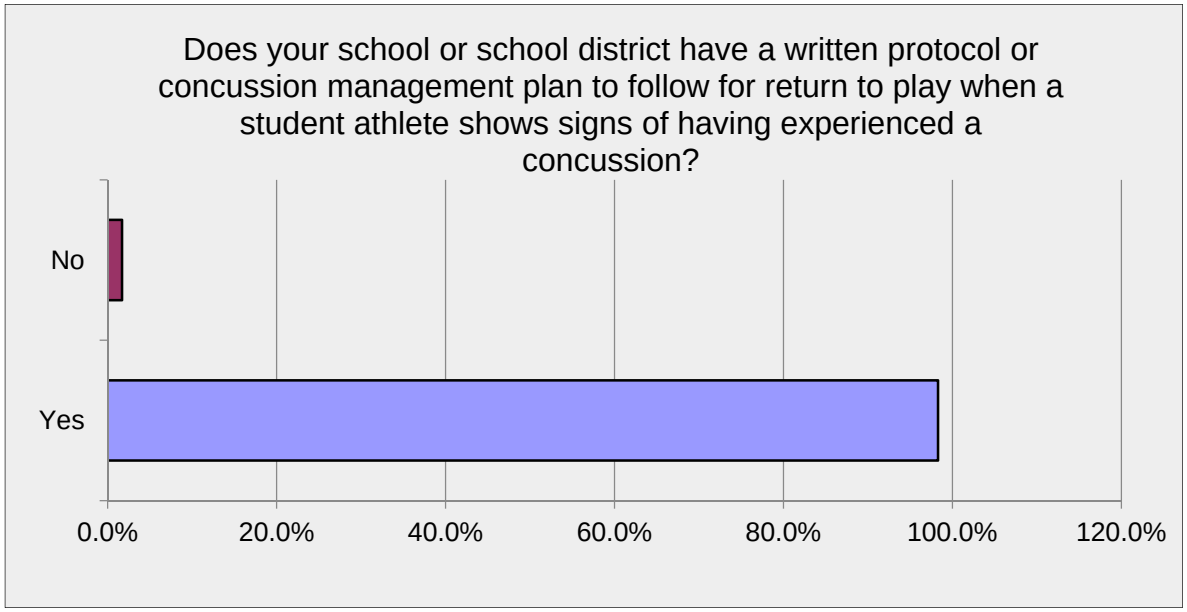
Eighty-six percent of trainers responded that coaches prohibit students from returning to play until a written release is issued by an appropriate medical professional. The remainder of trainers say that this generally occurs, but not always.




| Do the coaches you work with prohibit a student suspected of having a concussion from returning to play until after the student is cleared to return to play in writing by an appropriate medical professional? | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes | 85.6% | 101 |
| Generally yes, but not always | 14.4% | 17 |
| No | 0.0% | 0 |
| Not sure | 0.0% | 0 |
| ***answered question*** | | **118** |
| ***skipped question*** | | **1** |

Question 6

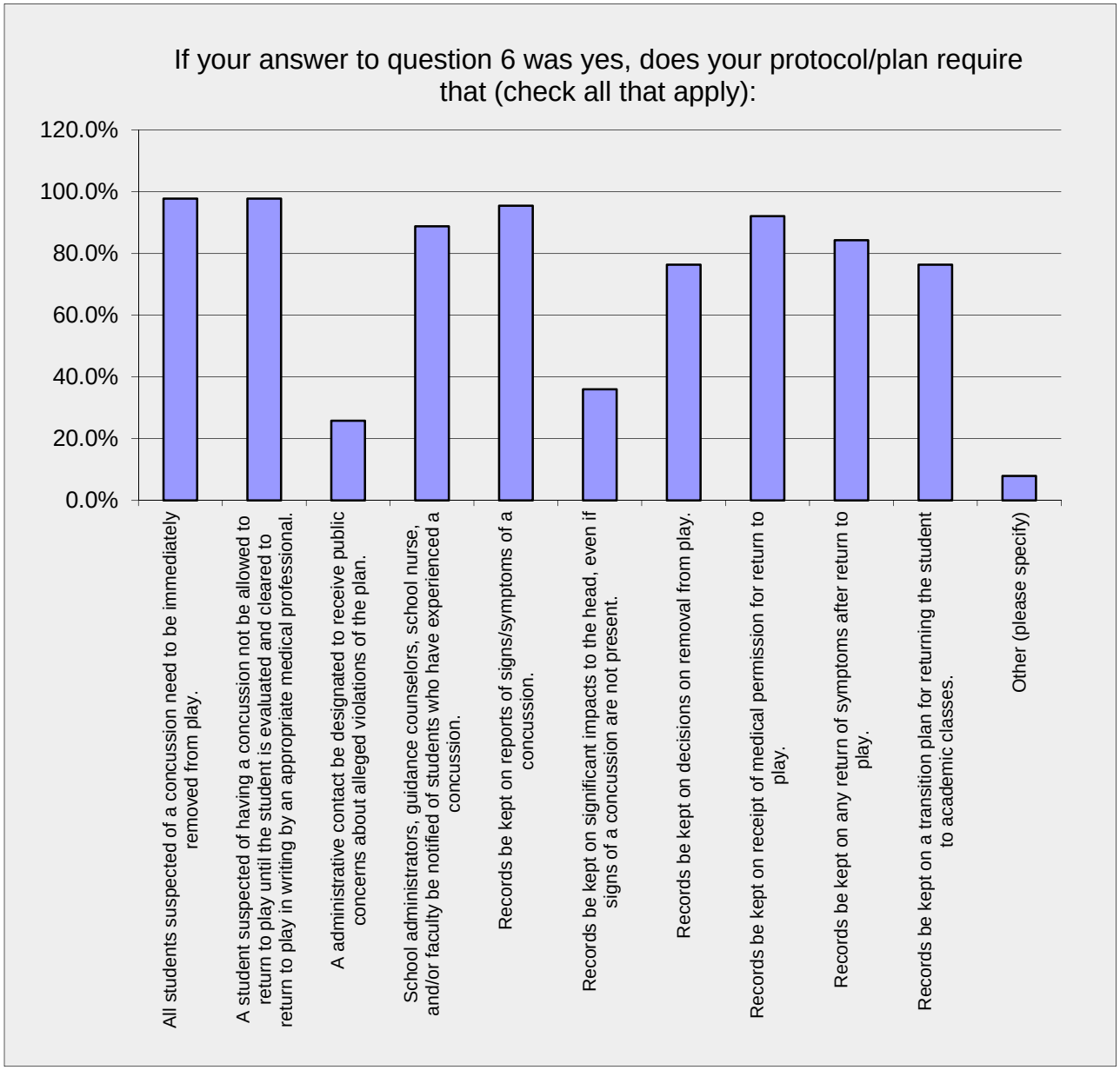
Of the 119 responding athletic trainers, 116 reported that their schools have a written protocol for return to play for student athletes.




| Does your school or school district have a written protocol or concussion management plan to follow for return to play when a student athlete shows signs of having experienced a concussion? | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes | 98.3% | 116 |
| No | 1.7% | 2 |
| ***answered question*** | | **118** |
| ***skipped question*** | | **1** |

Question 7

Question 7 shows which provisions are included in school return to play protocols.



Question 7 (Continued)

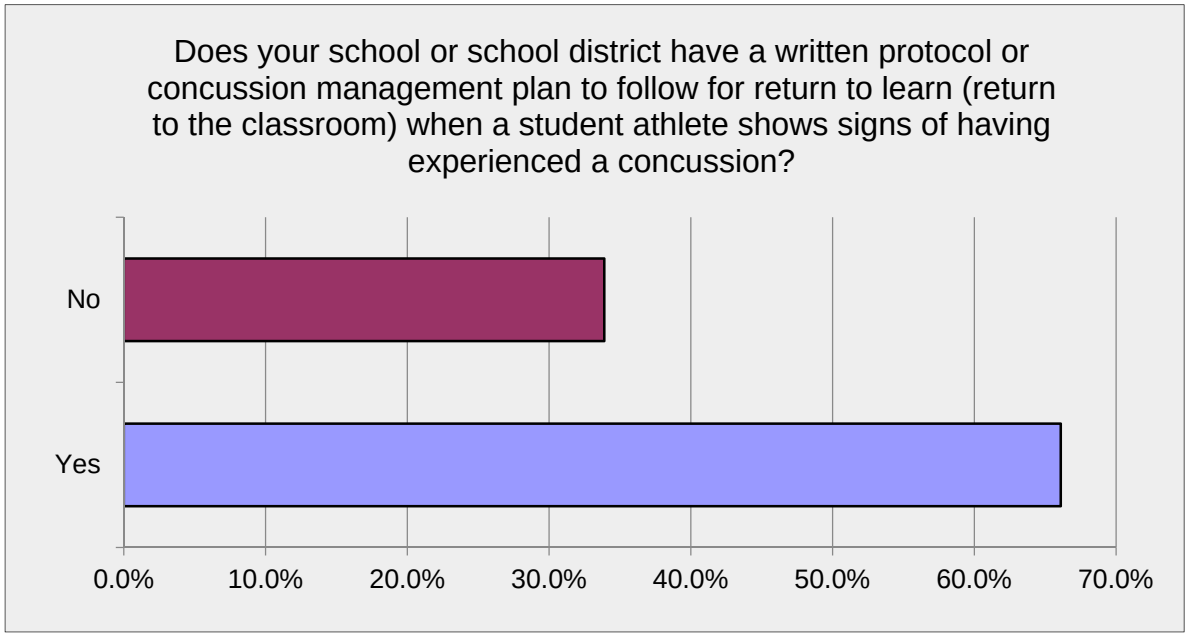
| If your answer to question 6 was yes, does your protocol/plan require that (check all that apply): | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| All students suspected of a concussion need to be immediately removed from play. | 97.8% | 87 |
| A student suspected of having a concussion not be allowed to return to play until the student is evaluated and cleared to return to play in writing by an appropriate medical professional. | 97.8% | 87 |
| A administrative contact be designated to receive public concerns about alleged violations of the plan. | 25.8% | 23 |
| School administrators, guidance counselors, school nurse, and/or faculty be notified of students who have experienced a concussion. | 88.8% | 79 |
| Records be kept on reports of signs/symptoms of a concussion. | 95.5% | 85 |
| Records be kept on significant impacts to the head, even if signs of a concussion are not present. | 36.0% | 32 |
| Records be kept on decisions on removal from play. | 76.4% | 68 |
| Records be kept on receipt of medical permission for return to play. | 92.1% | 82 |
| Records be kept on any return of symptoms after return to play. | 84.3% | 75 |
| Records be kept on a transition plan for returning the student to academic classes. | 76.4% | 68 |
| Other (please specify) | 7.9% | 7 |
| ***answered question*** | | **89** |
| ***skipped question*** | | **30** |

