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Clinical Advisory

Regulations Regarding Sports-Related Head Injuries and the Role of Pediatric Health Providers

TO: Pediatricians and other Pediatric Health Care Providers
Emergency Medicine Physicians

FROM: Lauren Smith, MD, MPH Medical Director
John Auerbach, Commissioner

DATE: February 2012

RE: Regulations regarding sports-related head injuries

Pediatricians and other pediatric health care providers have a critical role to play in evaluating and managing student athletes who sustain concussions and in promoting the health and wellbeing of the many Massachusetts youth who participate in extracurricular athletics. This Clinical Advisory provides details on the several components of the regulations that are particularly relevant to pediatric and other health care providers caring for children.

As you are undoubtedly aware, during the past several years, there has been a great deal of research regarding both the short- and long-term health effects of multiple concussions and other sports-related head injuries. This research has shown that repeated concussions can result in significant damage to the brain leading to early memory loss, dementia, erratic behavior, and depression. Furthermore, it is well established that when a person sustains a head injury prior to complete healing of a previous one, they are at risk for a potentially lethal condition known as *Second Impact Syndrome*, characterized by dysregulation of cerebral blood flow and cerebral edema. The 2009 Youth Health Survey conducted by the Massachusetts Department of Public Health (MDPH) found that nearly 18% of students reported that they had suffered a head injury serious enough to cause unconsciousness, memory problems, blurry vision, headaches or nausea in the previous 12 months. As noted by the Centers for Disease Control and Prevention, children and teens are more likely to sustain concussions than adults and take longer to recover. In addition, athletes who have ever had a concussion are at increased risk of repeated concussion (www.cdc.gov/concussion).

In order to promote the health and safety of students engaged in extracurricular sports, in June 2011, MDPH passed regulations regarding sports-related head injuries in middle and high school students. For the full text of the regulations, see www.mass.gov/dph/injury. Components of particular relevance to pediatric health care providers include:

1. **Pre-participation head injury disclosure:** All students who wish to participate in extracurricular athletics must provide the school with information regarding any history of concussions, head or spinal injuries. If a student sustains a concussion during the sports season, his or her parents must notify the appropriate school staff.
2. **Removal from play:** Any athlete showing signs or symptoms suggestive of concussion after a head injury must be removed from the game or practice. They are not allowed to return to athletics that day and must be properly evaluated by a medical provider before they are allowed to resume athletic activity.
3. **Graduated return to play:** A student who is diagnosed with a concussion must complete a graduated return to play plan before resuming full participation in extracurricular athletic activity. To successfully complete such a plan, the student must be *completely symptom free at rest and during exertion*. (See examples in *Model Program Guidance*, accessible at <http://www.mass.gov/eohhs/docs/dph/com-health/injury/tbi-model-policies.doc>) Furthermore, the student must be *completely symptom free at rest* prior to beginning a graduated return to play plan. The Centers for Disease Control (CDC) has developed many helpful resources for clinicians diagnosing and managing patients with head injury, including an *Acute Concussion Evaluation Care Plan* specifically for students. http://www.cdc.gov/concussion/HeadsUp/physicians_tool_kit.html This care plan includes a section on graduated return to play plans. (A model plan included at the end of this advisory.)
4. **Medical clearance:** One of the following 4 categories of health providers must provide the medical clearance to allow a student diagnosed with concussion to return to full participation in extracurricular athletics:
 - a. A duly licensed physician;
 - b. A duly licensed certified athletic trainer in consultation with a licensed physician;
 - c. A duly licensed nurse practitioner in consultation with a licensed physician; or
 - d. A duly licensed neuropsychologist in coordination with the physician managing the student's recovery.

Medical clearance to resume full extracurricular athletic activity can only be provided *after* a student diagnosed with a concussion has completed the graduated return to play protocol and is *completely symptom free*. Note: A physician who diagnoses a symptomatic athlete with a concussion in the emergency department setting is *not* able to provide medical clearance unless he or she examines the athlete again when he or she has completed the graduated re-entry plan and is symptom free.

5. **Use of medical clearance forms by pediatric health care providers:** In order to provide school athletic and health staff with the information they need to monitor an athlete's recovery, health care providers should use the *Medical Clearance and Authorization* form (or a school-based equivalent provided by the student that includes the same information). This form is available on the MDPH website: http://www.mass.gov/Eeohhs2/docs/dph/com_health/injury/posthead_injury_clearance_form.pdf A copy is attached to this advisory. This form should be completed by the health care provider and returned to the student or to designated school health or athletic staff.

6. **Participation in reentry to academics planning:** A student who is diagnosed with a concussion should also have an individualized academic reentry plan based on his or her clinical condition. This plan shall be developed by the student's teachers, guidance counselor or other student support staff, school nurse, certified athletic trainer, if on staff, neuropsychologist, if available or involved. The development of the plan should include consultation with the student's primary care provider, the health care provider who made the diagnosis or the health care provider who is managing the student's recovery. The CDC's *Acute Concussion Evaluation Care Plan* includes guidance for academic reentry that can be customized to an individual student.
7. **Health care provider training:** Beginning in September 2013, when providing medical clearance, the 4 categories of health care providers authorized to do this will need to document that they have received Department-approved training in post traumatic head injury assessment and management OR have received equivalent training as part of their licensure or continuing education requirements. The CDC has a free, on-line training, developed specifically for clinicians, that meets this requirement: <http://www.cdc.gov/concussion/index.html>. Additional training opportunities will be posted on the DPH website as they become approved. See www.mass.gov/dph/injury.

