

July 2011

CONCUSSION MANAGEMENT - BACKGROUND MEMORANDUM

Section 2 of 2011 Senate Bill No. 2281 (attached as an [appendix](#)) directed the Legislative Management to study concussion management with respect to youth athletics, including the nature, scope, and applicability of programs designed to prevent or eliminate concussions.

WHAT IS A CONCUSSION?

A concussion is a type of traumatic brain injury. It is generally caused by a bump, blow, or a jolt to the head. It can also occur from a fall or a blow to the body that causes the head and brain to move quickly back and forth.

Health care professionals often describe concussions as "mild" brain injuries because concussions are usually not life-threatening. Most people with a concussion recover quickly and fully. Some people, however, experience symptoms that last for days, weeks, or even longer.

WHAT ARE THE SIGNS AND SYMPTOMS OF CONCUSSION?

According to the Centers for Disease Control and Prevention, concussion symptoms usually fall into four categories:

Thinking/ Remembering	Physical	Emotional/ Mood	Sleep
Difficulty thinking clearly	Headache Fuzzy or blurry vision	Irritability	Sleeping more than usual
Feeling slowed down	Nausea or vomiting (early on) Dizziness	Sadness	Sleeping less than usual
Difficulty concentrating	Sensitivity to noise or light Balance problems	More emotional	Trouble falling asleep
Difficulty remembering new information	Feeling tired, having no energy	Nervousness or anxiety	

Some of these symptoms may appear immediately after an injury. Others may not be noticed for days or months. Sometimes, individuals do not recognize or admit that they are having problems. Sometimes, individuals do not understand why they are having problems, and they do not associate their problems with their injury. The signs and symptoms of a concussion can be difficult to sort out and, early on, easily missed by the individual with the concussion, as well as by family members or even by health care professionals. People may look fine even though they are acting or feeling differently.

WHEN TO SEEK IMMEDIATE MEDICAL ATTENTION

Concussions can, however, be life-threatening. A dangerous blood clot may form on the brain and crowd the brain against the skull. The Centers for Disease Control and Prevention therefore recommends that medical attention be sought if an individual who has been injured experiences:

- A headache that gets worse and does not go away;
- Weakness, numbness, or decreased coordination;
- Repeated vomiting or nausea; or
- Slurred speech.

An immediate emergency room visit is suggested if the individual who has been injured:

- Looks very drowsy or cannot be awakened;
- Has one pupil that is larger than the other;
- Is having convulsions or seizures;
- Cannot recognize people or places;
- Is becoming more and more confused, restless, or agitated;
- Is exhibiting other unusual behavior; or
- Loses consciousness.

STATISTICS

The Centers for Disease Control and Prevention estimates that 1.7 million individuals sustain traumatic brain injuries each year--1.3 million of those events result in emergency room visits wherein the patient is treated and then released. In roughly 20 percent of the cases, hospitalization is required, and in approximately 3.8 percent of the cases, death is a result. The Centers for Disease Control and Prevention also estimates that 75 percent of the traumatic brain injuries occurring each year are concussions--35.2 percent of the total traumatic brain injuries are the direct result of falls, 17.3 percent result from motor vehicle or other traffic accidents, 16.5 percent involve a "struck by/against" event, and 10 percent result from assaults.

Adults aged 75 and older have the highest rate of traumatic brain injury-related hospitalization and death. Male children below the age of four have the highest rate of traumatic brain injury-related emergency room visits. Children below the age of 14, however, account for nearly half a million of the annual emergency room visits for traumatic brain injury-related events.

THE CENTERS FOR DISEASE CONTROL AND PREVENTION - RESPONSE

The Centers for Disease Control and Prevention has collaborated with multiple organizations and leading experts to develop clinical guidelines and tools

for the diagnosis and management of patients with mild traumatic brain injuries. They have packaged the information into toolkits, factsheets, and pocket cards, with the intent of making it easy for clinicians to get what they need to know when they need to know it. The Centers for Disease Control and Prevention has also developed patient discharge factsheets and podcasts and other resources, including tips to help with recovery, for both patients and caregivers.