Other

- Signed by team concussion physician.
- Return to Learn protocols are handled by the nurse and learning specialist. Return to play is handled by the athletic trainers.
- Students diagnosed with concussion must be cleared to return by qualified medical professional and must complete a 6 step RTP process with the athletic trainer prior to returning to competition.
- The records are not written into the concussion plan. However, the AT documents all evaluations, keeps SAC scores, graded symptom scale sheets, ImPACT test scores and documents all possible concussions, treatment, and exertional return to play trial.
- Graduated RTP outlined in policy.
- We have a district return to learn policy that we follow for every head injury whether it comes from sports or a car accident.
- Gradual exertion of return to play protocol, ImPACT testing.

Question 8

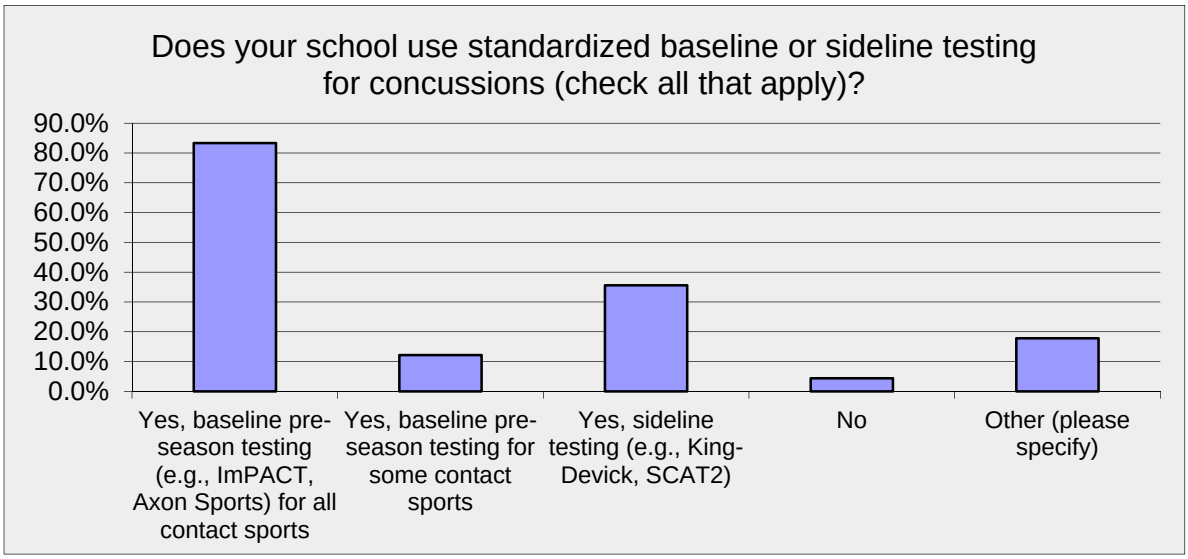
Fewer school districts have return to learn protocols, with just 66 percent of trainers reporting that their schools have such protocols in place, as opposed to 98 percent having return to play protocols.




| Does your school or school district have a written protocol or concussion management plan to follow for return to learn (return to the classroom) when a student athlete shows signs of having experienced a concussion? | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes | 66.1% | 76 |
| No | 33.9% | 39 |
| ***answered question*** | | **115** |
| ***skipped question*** | | **4** |

Question 9

Athletic trainers were asked about their schools' use of baseline or sideline testing for concussions. Almost 96 percent of respondents report use of baseline testing for at least some contact sports. Use of sideline testing was reported by 36 percent of trainers.




| Does your school use standardized baseline or sideline testing for concussions (check all that apply)? | | |
|---|---|---|
| **Answer Options** | **Response Percent** | **Response Count** |
| Yes, baseline pre-season testing (e.g., ImPACT, Axon Sports) for all contact sports | 83.3% | 75 |
| Yes, baseline pre-season testing for some contact sports | 12.2% | 11 |
| Yes, sideline testing (e.g., King-Devick, SCAT2) | 35.6% | 32 |
| No | 4.4% | 4 |
| Other (please specify) | 17.8% | 16 |
| | ***answered question*** | **90** |
| | ***skipped question*** | **29** |

Other

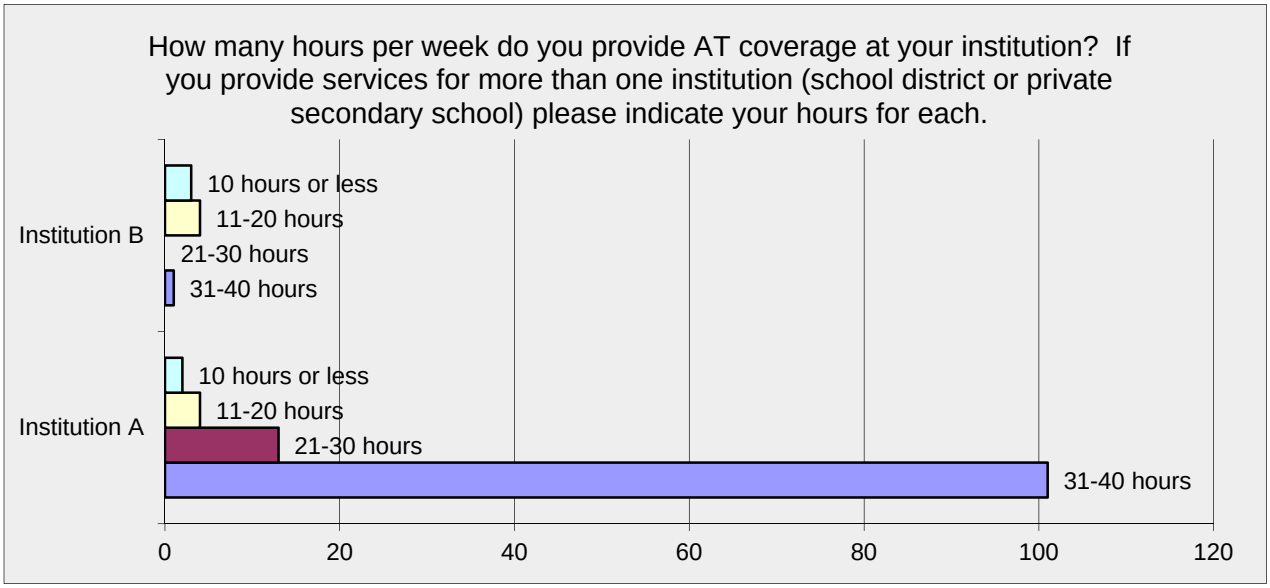
- Yes, Impact test for all PIAA sports.
- We require baseline tests for all of our students.
- ImPACT baseline testing is an option to all student-athletes, on their parents' preference, based on whom they plan to take their child to upon concussion (one trained in concussion management, or a pediatrician).
- Baseline preseason testing for all sports (ImPACT).
- pre-season testing for ALL sports.
- Baseline all 7th, 9th, and 11th grade students.
- We baseline test all athletes, regardless of contact level.
- Baseline ImPACT testing for ALL sports, not just contact.
- Started to apply baseline balance testing as well as convergence and VMOS.

Question 9 (Continued)

- Standard Assessment of Concussion form is used for baseline testing prior to.
- We baseline test all athletes and cheerleaders.
- SCAT3 is used as opposed to SCAT2.
- Baseline ImPACT testing for ALL athletes.  Baselines updated every other year.
- We use ImPACT for all athletes including all high school and middle school athletes.
- All sports.
- ImPACT testing for ALL sports, not just non-contact; including cheerleaders.

Question 10

Question 10 shows how many hours per week that trainers provide at their respective institutions.




**How many hours per week do you provide AT coverage at your institution? If you provide services for more than one institution (school district or private secondary school) please indicate your hours for each.**

| Answer Options | 10 hours or less | 11-20 hours | 21-30 hours | 31-40 hours | Response Count |
|---|---|---|---|---|---|
| Institution A | 2 | 4 | 13 | 101 | 119 |
| Institution B | 3 | 4 | 0 | 1 | 8 |
| Comment | | | | | 19 |
| | | | ***answered question*** | | **119** |
| | | | ***skipped question*** | | **0** |

Comments

- Over 40 hrs/wk.
- Usually far more than that in-season.
- Full-time trainer on staff.
- More than 40 hours per week.
- 40+hrs/week at my school district solely.
- More than 40hrs/week.
- Provide 50-60 hours per week.
- Usually more than 40.
- Typically 40+.
- 40.
- MS Is B, ATC-L.
- Less in spring due to practice/game schedules.
- Generally more than 40 hours per week in the Fall.

