



**Testimony of
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**Bill 19-0007
Athletic Concussion Protection Act of 2011
Committee on Health
District of Columbia City Council**

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Children's National is pleased to support Bill 19-0007, the "Athletic Concussion Protection Act of 2011." Children's National commends Councilmembers David Catania, Phil Mendelson, and Harry Thomas, Jr. for their leadership in introducing this bill, which would 1) educate coaches, student-athletes, parents, and other key school personnel about the nature and risk of concussions; 2) based on this training, require automatic removal from play (game or practice) of the student-athlete with suspicion of any concussion signs or symptoms; and 3) require that the student-athlete suspected of suffering a concussion to receive written clearance from an appropriate licensed healthcare professional with training in concussion evaluation and management before returning to the field of play, among other provisions.

Children's National is grateful to the Brain Injury Association of the District of Columbia, the Washington Redskins, the National Football League, and many other partners for their collaboration and support of Bill 19-0007.

Children's National Medical Center has served children and families in Washington, DC since 1870. Home to Children's Research Institute and the Sheikh Zayed Institute for Pediatric Surgical Innovation, Children's National is consistently ranked among the top pediatric hospitals by *U.S. News & World Report* and the Leapfrog Group. With 283 beds, more than 1,330 nurses, 550 physicians, 6 primary care health centers in the District and seven regional outpatient centers, Children's National is the only exclusive provider of pediatric care in Washington, DC and the surrounding region. Children's National has

been recognized by the American Nurses Credentialing Center as a Magnet® designated hospital, the highest level of recognition for nursing excellence that a medical center can achieve.

Children's National has long been an advocate for child safety and injury prevention and has implemented programs in the region to raise awareness among parents. Safe Kids Worldwide, the first national advocacy organization solely dedicated to pediatric injury prevention, was founded by Children's National in 1987.

Children's Safe Concussion Outcome, Recovery & Education (SCORE) Program evaluates, monitors, and manages the care of children and adolescents with concussions (also known as a mild traumatic brain injury (TBI)). The SCORE program is the only program in the greater Washington metropolitan region that specializes in the evaluation and management of concussions in children.

About TBI

When it comes to concussions, children and teens require different treatment, according to recently published consensus recommendations by the *International Concussion in Sport Group*, an international panel of experts, of which I am a member. I helped this panel to delineate the differences between children, adolescents and teens, and adult athletes. This group published these new guidelines in the May 2009 issue of *The British Journal of Sports Medicine*, recommending that children and teens be removed from play if any concussion sign or symptom is exhibited, strictly monitored, and activities restricted until the child or teen is fully healed. These restrictions include no return to the field of play, among others.

For children and adolescents, the guidance strongly reiterates several key points for coaches, parents, and physicians:

- Injury to the developing brain, especially repeat concussions, may increase the risk of long term effects in children, so no return-to-play until completely symptom free.
- No child or adolescent athlete should ever return to play on the same day of an injury, regardless of level of athletic performance.
- Children and adolescents may need a longer period of full rest and then gradual return to normal activities than adults.

The Medical Case

Delayed identification of concussions, and inappropriate return to play has many serious functional consequences for the student-athlete and family. We see this unfortunate story play out in our clinics week in and week out, largely because parents say that “we didn't know” and that there is no consistent, systematic application of established rules and guidelines.

The functional effects of a concussion on the student-athlete are wide ranging, affecting their thinking and learning (e.g., concentration, memory, speed of thinking - and therefore school performance), and social and emotional functioning (e.g., emotional irritability). The student-athlete also typically experiences physical pain and/or significant fatigue. This is debilitating and disabling for a child's learning and social interactions. Thus, any preventable disability must be a priority.

The nature of the academic problems associated with sport related concussions is an understudied problem. Clinically, these problems can be viewed in two categories: short or medium-term, and long-term. Clinically, we observe that the majority of concussed student athletes recover fully with no long-term academic problems. Nevertheless, almost all student-athletes experience significant short- to medium-term challenges in their academic performance during their period of recovery. Many experience direct neurocognitive dysfunction in their attention/concentration, memory, and speed of processing and performance. Others experience cognitive difficulties secondary to the effects of post-concussion fatigue or other somatic or emotional symptoms. As such, much of the time spent with concussed student-athletes and their families in our clinics is associated with managing school learning issues.

Why does the academic learning and performance of the student-athlete suffer after a concussion? The primary organ for learning is the brain. The brain is a very complex biological computer that requires properly working software and hardware systems. Concussions render the biological software systems dysfunctional, which produces functional deficits and symptoms, and consequently impair the learning process. Students with concussions experience difficulties focusing their attention, maintaining information process and learn actively in mind to, performing multi-step tasks, putting new information into their memories, and processing information and completing tasks at a normal speed. Without these neurocognitive abilities functioning properly, school learning and performance becomes significantly compromised.