CONCUSSION LEGISLATION

In 2006 Zackery Lystedt was a middle school student. Playing late in the first half of a big game, his head hit the ground and he grabbed his helmet in pain and struggled to get up. Zackery made it to the

sideline, sat out for about 15 minutes, and then went back in for the remainder of the game. Late in the fourth quarter, Zachery forced a fumble at the goal line. He was unsteady on his feet, and approximately 60 seconds later, he collapsed. He had suffered a concussion on the first hit. The second hit caused a brain hemorrhage. Five hours after the game, he had emergency surgery. He spent three months in a comma, nine months not being able to speak, and years in therapy. He remains in a wheelchair.

It is his name that is found in the title of Washington state's concussion law--legislation that has served as a model for 31 states in which similar legislation has been enacted and 12 states in which it is currently pending.

State	Entity	Training	Directive if Concussion Is Suspected
Alabama	Governing body of each sport or recreational organization to develop guidelines for their athletes	Each entity to ensure that coaches receive annual training	Removal of youth No return to play until evaluated by a physician Written authorization from physician prior to return
Alaska	School board in consultation with Alaska Activities Association to develop guidelines		Removal of student No return to play until evaluated by a licensed health care provider who has received training and is certified in the evaluation and management of concussions Written authorization from licensed health care provider prior to return
Arizona	Governing body of each school in consultation with a statewide private entity that supervises interscholastic activities to develop guidelines		Removal of student by a team athlete, coach, official, licensed health care provider, team volunteer, or parent May return to play if a physician, athletic trainer, nurse practitioner, or a physician's assistant rules out a suspected concussion at the time of removal May return to play the next day if authorized by a licensed health care provider who has received training and is certified in the evaluation and management of concussions and head injuries
Colorado	Public and nonpublic middle schools and high schools Private clubs Public recreational facilities League sponsoring youth athletics	Coaches and volunteers must annually complete a concussion recognition education course.	Removal of student by coach Notification of parent No return to play until evaluated by a physician Written authorization from physician prior to return
Connecticut	State board of education in consultation with state activities association, medical association, and athletic trainers' association to develop training courses for coaches	School coaches must complete an initial training course, annual reviews, and five-year refresher courses.	Removal of student by coach No return to play until written authorization is provided by a physician, physician assistant, advanced practice registered nurse, or an athletic trainer who is trained in the evaluation and management of concussions

State	Entity	Training	Directive if Concussion Is Suspected
Idaho	State board of education in collaboration with high school activities association to develop guidelines for use by all organized youth sport organizations or associations		Removal of student by coach No return to play until evaluated by a physician, physician assistant, advanced practice registered nurse, or an athletic trainer who is trained in the evaluation and management of concussions Written authorization from a physician, physician assistant, advanced practice registered nurse, or an athletic trainer who is trained in the evaluation and management of concussions
Illinois	School board to adopt Illinois High School Association policies and protocols Park districts are encouraged to make concussion information available.		
Indiana	Department of education to disseminate guidelines for school districts		Removal of student No return to play until evaluated by a licensed health care provider who is trained in the evaluation and management of concussions Written authorization from licensed health care provider prior to return
Iowa	School district and nonpublic school to annually provide to students and their parents Centers for Disease Control and Prevention guidelines distributed by the high school athletic association		Removal of student by coach or official No return to play until evaluated by a physician, physician assistant, chiropractor, advanced registered nurse practitioner, nurse, physical therapist, or athletic trainer who is trained in the evaluation and management of concussions and other brain injuries Written authorization from evaluator prior to return
Kansas	Public and nonpublic high schools and middle schools to distribute information compiled by the state board of education in cooperation with the high school activities association		Removal of student No return to play until evaluated by a licensed health care provider who is trained in the evaluation and management of concussions Written authorization from evaluator prior to return
Louisiana	Public and nonpublic schools Private clubs Public recreation facilities Athletic leagues sponsoring youth athletic activities	Coaches and officials to annually complete a concussion recognition education course	Removal of youth athlete by coach if youth reports any sign or symptom of a concussion; the coach, athletic trainer, or an official determines that that youth athlete exhibits signs or symptoms of a concussion; or the youth has reported or exhibited any sign or symptom of a concussion to a health care provider operating within its scope of practice or to any other licensed, registered, or certified individual whose scope of practice includes the recognition of concussion symptoms Notification of parent