Question 10 (Continued)

- Almost always more than 40 hours a week. Good luck finding an ATC working less than 40 hours a week during the fall.
- Often more than 40 hours per week.
- AT services provided at 2 high schools in the same district - 2 small A schools. In addition, 2 days/week are spent in student-athlete injury clinic.
- I work at many schools as a substitute or an extra athletic trainer.
- Two full-time ATs working in the district for a total of 80 hrs.

Question 11

The athletic trainers were asked if they would like to add any additional comments. Their answers are shown below.

| Would you like to make any additional comments or recommendations regarding the implementation of or modifications needed to Pennsylvania's Safety in Youth Sports Act? | |
|---|---|
| **Answer Options** | **Response Count** |
| | 47 |
| ***answered question*** | **47** |
| ***skipped question*** | **72** |

- I feel the physician requirement is too vague. A lot of the Drs. don't have a clue about concussion and are recommending them go back way too early or are saying the most ridiculous things. One Dr. told a kid if he drank 16 oz. of water before a game he couldn't get a concussion. Focus needs to be on the physicians.....most are still treating them like 30 years ago. There needs to be some type of standard training for physicians and maybe even a certification or something indicating they are current with guidelines and treatment.
  But seriously....the issue now is with the physicians. Most really don't know the current guidelines and standards.
- As an athletic trainer at a middle school, when my teams travel to away games, often times there is no athletic trainer present at the game. Some schools will contract an athletic trainer to provide game coverage, but that is not always the case. Every school should have an athletic trainer on-site, particularly for contact and collision sports. My football team played at an away site just last week and an athletic trainer was not present. In order to be in compliance with PA's Safety in Youth Sports Act, a medical professional needs to be available to evaluate suspected concussions. Normally, an athletic trainer is the person to perform that initial evaluation. If no athletic trainer is present, discretion is left to the coach as to whether signs or symptoms of concussion are present. Signs of concussion can be subtle and if the athlete is not honest about symptoms, and returns to play, the result can be catastrophic. An athletic trainer knowledgeable in those subtle signs would prevent that athlete from returning and prevent what could possibly be life changing injury.
- Should require athletic trainers at every school providing coverage for contact sports at a minimum.
- I feel that it is extremely important to have an athletic trainer in each and every high school to help identify students who have concussions and then help coordinate their safe return to play in accordance with current best practice evidence.
- I believe that all secondary schools should be required to provide AT access for all athletes, preferably one on staff and not through a clinic.
- The importance of having a certified Athletic Trainer in every middle school, secondary high, or Jr./Sr. high is the most important thing we as a Commonwealth can do to make sure Pennsylvania youth are safe during athletic participation.
- With the rise in concussion awareness it is extremely important that secondary schools have access to an athletic trainer. My school district has one, but being split between two high schools the protocols are not always followed properly by the coaches.
- Define what "trained in the management of concussion is"-what does the training entail, how often does the training occur, is there a certification for completion of the training. This would limit who is clearing the athletes for return to play and ensuring the physician is trained in the most current standards.

Question 11 (Continued)

- Yes, I think that since doctors have become an Act-mandated part of concussion management that they should be required to become up-to-date with current research/diagnostic tools/management protocols like athletic trainers have. It's frustrating to receive their misguided, HIPAA-fearing notes that have either no diagnosis and/or a date for return to play that's based on absolutely nothing scientific. It undermines the Act's requirement that every school's AT educate their athletes/parents/coaches on current concussion management protocols, only to have them see a pediatrician who completely contradicts everything they just learned!! Most times these doctors won't commit to a diagnosis of concussion because "they don't have enough symptoms" and then put on the note that they may return to play in 7 or 10 or 13 days without a follow-up appointment!! It's hurting our kids, it's causing confusion as to why we need them to do this "stupid" RTP thing because "my note says I'm cleared!", and it puts medical professionals at odds with each other.
  Also frustrating is the level of care Act-mandated for scholastic athletes when these same kids go away on weekend or club tournaments and have ZERO protections, health care, and regulations, only to come back in Monday to report that they were bumped in their first game (of 4) Saturday, felt poorly, but kept playing even though they told coach they had a headache - which got worse on their ride home and kept them out of school the next week.
  Let's fill in the remaining 2/3 of the issue by getting doctors trained and regulating non-scholastic athletic teams to either have a protocol or an athletic trainer on-site for events.
- It is important for all secondary school athletes to have access to Athletic Training Services ensuring the implementation and effectiveness of the components of the Safety in Youth Sports Act.
- Allow ATs to have more of a role in making return to play decisions such as "when in direct communication with the treating physician." It becomes cumbersome to constantly send students to the doctor when some decisions can be made by ATs who have significant training in treating concussions- sometimes more than the doctors who are making the decisions.
- In order to ensure proper implementation of the Safety in Youth Sports Act, all secondary schools need access to a certified athletic trainer. We need to put the best trained people (ATCs) in positions to make decisions instead of trying to train the people who happen to be there (coaches and officials).
- I would love to see Athletic Trainers given the power to clear athletes. Just outright give Athletic trainers the authority to clear athletes. ATCs have been on the cutting edge of concussion evaluation/treatment for some time now and that should be displayed and rewarded with the right to clear athletes under our care from a concussion.
- I highly encourage that it be made state law that all schools have access to certified athletic trainers. This will help implement the sports safety act better. There are still medical professionals (doctors, PAs, RNs, etc.) that are still clearing students to return when they are still exhibiting concussion symptoms. With well-trained certified athletic trainers there will be more present individuals that can guide a return to play process.
- PA should take the lead and require an athletic trainer for all contact sports including clubs and leagues outside of the school setting. In addition, PA should require an athletic trainer for each team when a varsity football game is performed in PA. Also, PA should think about a certification process for the "appropriate medical professional." I would be very interested in helping with this Act moving forward. I am currently a doctorate student specializing in concussion and working with CHOP, UNC, Temple and PSU.
- Many physicians are unaware or do not follow the guidelines set forth in youth sports act.
- I think a bigger focus needs to be put on youth sports such as peewee football or elementary aged children. I provide game coverage for our youth football team. I have run into great resistance with opponent coaching staffs when I remove children from play even when symptoms of a concussion last less than a minute. They make comments such as "I am Head-Up certified too" or "Isn't that decision a little drastic, he's fine." These same coaches are the ones who are required to take online trainings for the league. Their lack of concern of this issue frightens me. I'm not sure what the solution is, but I think the younger the education is targeted, hopefully it will carry into middle and high school levels as well.

Question 11 (Continued)

- We need to somehow figure a way to make pediatricians and primary care family medicine doctors aware of this Act. Far too often, a student goes to their doctor with signs of concussion, and the doctor sends them with a note clearing them to play, either immediately, or in 1 week, or what have you...
  With no follow up, how does that physician know the athlete will be fully recovered within that timeline? Obviously they do not.
  It also ignores the step-wise progression return to play protocol we need to implement.
  It creates many difficult discussions with the athlete, coaches, parents.... explaining why, even though the doctor has cleared them to return, the Athletic Trainer will continue holding them out until they progress through the protocol.
  All of the sports medicine doctors at my hospital know this. But my school is over an hour away from our home base. I'm sure many athletic trainers are in the same boat where their kids are going to a PCP or pediatrician who aren't read up on the latest concussion laws and standards of care for athletes. They are being mismanaged, and it creates potential for conflict when the ATC needs to over-rule that doctor's note that says the athlete is allowed to play.
  I am lucky to have support from my coaches, and especially athletic director. But I am sure this can be an even more difficult situation at some other schools. For me, the doctors in my area are the main bump in the road keeping this from running smoothly.
- All physicians are NOT informed on the specifics of the law! Have had some send notes indicating that athletes could return to play the day they bring the note and are not aware of the progressive steps (5 step) program.
  Suggest that the State Medical Society send an e-blast to all physicians outlining the concussion law.
- I believe the law should require that the doctor be informed they are clearing an athlete from a concussion and that after this clearance the athlete must complete the return to play protocol before returning.
- Legislate access to a licensed athletic trainer for all high schools in PA.
- As a Licensed Athletic Trainer I feel that securing Athletic Training Coverage for school age athletes is imperative to ensure the implementation and effectiveness of the components of the Safety in Youth Sports Act.
- We need to strive to have an Athletic Trainer on every sideline for every school. Athletic Trainers are medical professionals that can recognize the signs of symptoms of concussions and other injuries with a neutral opinion on playing time. As an athletic trainer my number one goal is to ensure the safety and well-being of all of the athletes on my playing field no matter what school, grade, or experience level. Every child should have someone looking over them to protect them from coaches and parents that only see winning as their goals. We simply need an Athletic Trainer at every school and every sporting event!
- All athletes in Pennsylvania secondary schools should have access to Athletic Trainer services. The gradual return to play (RTP) progression should be included in the Safety in Youth Sports Act.
- I think it is important for all secondary school athletes to have access to Athletic Training Services ensuring the implementation and effectiveness of the components of the Safety in Youth Sports Act. If all secondary schools that have athletic programs provided athletic trainers to their athletes, they would all have proper medical providers to assess, manage, rehabilitate and refer injured athletes. This should not be an athletic trainer that checks in on a school once or twice a week, or just provides game "coverage", it should be a FULL TIME position that provides athletic health care to athletes just like a school nurse provides health care to students!
- Parents need to be made aware of the consequences for coaches for failure to comply with the Act. This may lead to reporting of incidences that school administrators may not be aware of.
- I feel the presence of an ATC at every school is absolutely necessary. I also feel the ATC should be employed full time by the school rather than by an outside organization such as a hospital or clinic.
- Clearly define if clearance needs to be an MD or DO. PIAA requires physician clearance however the law states differently. This leads to confusion among coaches.