Resources

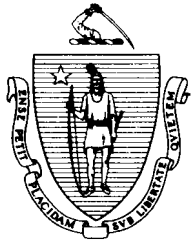
1. Massachusetts Department of Public Health Injury Control Program: <http://www.mass.gov/dph/injury> This website contains many resources, including the following information related to sports related concussions and head injuries:
 - A link to the regulations: <http://www.lawlib.state.ma.us/source/mass/cmr/cmrtxt/105CMR201.pdf>
 - Post Head Injury Medical Clearance Authorization form: <http://www.mass.gov/eohhs/docs/dph/com-health/injury/posthead-injury-clearance-form.pdf>
2. The Centers for Disease Control has developed many helpful resources for clinicians, including:
 - *Heads Up: Brain Injury in Your Practice:* http://www.cdc.gov/concussion/HeadsUp/physicians_tool_kit.html. This toolkit includes *Facts for Physician* booklet, information for patients in English and Spanish, *Acute Concussion Evaluation (ACE) Form*, *Acute Concussion Evaluation Care Plans* for both school and work and a *Concussion in Sports* palm card. All of these materials are available at no cost.
 - *Heads Up to Clinicians*, a free, on-line concussion training: <http://www.cdc.gov/concussion/index.html>. This training covers the pathophysiology, diagnosis, management and prevention of concussions. It also includes a resource center aimed specifically at clinicians. Completion of this training will meet the clinician training requirements that go into effect August 2013.

Model Graduated Return to Play Plan

These recommendations from the *Consensus Statement on Concussion in Sport: the 3rd International Conference on Concussion in Sport, Zurich 2008* provide guidance for a gradual return-to-play plan after the athlete is symptom-free at rest. The athlete may complete at most one level per day and may only progress to the next state if he/she remains symptom free. **If any symptoms recur during any of the activities, the athlete should rest for at least 24 hours and then return to the previous stage.**

Rehabilitation stage	Functional exercise at each stage of rehabilitation	Objective of each stage
Stage 1 No activity	Complete physical and cognitive rest	Recovery
Stage 2 Light aerobic exercise	Walking, swimming or stationary cycling keeping intensity <70% maximum predicted heart rate No resistance training.	Increase heart rate
Stage 3 Sport-specific exercise	Skating drills in ice hockey, running drills in soccer. No head impact activities.	Add movement
Stage 4 Non-contact training drills	Progression to more complex training drills, eg passing drills in football and ice hockey. May start progressive resistance training.	Exercise, coordination, and cognitive load
Stage 5 Full contact practice	Participate in normal training activities.	Restore confidence and assess functional skills by coaching staff
Stage 6 Return to play	Normal game play following medical clearance.	

Adapted from: Consensus Statement on Concussion in Sport: the 3rd International Conference on Concussion in Sport, Zurich 2008 *Br J Sports Med* 2009;43:i76-i84 doi:10.1136/bjism.2009.058248



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**POST SPORTS-RELATED HEAD INJURY
 MEDICAL CLEARANCE AND
 AUTHORIZATION FORM**

This medical clearance should be only be provided *after* a graduated return to play plan has been completed and student has been symptom free at all stages. *The student must be completely symptom free at rest and during exertion prior to returning to full participation in extracurricular athletic activities.*

Student's Name	Sex	Date of Birth	Grade
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Date of injury: _____ Nature and extent of injury: _____

Symptoms (check all that apply):

- Nausea or vomiting
- Headaches
- Light/noise sensitivity
- Dizziness/balance problems
- Double/blurred vision
- Fatigue
- Feeling sluggish/"in a fog"
- Change in sleep patterns
- Memory problems
- Difficulty concentrating
- Irritability/emotional ups and downs
- Sad or withdrawn
- Other

Duration of Symptom(s): _____ Diagnosis: Concussion Other: _____

If concussion diagnosed, date student completed graduated return to play plan without recurrent symptoms: _____

Prior concussions (number, approximate dates): _____

Name of Physician or Practitioner: _____

- Physician
- Certified Athletic Trainer
- Nurse Practitioner
- Neuropsychologist

Address: _____ Phone number: _____

Physician providing consultation/coordination (if not person completing this form): _____

I HEREBY AUTHORIZE THE ABOVE NAMED STUDENT FOR RETURN TO EXTRACURRICULAR ATHLETIC ACTIVITY.

Signature: _____ Date: _____

Note: This form may only be completed by: a duly licensed physician; a certified athletic trainer in consultation with a licensed physician; a duly licensed nurse practitioner in consultation with a licensed physician; a duly licensed neuropsychologist in coordination with the physician managing the student's recovery.