State	Entity	Training	Directive if Concussion Is Suspected
			<p>No return to play until evaluated by a physician, nurse practitioner, physician assistant, or psychologist who has trained in neuropsychology or concussion evaluation and management</p> <p>Written authorization from evaluator prior to return</p>
Maryland	<p>Public schools</p> <p>Recreational athletic associations</p>		<p>Removal of student</p> <p>No return to play until written authorization is obtained from a licensed health care provider trained in the evaluation and management of concussions</p>
Massachusetts	<p>Public schools and schools subject to the interscholastic athletic association rules</p>		<p>If the student loses consciousness or is suspected of having a concussion, the student may not return until written authorization is obtained from a physician, neuropsychologist, athletic trainer, or other appropriately trained or licensed health care professions as determined by the department of public health.</p>
Minnesota	<p>Public and nonpublic schools</p> <p>Municipality, business, or nonprofit organization that organizes a youth athletic activity for which an activity fee is charged</p>	<p>Coaches and officials must receive initial online training and online training at least every three years thereafter.</p>	<p>Removal of student by a coach or official</p> <p>No return to play until the student is evaluated by a health care provider who is:</p> <ol style="list-style-type: none"> 1. Registered, licensed, certified, or otherwise statutorily authorized by the state to provide medical treatment; 2. Trained and experienced in evaluating and managing pediatric concussions; and 3. Practicing within the person's medical training and scope of practice. <p>Health care provider must give written authorization.</p>
Missouri	<p>School districts</p>		<p>Removal of student for at least 24 hours</p> <p>No return to play until the student is evaluated by a health care provider trained in the evaluation and management of concussions.</p> <p>Evaluator must provide written authorization.</p>
Nebraska	<p>Public and nonpublic schools</p> <p>City, village, business, or nonprofit organization that organizes an athletic activity in which the athletes are 19 years of age or younger and are required to pay a fee to participate in the athletic activity or whose cost to participate in the athletic activity is sponsored by a business or nonprofit organization</p>	<p>Training approved by the chief medical officer must be made available to coaches.</p>	<p>In the case of a school - Removal of student if coach or a licensed health care professional who is professionally affiliated with or contracted by the school reasonably suspects, after observation, that the student sustained a concussion or brain injury</p> <p>In all other cases - Removal of the athlete if coach or a licensed health care professional reasonably suspects, after observation, that the youth sustained a concussion or brain injury</p> <p>Notification of parent</p>

State	Entity	Training	Directive if Concussion Is Suspected
			<p>No return to play until the student/youth is evaluated by a health care provider trained in the evaluation and management of concussions.</p> <p>Evaluator must provide written authorization.</p>
New Jersey	School districts and nonpublic schools	School physicians and coaches and athletic trainers involved in public or nonpublic school sports programs	<p>Removal of student</p> <p>No return to play until the student is evaluated by a physician or other licensed health care provider trained in the evaluation and management of concussions.</p> <p>Evaluator must provide written authorization.</p>
New Mexico	School districts	School district coaches must receive training in understanding the nature and risk of concussion and in recognizing the signs, symptoms, and behaviors consistent with a concussion.	<p>A coach may not allow a student to participate on the same day that the student:</p> <ol style="list-style-type: none"> 1. Exhibits signs, symptoms, or behaviors consistent with a concussion or other head injury after a coach, a school official, or a student athlete reports, observes, or suspects that the student exhibiting these signs, symptoms, or behaviors has sustained a concussion or other head injury; or 2. Has been diagnosed with a concussion or other head injury. <p>A coach may allow a student to play the next day if the student no longer exhibits signs, symptoms, or behaviors consistent with a concussion or other head injury and the student receives a medical release from a licensed health care professional.</p>
New York	Public and nonpublic schools and board of cooperative educational services	Coaches, physical education teachers, nurses, and athletic trainers are to complete biennial training regarding the signs and symptoms of concussion, how such injuries occur, prevention of such injuries, and guidelines for students' return to school after receiving a concussion.	Rules to be promulgated by state commissioner of education
North Carolina	Public high schools and middle schools	Head injury information sheet is to be given to all coaches, school nurses, athletic directors, first responders, volunteers, students, and the parents of students who participate in interscholastic athletic activities.	<p>Removal of student</p> <p>No return to play on the day of the injury</p> <p>Return to play on subsequent days is conditioned upon the student being evaluated by a physician, a neuropsychologist, an athletic trainer, a physician assistant, or a nurse practitioner and the evaluator providing written authorization.</p>
North Dakota	See description below		