Question 11 (Continued)

- I think educating coaches has gone a long way in getting medical professionals and coaches on the same page. I think licensed athletic trainers should be included in health care professionals considering we are the ones with the injured athlete every day. I'm the one watching them struggle to focus on what a coach is saying while they're claiming to feel fine when they see the doctor who clears them and then comments research doesn't back my graduated RTP protocol. However, I am fortunate that my athletic department does back it and backs me in enforcing it as part of our RTP protocol regardless of what kind of clearance is given. I think some PCPs still need additional education as some are still working under older guidelines.
  I strongly feel the act needs to mandate the same level of coaching education for youth sports programs not affiliated with schools. There you have coaches with no background whatsoever who are even less likely to have a healthcare provider on the sideline to assist with removing and managing injuries. I have spoken with a few coaches who are part of private organizations and offered my time and knowledge. Most have come back and said there wasn't enough interest among their coaches and/or parents to organize an educational session. Only one came back and said he would make it mandatory for his league's coaches. In this case, it's not that they don't know where to turn or that courses are available as I've offered to teach ConcussionWise Live at no cost. There's just no sense of urgency among most youth programs to better protect our youngest athletes. There is also a higher risk of having a parent volunteer to coach who may not be educated enough on proper technique compared to high school programs where most coaches likely interview for the job leading to higher qualified coaches. If we could start educating and protecting our kids earlier, the cumulative effects we see later in life or the bad habits we are left to break at the secondary level would be lowered.
- The letter of the law is still a little gray. When this law was first passed, athletes would go to their own or other General Practitioners, Nurses, Chiropractors, etc. to get cleared. What constitutes being "trained in the evaluation and management of concussions"? What guidelines need to be met by the "appropriate medical professional" to be considered as having been "trained in the evaluation and management of concussions"? How do I know that my athletes' Family Physicians know what they are doing? When this law first went into effect, I wasn't so sure. I had to call the Drs. myself and ask about their concussion experience. Now, more GPs and other healthcare providers have taken training courses, attended seminars, etc., to make them more knowledgeable. However, I still think it should be outlined in the law what medical professionals need to do in order to be considered "Appropriate medical professionals" under the letter of the law. (Ex: complete a certain number of continuing ed hours related to concussion). If it is outlined that athletes and coaches need to do certain things before the start of their respective seasons then it should be outlined for medical professionals too.
- I would love to see a PIAA Concussion Clearance form. Many other states have these and I think it would help to have one standard form that physicians were required to use.
  The biggest issue I run into is Physicians that have no idea about proper concussion management. I ran into this just last week when I sent an athlete to the ER (they were very symptomatic and needed to be seen that night). They returned with a note that said "Yes they did sustain concussion." and "no contact sports for 1 week." We do not accept ER notes for clearance and always have athletes follow up with our team physician or their personal physician, but you worry about a school that might not have this in place. This athlete has since seen our team physician and is being managed properly, but it is still frustrating.
  I will say area physicians are improving, but still could be more informed. At the Jr./Sr. level, you do not always have a say in who a kid sees due to insurances and this can be frustrating.
- ALL secondary schools must have access to an Athletic Trainer for their student athletes. This is the best way to ensure that the Act is being followed and that the student athletes are participating safely.

Question 11 (Continued)

- There is a desperate and immediate need for implementation of requirement of a Licensed Athletic Trainer, or Athletic Training services at EVERY high school in PA. My company services many, many small, division A high schools. It is doable and necessary.
  My schools play teams in a neighboring county that has no Athletic Training services. This includes multiple A football schools, as well as a AAA football school. I try to travel with my teams as much as possible, taking time away from my availability to other student-athletes. Recently, I traveled with my JV football team. There was no licensed athletic trainer and no ambulance service at the game. Had I not been able to attend, there would have been no medical coverage whatsoever at this game.
  Additionally, schools without a Licensed Athletic Trainer "assume" that a traveling Athletic Trainer will manage the care of their athletes. This not only puts the Athletic Trainer in a "tough spot," but also violates many standing operating procedures.
  It would be my recommendation that the state of PA continue to spearhead adequate medical coverage for our student athletes by forming legislation for an "Athletic Trainer in Every High School." I certainly wouldn't drop my child off at a pool without a life guard and often wonder why we feel it is appropriate for our children to play sports without a Licensed Athletic Trainer.
- Being an AT in the secondary school setting for 27 years I still cannot believe that every secondary school in the Commonwealth is not required to have an Athletic Trainer on staff. If we truly want coaches, parents , administrators and school districts to comply with the Safety in Youth Sports Act, then we must have at least 1 Licensed Athletic Trainer at every Secondary High School. During my tenure I have heard coaches, administrators, and school board members state the "we don't have the money or we cannot afford that luxury"!!!
  You cannot afford NOT to have a Licensed Athletic Trainer at your School!
  Our secondary school aged students deserve the best care, which an athletic trainer can provide.
- Every High School in PA should have an athletic trainer. An athletic trainer can be the gatekeeper for all sport related concussions. Athletic trainers are also highly qualified to evaluate and manage concussions.
  All community/club sponsored sports should have a qualified medical professional (MD/DO or athletic trainer) to help monitor concussions. Many of these kids do not follow a step progression protocol to return to play.
  Parents are not getting the word effectively. Having them sign a paper in the PIAA pre-participation packet is not working. I still have parents and athletes who think because a doctor clears them to play that that is all. Parents should be educated just like the coaches.
- I believe that the bigger barrier that I have faced as the athletic trainer in regards to this act is that not all physicians understand concussion management and send paperwork "clearing" athletes when they are not ready or have not fulfilled a return-to-play or return-to-learn protocol.
- I think it is important to have ATs working in every HS. I have heard many stories about concussions NOT being appropriately treated in my area. Additionally, I receive many notes from physicians who are NOT aware of appropriate RTP protocols. Youth sports are a huge problem. There typically is no AT at these events and kids are getting hurt here too.
- There needs to be more information available for parents and athletes. Most of my issues come from parents who are insistent that there is nothing wrong with their child despite active symptoms or multiple concussions. I also have parents who tell their child to hide symptoms. While most of my athletes are good at reporting symptoms, not all do and most aren't readily aware of what can happen if they don't report or aren't truthful about their symptoms. I can talk to them, our doctor can talk to them and our coaches can talk to them but I feel they should have to watch a mandatory video that educates them on concussion and possibly have the athletes pass a test on recognizing concussions like the coaches do. We need more awareness and less fear when it comes to concussions.
  Also, I see spearing all of the time in football games and I never, ever hear an official call spearing. If athletes were penalized for improper technique during a game (or illegal as spearing is), then less athletes would use these techniques.

Question 11 (Continued)

- A Return to School requirement should be added to the law.
- The amount of time spent on the management of concussions has become quite time consuming and additional staff is needed to properly provide for the safe care of all athletes at any public school regardless of size. Small schools put just as many kids at risk as the larger school. The only difference is larger schools have more resources, a larger talent pool to select the same number of players, and in some districts probably don't even have Jr High or Middle School sports on campus to provide services. Smaller schools need additional resources to provide for the same Safety Measures that all are expected to provide.
- It would be beneficial to all school athletes (middle school, junior high, and high school) to have a certified Athletic Trainer on site to make sure concussion guidelines are followed and student athletes are correctly evaluated and treated for concussion symptoms.

Source: Responses to Legislative Budget and Finance Committee questionnaire to school athletic trainers.

# VI. Appendices

APPENDIX A

PRINTER'S NO. 4213

**THE GENERAL ASSEMBLY OF PENNSYLVANIA**

# HOUSE RESOLUTION

## No. 1064 Session of 2014

INTRODUCED BY STEVENSON, BRIGGS, MILLARD, BROWNLEE, MAJOR, HARHART, PICKETT, MIRANDA, SAMUELSON, YOUNGBLOOD, READSHAW, O'NEILL, CALTAGIRONE, KILLION, LUCAS, DAVIS, KINSEY, CUTLER, SONNEY, McGEEHAN, MAHONEY, ELLIS, ROSS, LONGIETTI, HARHAI, BIZZARRO, D. COSTA, KIM, MARSICO, GINGRICH, CLAY, V. BROWN, McCARTER, GIBBONS, MURT, GRELL AND CLYMER, OCTOBER 3, 2014

REFERRED TO COMMITTEE ON EDUCATION, OCTOBER 3, 2014

A RESOLUTION

Directing the Legislative Budget and Finance Committee to review the Commonwealth's program of providing intervention for young athletes who sustain a brain injury, as required under the Safety in Youth Sports Act.

WHEREAS, It is important for the Commonwealth to have appropriate and effective standards for managing student athlete concussions and traumatic brain injuries; and

WHEREAS, The General Assembly recognized that Pennsylvania's young athletes were at risk for concussions and traumatic brain injuries and consequently enacted the act of November 9, 2011 (P.L.441, No.101), known as the Safety in Youth Sports Act; and

WHEREAS, Evidence gathered by the Pennsylvania Brain Injury Coalition via survey shows that violations of the act's standards for removal from play, returning to play and appropriate attention prior to return to play may be occurring throughout this Commonwealth; and

WHEREAS, The science of evaluating and treating concussions in athletes is rapidly evolving; and

**Appendix A (Continued)**

WHEREAS, Attention and awareness of the seriousness of properly treating sports injuries at all levels is increasing; and

WHEREAS, The General Assembly has an obligation to the residents of this Commonwealth to ensure that the Safety in Youth Sports Act achieves the results envisioned by its passage; and

WHEREAS, A review and evaluation of the implementation of the act is warranted; and

WHEREAS, A review could lead to recommendations for improving the act so that Pennsylvania's young athletes, their families and their schools may benefit from updated standards; therefore be it

RESOLVED, That the House of Representatives direct the Legislative Budget and Finance Committee to conduct a comprehensive review and evaluation of the Safety in Youth Sports Act and prepare a report of its findings that shall at a minimum:

(1) determine best practice for managing concussions and traumatic brain injuries in sports;

(2) identify the extent of compliance with the current law and reasons for noncompliance;

(3) recommend areas of the act that should be strengthened to be more effective;

(4) provide a review of similar laws in other states;

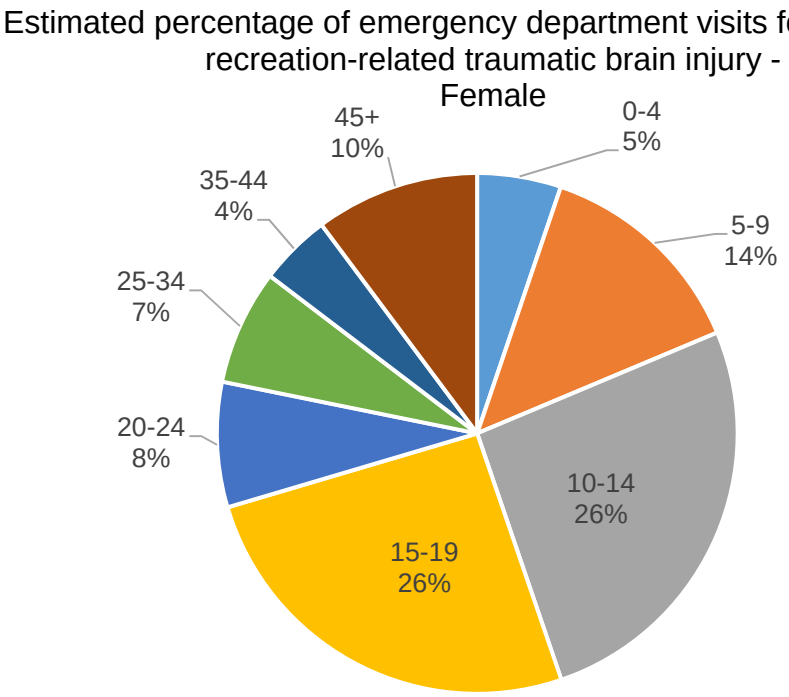
(5) determine the overall effectiveness of the Safety in Youth Sports Act in achieving the goals of protecting public health and safety and promoting safe sports for youth in this Commonwealth;

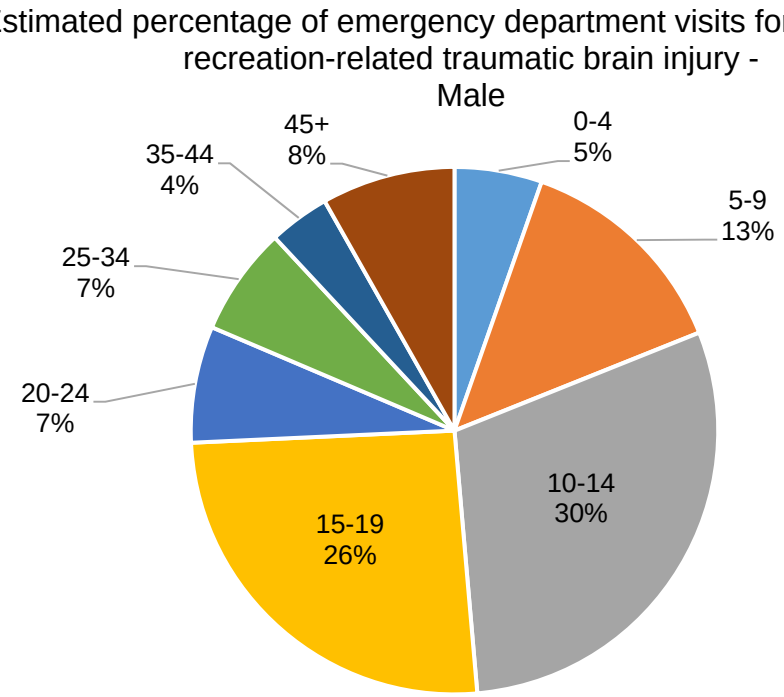
and be it further

RESOLVED, That the Legislative Budget and Finance Committee report its findings and recommendations to the House of Representatives within twelve months of the adoption of this resolution.

# APPENDIX B

## Percentage of Emergency Department Visits by Age and Gender




Source: National Electronic Injury Surveillance System – All Injury Program.

# APPENDIX C

## PIAA Comprehensive Initial Pre-Participation Physical Evaluation – Concussion Risk Section

**SECTION 3: UNDERSTANDING OF RISK OF CONCUSSION AND TRAUMATIC BRAIN INJURY**

**What is a concussion?**
A concussion is a brain injury that:

- Is caused by a bump, blow, or jolt to the head or body.
- Can change the way a student's brain normally works.
- Can occur during Practices and/or Contests in any sport.
- Can happen even if a student has not lost consciousness.
- Can be serious even if a student has just been "dinged" or "had their bell rung."

All concussions are serious. A concussion can affect a student's ability to do schoolwork and other activities (such as playing video games, working on a computer, studying, driving, or exercising). Most students with a concussion get better, but it is important to give the concussed student's brain time to heal.

**What are the symptoms of a concussion?**
Concussions cannot be seen; however, in a potentially concussed student, ***one or more*** of the symptoms listed below may become apparent and/or that the student "doesn't feel right" soon after, a few days after, or even weeks after the injury.

- Headache or "pressure" in head
- Nausea or vomiting
- Balance problems or dizziness
- Double or blurry vision
- Bothered by light or noise
- Feeling sluggish, hazy, foggy, or groggy
- Difficulty paying attention
- Memory problems
- Confusion

**What should students do if they believe that they or someone else may have a concussion?**

- **Students feeling any of the symptoms set forth above should immediately tell their Coach and their parents.** Also, if they notice any teammate evidencing such symptoms, they should immediately tell their Coach.
- **The student should be evaluated.** A licensed physician of medicine or osteopathic medicine (MD or DO), sufficiently familiar with current concussion management, should examine the student, determine whether the student has a concussion, and determine when the student is cleared to return to participate in interscholastic athletics.
- **Concussed students should give themselves time to get better.** If a student has sustained a concussion, the student's brain needs time to heal. While a concussed student's brain is still healing, that student is much more likely to have another concussion. Repeat concussions can increase the time it takes for an already concussed student to recover and may cause more damage to that student's brain. Such damage can have long term consequences. It is important that a concussed student rest and not return to play until the student receives permission from an MD or DO, sufficiently familiar with current concussion management, that the student is symptom-free.

**How can students prevent a concussion?** Every sport is different, but there are steps students can take to protect themselves.

- Use the proper sports equipment, including personal protective equipment. For equipment to properly protect a student, it must be:
  The right equipment for the sport, position, or activity;
  Worn correctly and the correct size and fit; and
  Used every time the student Practices and/or competes.
- Follow the Coach's rules for safety and the rules of the sport.
- Practice good sportsmanship at all times.

**If a student believes they may have a concussion:** Don't hide it. Report it. Take time to recover.

I hereby acknowledge that I am familiar with the nature and risk of concussion and traumatic brain injury while participating in interscholastic athletics, including the risks associated with continuing to compete after a concussion or traumatic brain injury.

Student's Signature _____ Date___/___/_____

I hereby acknowledge that I am familiar with the nature and risk of concussion and traumatic brain injury while participating in interscholastic athletics, including the risks associated with continuing to compete after a concussion or traumatic brain injury.

Parent's/Guardian's Signature _____ Date___/___/_____

Source: PIAA.