State	Entity	Training	Directive if Concussion Is Suspected
Oklahoma	School districts		<p>Removal of student</p> <p>No return to play until the student is evaluated by a licensed health care provider who is trained in the evaluation and management of concussion.</p> <p>Evaluator must provide written authorization.</p>
Oregon	School districts	Coaches to receive annual training regarding recognition of concussion symptoms and how to seek proper medical treatment if a concussion is suspected	<p>Removal of student</p> <p>No return to play on the day of the injury</p> <p>Return to play on subsequent days is conditioned upon the student no longer exhibiting signs, symptoms, or behaviors consistent with a concussion and receiving a medical release from a health care professional.</p>
Rhode Island	<p>School districts and schools participating in state's interscholastic league competition</p> <p>Youth sports programs are encouraged to follow similar programs.</p>	<p>Coaches, trainers, and volunteers must complete a training course in concussions and traumatic brain injuries.</p> <p>School districts are encouraged to have an athletic trainer or similarly trained person at all recreational and athletic events.</p>	<p>Removal of student</p> <p>No return to play until the student is evaluated by a physician and receives written clearance to return.</p>
South Dakota		Coach to complete training program each academic year	<p>Removal of student</p> <p>No return to play until the student is evaluated by a licensed health care provider, i.e., an individual who is registered, certified, licensed, or otherwise statutorily recognized as being able to provide medical treatment and trained and experienced in the evaluation, management, and care of concussions, and the student receives written clearance to return.</p>
Texas	School districts and open enrollment charter schools must create a concussion oversight team that includes at least one physician, and if possible, one or more of the following--an athletic trainer, an advanced practice nurse, a neuropsychologist, or a physician assistant.	At least every two years, training courses must be taken by coaches, athletic trainers, and licensed health care professionals who serve on a concussion oversight team and who are employees of, representatives of, or agents of a school district or open enrollment charter school.	<p>Removal of student by a coach, a physician, a licensed health care professional, or the student's parent/guardian/other person with legal authority to make medical decisions for the student</p> <p>No return to play until the student has been evaluated by a physician; completed each requirement of the return-to-play protocol; the treating physician has provided a written statement indicating that it is safe for the student to return to play; and the student's parent/guardian/other person with legal authority to make medical decisions for the student has acknowledged that the student completed the aforementioned protocols, provided the physician's statement to the responsible party, and has signed a consent form.</p>