# APPENDIX D
## Provisions of Concussion Laws

| State | Removal From Play | Medical Clearance | Coach Training | Informed Consent | Affected Entities | Comments | Guidelines, Information, Education* |
|---|---|---|---|---|---|---|---|
| **AL** | Yes | Licensed Physician must clear to RTP | Coaches - Annually | Yes | Sport/recreational organizations, local school system | | Yes |
| **AK** | Yes | RTP clearance in writing by an AT or other qualified HCP who has received training (verified in writing or electronically) in evaluation and management of concussion | | Yes | Public Schools | | Yes |
| **AR** | Yes | For all events/conditions (concussion, dehydration, or other health emergencies; environmental issues that threaten student health/safety; communicable diseases), school districts will adopt policies - Evaluation by LHCP | Coaches - on all events or conditions that may cause student injury - Every 3 years | Yes | Public Schools, clubs, etc. | Concussion management plan | Yes - Dept. of Health must develop concussion protocols |
| **AZ** | Yes - Parents may also remove own child from play | RTP with medical clearance by MD, NP, PA, or AT w/training in evaluation and management of concussion | | Yes | Public Schools, including organizations using school district facilities | | Yes |
| **CA** | Yes | RTP with clearance by licensed HCP - 7-day graduated RTP | Training is required; no frequency set in statute | Yes | Schools - public, private, charter | | |

AT = Athletic Trainer AD = Athletic Director P = Nurse Practioner PA = Physician's Assistant HCP - Health Care Provider

## Appendix D (Continued)

| State | Removal From Play | Medical Clearance | Coach Training | Informed Consent | Affected Entities | Comments | Guidelines, Information, Education* |
|---|---|---|---|---|---|---|---|
| **CO** | Yes | RTP only with medical clearance by MD, DO, NP, PA, or psychologist with training in neuropsychology or concussion evaluation and management. ATs may be involved in graduated RTP | Coaches - Annually | | Public, Private Schools, priv. clubs & rec. facilities | | |
| **CT** | Yes | Physician, PA, APRN or ATC trained in eval/management of concussion | Coaches; coaches required to get permit every 5 years | Yes | Public Schools | | |
| **DE** | Yes | Medical clearance by MD or DO for step progression RTP monitored by AT | Coaches, according to timetable set by the DIAA | Yes | All Schools | Concussion management plan | The DE Interscholastic Athletic Assoc., a unit in the state Department of Education is to adopt rules/regulations regarding concussions |
| **FL** | Yes | RTP with written medical clearance | | Yes | Schools | | The Florida High School Athletic Association is required to adopt guidelines to educate coaches, officials, administrators, students, and parents on the nature of concussion and head injury |
| **GA** | Yes | RTP with clearance by MD, NP, PA, or ATC for full or graduated return | | | Organized leagues except religious organizations, and all Public and Private Schools | Concussion management plan | Yes - Education is for parents/guardians; not coaches |

## Appendix D (Continued)

| State | Removal From Play | Medical Clearance | Coach Training | Informed Consent | Affected Entities | Comments | Guidelines, Information, Education* |
|---|---|---|---|---|---|---|---|
| **HI** | Yes | RTP with clearance from HCP trained in management of sports concussions, including APRN, ATC, neuropsychologist, PA, MD, or DO. Also includes monitoring by AT upon return. | Statewide educational program for coaches - Annually | Yes | Public and Private, students aged 14-18 | | Yes - The Hawaii High School Athletic Association and the Department of Education are required to develop a concussion education program. |
| **ID** | Yes | MD, PA, APN or licensed HCP trained in evaluation & management of concussion and supervised by physician. | Coaches must review guidelines biannually | | Public Schools | | Yes - State Board of Education and the Idaho High School Activities Association must provide access to guidelines/information. |
| **IA** | Yes | RTP only with medical clearance from MD, PA, DC, NP, RN, AT, or PT | No formal training requirement | Yes | Public & Private Schools | | Yes - The Iowa High School Athletic Association and the Iowa Girls High School Athletic Association shall together distribute CDC guidelines. |
| **IL** | Yes | Yes | Coaches - every 2 years | | All Schools | Student athletes are required to watch training video. Concussion management plan | |
| **IN** | Yes | RTP with clearance from licensed HCP with training in evaluation and management of concussion | Coaches - every 2 years | Yes | Schools, recreational programs for persons under 20 years old. | Removal from play at least 24 hours prior to return | Yes |

## Appendix D (Continued)

| State | Removal From Play | Medical Clearance | Coach Training | Informed Consent | Affected Entities | Comments | Guidelines, Information, Education* |
|---|---|---|---|---|---|---|---|
| **KS** | Yes | RTP with medical clearance from physician | | Yes | Public, Private Schools | | State Board of Education in cooperation with the Kansas State High School Activities Association must compile information |
| **KY** | Yes | Determination of concussion TBD by physician or licensed HCP; RTP only with medical clearance from physician | Coaches, course taught by ATs, RNs, MD, or PAs at frequency determined by State Board of Education | Yes | Public | Each school required to develop a venue-specific EAP | Yes |
| **LA** | Yes | RTP with clearance from MD, NP, PA, or psychologist trained in concussion evaluation and management. An AT may manage athlete's graduated RTP. | Coaches and athletic officials - Annually | Yes | Public & Private elementary, middle, and high schools plus youth sports/clubs for persons aged 7-19 | Training must be or be comparable to CDC "Heads Up" materials | Yes |
| **MA** | Yes | RTP with written authorization from physician, neuropsychologist, ATC or "other appropriately trained or licensed health care professional as determined by the department of public health" | Coaches, ATs, parents and volunteers; physicians and nurses who work or volunteer with extracurricular activity; school ADs; directors of marching bands - Annually | Yes | Any school subject to MIAA rules | | Department of Public Health is required to develop |
| **MD** | Yes | RTP with medical clearance from HCP trained in evaluation and management of concussion | | Yes | Public schools and recreational organizations | | Yes |

## Appendix D (Continued)

| State | Removal From Play | Medical Clearance | Coach Training | Informed Consent | Affected Entities | Comments | Guidelines, Information, Education* |
|---|---|---|---|---|---|---|---|
| **ME** | Yes | Clearance from licensed HCP trained in concussion management before gradual resumption of participation | ADs, coaches and other school personnel; no specific requirement in statute. | Yes | Public and private schools | | Yes |
| **MI** | Yes | HCP trained in recognition and management of concussion | Training materials are to be made available to the public and to interested individuals including coaches, parents, students, and athletes. | Yes | Public and private schools, clubs, state and local parks, profits and non-profits. | | Yes |
| **MN** | Yes | RTP with medical clearance from licensed HCP trained in evaluation and management of concussion | Coaches, officials, every three years | Yes | Public & Private Schools; and municipalities, businesses, or non-profits that charge an activity fee | | Yes. Information must be consistent with CDC information. |
| **MO** | Yes | RTP after evaluation by licensed HCP trained in evaluation and management of concussion, and written clearance from that provider | | Yes | Public Schools | Removal from play for at least 24 hours | Yes |
| **MS** | Yes | May not return on same day; must be evaluated by HCP trained in evaluation and management of concussion, including MD, PA or other working with written consultation of physician. If concussed, must be referred to physician and return only after full recovery and clearance by HCP as described above. | | Yes | MHSAA, MAIS and school-sponsored athletic activities | | Yes |

## Appendix D (Continued)

| State | Removal From Play | Medical Clearance | Coach Training | Informed Consent | Affected Entities | Comments | Guidelines, Information, Education* |
|---|---|---|---|---|---|---|---|
| **MT** | Yes | RTP only after clearance by licensed HCP with training in evaluation and management of concussion | ATs, coaches, officials, annually | Yes | Organized youth athletic organizations and public Schools | | Yes |
| **NE** | Yes | RTP with medical clearance from MD, AT, neuropsychologist or other experienced in diagnosis & management of TBI among pediatric population. Parent must also give written permission for RTP. | Training is to be made available to coaches | | Public, private, denominational, parochial schools; and municipalities, businesses, non-profits that charge activity fee. | Mandates Return to Learn policies. | |
| **NC** | Yes | RTP with clearance from MD w/ training in concussion or a health care provider working with an MD (neuropsychologist, AT, PA, or NP) | An information sheet is to be provided to coaches annually | Yes | Public Schools | Requires venue-specific EAP | Yes |
| **ND** | Yes | RTP with medical clearance from physician | Officials, coaches, and ATs, every two years | Yes | Public & Private Schools | | Yes |
| **NH** | Yes | RTP with written clearance by health care provider, including ATC, trained in the evaluation and management of concussion; permission from parent required | Training is to be made available to coaches | | Public Schools | | Yes |
| **NJ** | Yes | Physician trained in evaluation and management of concussion | Coaches and ATs, no frequency set in statute | Yes | Public & Private Schools | Concussion management plan | Yes |
| **NM** | Yes | RTP with release from MD, DO, NP, PA, psychologist, ATC | Coaches, no frequency set in statute | Yes | Public Schools | Student must be out of play for one week prior to returning. | |

## Appendix D (Continued)

| State | Removal From Play | Medical Clearance | Coach Training | Informed Consent | Affected Entities | Comments | Guidelines, Information, Education* |
|---|---|---|---|---|---|---|---|
| **NV** | Yes | RTP with medical clearance by MD, PT, or AT | | Yes | Public Schools | | |
| **NY** | Yes | Minimum 24 hour removal from play; RTP with medical clearance by licensed physician | Coaches, PE Teachers, nurses, and athletic trainers, every two years. | Permission forms allowing students to participate in interscholastic sports must include information regarding traumatic brain injury. | Public Schools. Non-public schools may adopt these standards. | Each school district and school is authorized to establish a concussion management team. | |
| **OH** | Yes | RTP with release from physician or other licensed HCP acting in consultation, collaboration, referral of or supervision of a physician | Coaches, referees. Coaches must have permit, training for renewals every 3 years. | Yes | Public Schools or chartered or non-chartered non-public schools | | Yes |
| **OK** | Yes | RTP with medical clearance by licensed HCP trained in evaluation and management of concussion | | Yes | Public Schools | | Yes |
| **OR** | Yes | RTP with medical release from a health care professional (includes ATC) | Coaches annually | | Public schools | | |