State	Entity	Training	Directive if Concussion Is Suspected
Utah	Sports team Public or private school, public or private sports league, public or private sports camp, or any other public or private organization that organizes, operates, manages, or sponsors a sporting event for its members, enrollees, or attendees	Each agent of the entity must be familiar with and have a copy of its head injury policy.	Removal of student/child No return to play until the student/child is evaluated by a health care provider who is trained in the evaluation and management of a concussion and the health care provider signs a statement indicating that: Within the past three years the provider successfully completed a continuing education course in the evaluation and management of a concussion; The student's/child's parent has been informed of the medical risks associated with a resumption of participation; and A decision by the student's/child's parent that the student/child may resume participation is not medically unreasonable.
Vermont	Public and private elementary and secondary schools	Coaches must receive training at the beginning of the coaches first teaching assignment and at least every two years regarding how to recognize the symptoms of a concussion or other head injury.	A coach may not allow a student to resume training or playing if the student was removed due to symptoms of a concussion unless the student is examined by a health care provider trained in the evaluation and management of concussions and the health care provider gives written permission.
Virginia	School districts		Removal of student by coach, athletic trainer, or team physician No return to play the same day Return to play only after a health care provider deemed appropriate by the state board of education examines the student and provides written clearance.
Washington			Removal of student Return to play only after the student is evaluated by a licensed health care provider trained in the evaluation and management of concussion and student receives written clearance.
Wyoming	School districts	Coaches and athletic trainers to receive training in understanding the nature and risk of concussion and recognizing the signs and symptoms of concussion.	Coach or trainer may not allow a student to participate on the same day that the student exhibits signs, symptoms, or behaviors consistent with a concussion or has been diagnosed with a concussion. Return to play is permissible thereafter if the student receives a medical release from a health care professional.

In reviewing the legislation that has passed as of June 2011, it appears that all of the state legislatures targeted their public schools or school districts. Some extended their legislation to nonpublic schools. Alabama, Colorado, Louisiana, Maryland, Minnesota, Nebraska, and Utah included various private clubs, leagues, and organizations.

In requiring the establishment of guidelines and protocols, many of the states involved their

departments of education and their school activities associations or directed that reliance be placed on recommendations from the Centers for Disease Control and Prevention, and specifically, its Injury and Violence Prevention Center. While most of the legislation is very similar in intent and purpose, there is significant difference in detail and clarity. This is most noticeable with respect to directives that a student be removed from practice or play. Much of

the legislation does not indicate who has the duty to remove a student and who has the power, i.e., who "must" and who "may" remove a student suspected of having a concussion.

NORTH DAKOTA'S CONCUSSION MANAGEMENT LEGISLATION

Senate Bill No. 2281 requires school districts and nonpublic schools to be subject to a concussion management program. The law is silent with respect to how that concussion management program is developed, but it is very specific with respect to the program's content.

The concussion management program must set forth in clear and readily comprehensible language the signs and symptoms of a concussion. With respect to the removal of an injured student, North Dakota's law places specific obligations on specific individuals. An official has a duty to remove a student from competition, and a coach or an athletic trainer has a duty to remove a student from practice, training, or competition under the following circumstances:

1. If the student reports any sign or symptom of a concussion;
2. If the official, coach, or athletic trainer determines that the student exhibits any sign or symptom of a concussion; or
3. If the official, coach, or athletic trainer is notified that the student has reported or exhibited any sign or symptom of a concussion by a licensed, registered, or certified health care provider whose scope of practice includes the recognition of concussion signs and symptoms.

Once a student is removed, the law requires that the student be evaluated by a licensed, registered, or certified health care provider whose scope of practice includes the diagnosis and treatment of concussion. This individual must have a much higher level of

training than the individual mentioned above, whose scope of practice must include only the "recognition" of concussion symptoms. A student may not return to play or practice unless the student or the student's parent obtains written authorization from a licensed, registered, or certified health care provider whose scope of practice includes the diagnosis and treatment of concussion and provides that authorization to the student's coach or trainer.

The concussion management program must also require that each official, coach, and athletic trainer receive biennial training regarding the nature and risk of concussion. The final component of this legislation provides that the student's school district or nonpublic school must ensure that before a student is allowed to participate in a defined athletic activity, both the student and the student's parent must document that they have viewed information regarding concussions incurred by students participating in athletic activities. This information must be provided by the student's school district or nonpublic school and may be in printed form or in a verifiable electronic format.

2011-12 INTERIM STUDY

As Senate Bill No. 2281 was working its way through the 2011 legislative session, there was a desire by some to extend its provisions beyond school districts and nonpublic schools. Other entities involved in various youth athletics could include political subdivisions such as municipalities and park districts, nonprofit organizations such as YMCAs, and even private for profit establishments such as martial arts studios. The desirability and feasibility of statutorily mandating participation in a concussion management program is the subject of this study.

ATTACH:1