## Appendix D (Continued)

| State | Removal From Play | Medical Clearance | Coach Training | Informed Consent | Affected Entities | Comments | Guidelines, Information, Education* |
|---|---|---|---|---|---|---|---|
| **PA** | Yes | MD, AT, or neuropsychologist trained in evaluation and management of concussion | Coaches annually | Yes | Public Schools. The sponsors of youth athletic activities not specifically addressed by this act are encouraged to follow these requirements. | Law encourages that information relating to preseason baseline assessments be provided. | Yes |
| **RI** | Yes | RTP with medical clearance by MD; 2011 law allows physician to consult with an AT and both must be trained in evaluation and management of concussion | Coaches, school nurses, volunteers, annually | Yes | Public Schools. All other youth sports programs are encouraged to comply with requirements. | Law encourages neuropsycological baseline testing for all student athletes | Yes |
| **SC** | Yes | RTP with medical clearance from physician, AT, PA, NP | An information sheet is to be provided to coaches annually | Yes | Public schools | | Yes |
| **SD** | Yes | RTP with written authorization from licensed HCP | Coaches, annually | Yes | Public Schools | | Yes. Guidelines to be developed by the South Dakota High School Activities Association |
| **TN** | Yes | RTP only after written clearance from a health care provider (MD, DO, or clinical neuropsychologist with concussion training.) A health care professional may be allowed by the school to manage graduated RTP based on provider's recommendations. | Coaches, annually | Yes | Public Schools and Community Leagues | | Yes |

## Appendix D (Continued)

| State | Removal From Play | Medical Clearance | Coach Training | Informed Consent | Affected Entities | Comments | Guidelines, Information, Education* |
|---|---|---|---|---|---|---|---|
| **TX** | Yes | After evaluation and written release by physician and completion of RTP protocol requirements. A coach may not authorize an RTP. AT or other person responsible for compliance with RTP protocol may not be supervised by a coach. | Coaches, members of a COT, ATs, marching band directors every 2 years (Coaches must have minimum 2 hour course) | Yes | Public Schools | Each school district must establish "Concussion Oversight Team." Concussion management plan. | |
| **UT** | Yes | Qualified HCP trained in evaluation and management of concussion within the last three years | | Yes | Public & Private school; amateur sports organizations such as league, camp or other public or private org. operating sporting events | | |
| **VA** | Yes | RTP with written clearance by licensed health care provider | | Yes | Public schools and non-scholastic youth sports programs using public school property | Mandates Return to Learn policies. | Yes |
| VT | Yes | RTP with written permission of licensed HCP (including ATs) trained in the evaluation and management of concussions and other head injuries. | Coaches and referees every two years | Yes | Public Schools and approved independent schools | 2013 Revision - each school is required to have a concussion management action plan; requires that a HCP be present at any game involving a collision sport. | Yes |

## Appendix D (Continued)

| State | Removal From Play | Medical Clearance | Coach Training | Informed Consent | Affected Entities | Comments | Guidelines, Information, Education* |
|---|---|---|---|---|---|---|---|
| **WA** | Yes | RTP with written medical clearance by licensed health care provider trained in the evaluation and management of concussion | | Yes | Public Schools | | Yes |
| **WV** | Yes | RTP only with written clearance from licensed HCP trained in the evaluation and management of concussion | Coaches annually | Yes | Schools that are members of the WV Secondary School Activities Commission | Report within 30 days on each concussed athlete to WVSSAC | Yes |
| **WI** | Yes | RTP requires medical clearance from health care provider trained and experienced in evaluating and managing pediatric concussions and head injuries | | Yes | All youth athletic activities | | Yes |
| **WY** | See comments | See comments | See comments | | Public Schools | Board of Trustees of each school district is to adopt protocols to address training for coaches and ATs, restrictions for participation in athletics after concussion, educating parents and students. | Yes |



*Provided to coaches, parents/guardians, students.

Source: Developed by LB&FC staff from a review of the other states' statutes and information provided by the Pennsylvania Brain Injury Coalition.

# APPENDIX E

## New York's Guidelines for Concussion Management in the School Setting

In response to the concerns over concussions in youth sports, the state of New York passed the Concussion Management and Awareness Act. This Act requires the Commissioner of Education, in conjunction with the Commissioner of Health, to promulgate rules and regulations related to students who sustain a concussion, or traumatic brain injury. These rules have been promulgated as guidelines,[1] the purpose of which is to provide school district personnel, parents/guardians, students, and private health providers with information on concussion management in school settings, and to explain the purpose of a concussion management program in schools. These guidelines strongly advise local school boards to develop written concussion management policies. They recommend that the following be included in a district policy on concussion management:

- A commitment to implement strategies that reduce the risk of head injuries in both school settings and district-sponsored events and should include a list of preventative strategies.
- A procedure and treatment plan developed by the district medical director and other licensed health professionals.
- A procedure to ensure that school nurses, certified athletic trainers, physical education teachers and coaches have completed required training courses. The policy should also address the education needs of teachers and other appropriate staff, students, parents/guardians as needed.
- A procedure for a coordinated communication plan among appropriate staff to ensure that private provider orders for post-concussion management are implemented and followed.
- A procedure for periodic review of the concussion management policy.

The Guidelines provide sections on Prevention and Safety, Identification, Diagnosis, and Post-Concussion Management. A summary of these Guidelines follows.

*Prevention and Safety:* Protecting students from head injuries is one of the most important ways to prevent a concussion. Districts should insure that education, proper equipment, and supervision to minimize the risk is provided to district staff, students, parents, and guardians. Students need to know the symptoms of a concussion and to inform appropriate personnel, even if they believe that they have sustained the mildest of concussions. Each district is required to employ a director of physical education, and administrative and supervisory services, who is to provide leadership and supervision in

[1] *Guidelines for Concussion Management in the School Setting,* The University of New York, State Education Department, Office of Student Support Services, June, 2012.

**Appendix E (Continued)**

the total physical education program. The Guidelines recommend that this director ensures that all interscholastic competition rules are followed, appropriate safety equipment is used, and rules of sportsmanship are enforced.

*Identification:* District staff who observes a student displaying signs and/or symptoms of a concussion, or learn of a head injury from the student, should have the student accompanied to the school nurse. According to New York's act, any student suspected of having a concussion must be removed from physical activity and observed until an evaluation can be performed by a medical professional. The Guidelines go on to list the symptoms and signs of a concussion.

*Diagnosis:* In New York, the diagnosis of a concussion is within the scope of the following medical providers: physicians, nurse practitioners, and physician assistants. Evaluation by one of these professionals should include a thorough health history and a detailed account of the injury. The CDC recommends that medical professionals use the Acute Concussion Evaluation Form and also recommends evaluation of three areas:

- Characteristics of the injury
- Type and severity of cognitive and physical symptoms
- Risk factors that may prolong recovery

*Post-Concussion Management:* Those who have been diagnosed with a concussion require both physical and cognitive rest; delays in rest may prolong recovery. Children and adolescents are at increased risk of protracted recovery and potential disability if they sustain another concussion before fully recovering from the first injury. Best practice warrants that, whenever there is a question of safety, a medical professional err on the side of caution and hold the athlete out for a game, remainder of the season, or even a full year. The Guidelines go on to include examples of both cognitive and physical rest.

*Return to School Activities:* The Guidelines include specific recommendations for return to school activities. Once a diagnosed student has been symptom free for at least 24 hours, a medical provider may choose to clear the student to a graduated return to activities. Students should be monitored by district staff daily, following each progressive physical or cognitive challenge, for any return of concussion signs or symptoms. A student should only move to the next level of activity if he remains symptom free at the current level. Return to activity should occur with the introduction of one new activity each 24 hours. The Guidelines also include an example of return to physical activity protocol based on the Zurich Progressive Exertion Protocol.

*Guidelines for the Concussion Management Team:* The Guidelines indicate that concussion management requires a coordinated, collective effort among district personnel along with parents to monitor an individual student's progress. Whether or not the district has a formal concussion management team, district staff, in collaboration with

**Appendix E (Continued)**

students' families, medical providers and students, play a vital role in recovery. The Guidelines include sub-guidelines for each of the following possible members of a concussion management team:

- Student
- Parent/Guardian
- School Administrators/Pupil Personnel Services Staff
- Medical Director
- Private Medical Provider and other Specialists
- School Nurse
- Director of Physical Education and/or Athletic Director
- Certified Athletic Trainer
- Physical Education Teacher/Coach
- Teacher

Source: *Guidelines for Concussion Management in the School Setting,* The University of New York, State Education Department, Office of Student Support Services, June, 2012.

# APPENDIX F

## SCAT3 Pocket Concussion Recognition Tool

### Pocket CONCUSSION RECOGNITION TOOL™

**To help identify concussion in children, youth and adults**

### RECOGNIZE & REMOVE

Concussion should be suspected **if one or more** of the following visible clues, signs, symptoms or errors in memory questions are present.

### 1. Visible clues of suspected concussion

Any one or more of the following visual clues can indicate a possible concussion:

Loss of consciousness or responsiveness
Lying motionless on ground/Slow to get up
Unsteady on feet / Balance problems or falling over/Incoordination
Grabbing/Clutching of head
Dazed, blank or vacant look
Confused/Not aware of plays or events

### 2. Signs and symptoms of suspected concussion

Presence of any one or more of the following signs & symptoms may suggest a concussion:

- Loss of consciousness
- Seizure or convulsion
- Balance problems
- Nausea or vomiting
- Drowsiness
- More emotional
- Irritability
- Sadness
- Fatigue or low energy
- Nervous or anxious
- "Don't feel right"
- Difficulty remembering
- Headache
- Dizziness
- Confusion
- Feeling slowed down
- "Pressure in head"
- Blurred vision
- Sensitivity to light
- Amnesia
- Feeling like "in a fog"
- Neck Pain
- Sensitivity to noise
- Difficulty concentrating



### 3. Memory function

Failure to answer any of these questions correctly may suggest a concussion.

*"What venue are we at today?"*
*"Which half is it now?"*
*"Who scored last in this game?"*
*"What team did you play last week/game?"*
*"Did your team win the last game?"*

**Any athlete with a suspected concussion should be IMMEDIATELY REMOVED FROM PLAY, and should not be returned to activity until they are assessed medically. Athletes with a suspected concussion should not be left alone and should not drive a motor vehicle.**

It is recommended that, in all cases of suspected concussion, the player is referred to a medical professional for diagnosis and guidance as well as return to play decisions, even if the symptoms resolve.

### RED FLAGS

**If ANY of the following are reported then the player should be safely and immediately removed from the field. If no qualified medical professional is available, consider transporting by ambulance for urgent medical assessment:**

- Athlete complains of neck pain
- Increasing confusion or irritability
- Repeated vomiting
- Seizure or convulsion
- Weakness or tingling/burning in arms or legs
- Deteriorating conscious state
- Severe or increasing headache
- Unusual behaviour change
- Double vision

**Remember:**

- In all cases, the basic principles of first aid (danger, response, airway, breathing, circulation) should be followed.
- Do not attempt to move the player (other than required for airway support) unless trained to so do
- Do not remove helmet (if present) unless trained to do so.

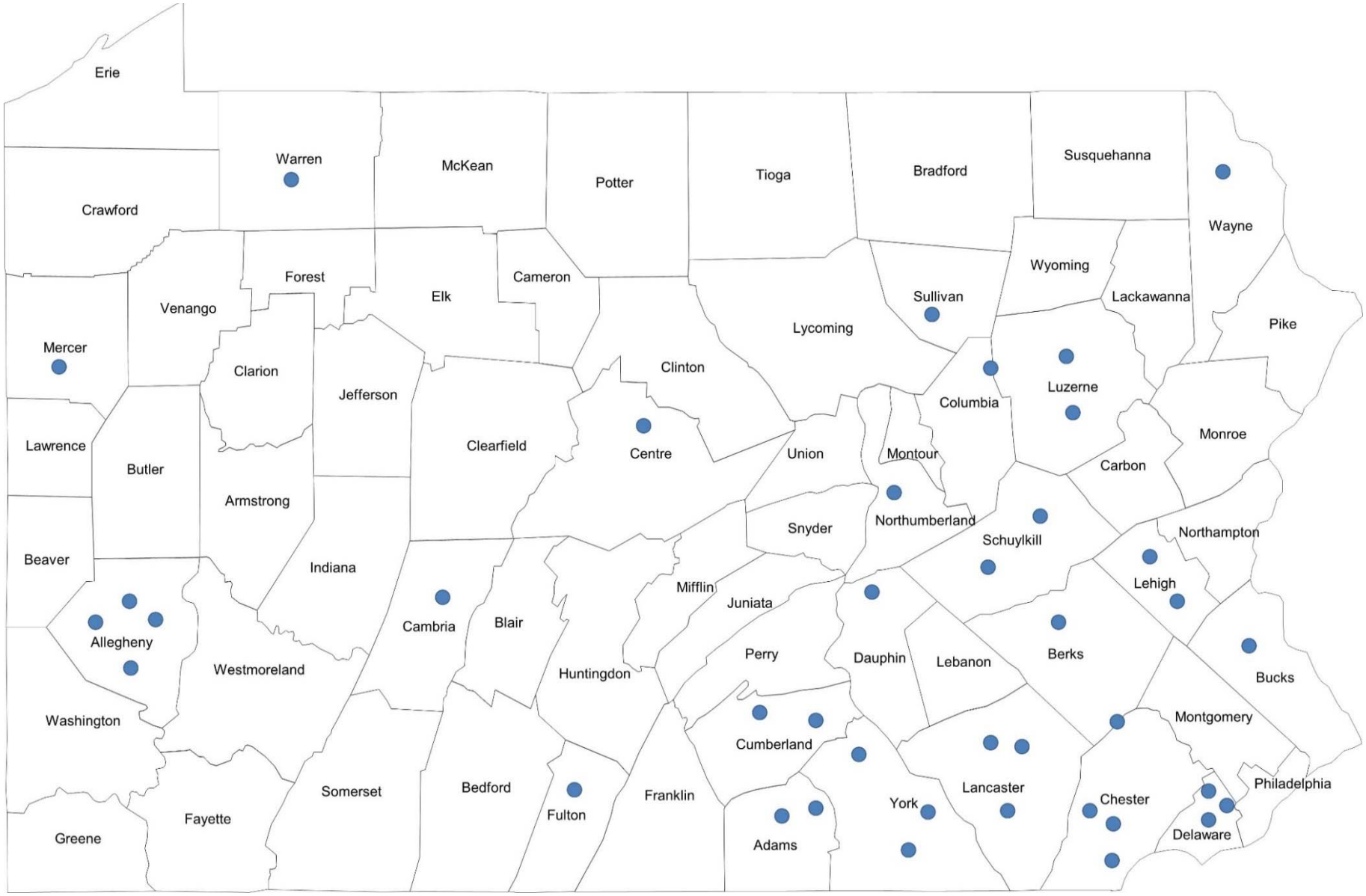
from McCrory et. al, Consensus Statement on Concussion in Sport. Br J Sports Med 47 (5), 2013



Source: Concussion in Sport Group. The SCAT3 Concussion Recognition Tool is designed for use by non-medical personnel. Medical professionals are to use the full SCAT3 Assessment Tool.

# APPENDIX G

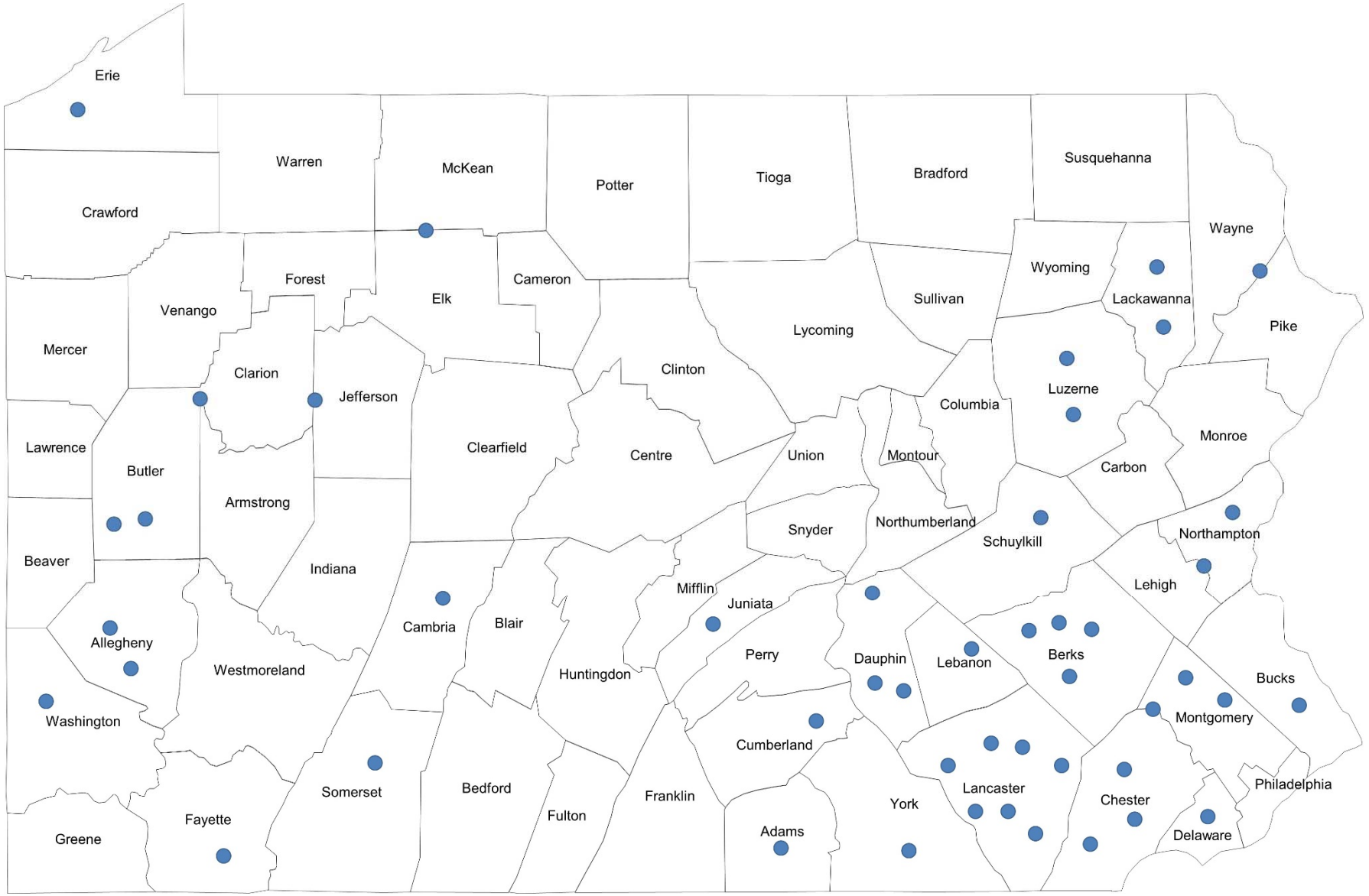
## Approximate Locations of Athletic Directors Responding to LB&FC Survey




Source: Developed by LB&FC staff. Only 39 of 102 respondents identified their school or school district.

# APPENDIX H

## Approximate Locations for Athletic Trainers Responding to LB&FC Survey




Source: Developed by LB&FC staff. Only 47 of 118 respondents identified their school or school district.