Academic problems can also have significant downstream effects, especially for the high school student-athlete. For example, concussions at the end of a semester can significantly reduce performance and grades on a final exam, reducing the student-athlete's grade point average. Taking the SAT prior to recovery from a concussion can also have a significant adverse impact on the student-athlete's future college options.

To further compound the academic difficulties, a high percentage of student-athletes experience "cognitive exertional effects", which are defined as an increase or reemergence of symptoms following a period of cognitive activity (e.g., concentrating on a lecture, reading a textbook, performing math calculations). The reality is that the school learning environment places significant physiological demands on the recovering brain of the student-athlete.

The consequences of a concussion, a type of mild traumatic brain injury, can be significant for the academic learning and performance of the student-athlete. Our current research finds adverse effects on school learning, with close to 90 percent of students in

our clinics reporting significant worsening of post-concussion symptoms when they attempt school tasks. In our clinic sample, these problems persisted well beyond a month for many students. We must provide effective treatments that maximize the student's recovery and minimize any long-term post-concussion problems.

Our clinical work also highlights that fact that schools are not adequately prepared with the necessary knowledge and skills to properly support the return of the concussed student-athlete. Several excellent tools are now available to help schools transition the concussed student athlete back into the classroom. In 2005, Dr. Micky Collins and I developed the Acute Concussion Evaluation (ACE) Care Plan, to provide the family, student-athlete, and school team with a written plan of specific academic accommodations each stage of recovery. This ACE Care Plan is updated regularly at each clinic appointment with new recommendations based on the recovery progress of the student-athlete. The ACE Care Plan is available to download within the Centers for Disease Control and Prevention's (CDC) "Heads Up: Brain Injury in Your Practice" physician's toolkit (www.cdc.gov/concussion).

While this Care Plan is useful in assisting the individual student-athlete, often school personnel are not prepared with the necessary knowledge and skill to easily implement the student's recommended accommodations. Increasing the knowledge and skill of school personnel is the focus of the CDC's May 2010 release of a school concussion toolkit called "Heads Up to Schools: Know Your Concussion ABCs." This toolkit provides key information for school nurses, counselors, school psychologists, teachers, parents, and student-athletes to assist students with concussions in their return to school.

The majority of student-athletes who suffer these adverse effects must also live with the long-term effect of these injuries throughout their lives. The length of time for a full recovery following concussive TBI – and of functional impairment – varies from days to months. For most, it takes at least several weeks. Second injuries result in significantly greater amount of time of these functional effects (i.e., longer recovery time) or worse (death, permanent disability). This has happened many times within the United States over the past several years. We cannot have this happen to one of our student-athletes in the District.

Not only is this an emotional strain for families, but it is also a significant economic cost, as families will struggle to care for these children throughout their lives. In addition, injuries that affect children's brains will limit the amount of their future earnings because they will be limited in the number of careers that they can choose. This is all because the parents, children, and coaches "didn't know" about the nature of these injuries.

Student-athletes, parents, coaches, and school personnel must be informed systematically about these injuries to reduce the length of time of adverse effect on the child's life. Systematic and accountable application of established rules for removal / protection and return to play must be instituted. Bill 19-0007 will provide for this.

Role of the School Nurse

The Children's School Services School Health Program provides nursing services in 163 public and public charter schools in the District of Columbia. This places the school health nursing program in a position that ensures that every child in the District's public and public charter schools has access to a school nurse during the school day. The program operates through a contract with the District of Columbia Department of Health.

We thank Chairman Catania and the City Council for supporting the Staffing Enhancement Plan designed to extend nursing coverage from part-time to full-time. Currently, 97 percent of the District of Columbia Public and Public Charter Schools are receiving full-time nursing services. This represents a 162 percent increase from July 2007 when only 37 percent of the schools received full-time coverage. The Nurse to Student Ratio for the District of Columbia was ranked third in the nation in a survey conducted by the National Association of School Nurses and published in June 2010.

Though school nurses do not diagnose concussions in student-athletes, their role is important. In the event that student-athletes are injured, the school nurse must possess the knowledge and ability to assess students and facilitate access to a higher level of care, as needed.

It is our belief, supported by the National Association of School Nurses, that the school nurse plays an important role in the care and treatment of a student-athlete suspected of suffering a concussion. Concussions in this population create special concerns because of the potential impact on mental development and cognitive function. There is also an increased risk for serious complications, including second impact syndrome following traumatic events that might result in a diagnosis of concussion.

The complex nature of concussions requires that school nurses are up-to-date on current concussion information to allow for optimal care following injury and during the recovery process. The importance of timely assessment, intervention and communication in the care of these students cannot be overemphasized.

As the primary health care provider for students during the school day, school nurses can help ensure all necessary steps are taken to facilitate the provision of appropriate and timely care of injured student-athletes. The school nurse and the school's athletic trainer can form a valuable partnership that can benefit the care of an injured student-athlete. In the case of an injured student-athlete, the school nurse is positioned to communicate with the student's family as well as serve as a source for education for parents, the community and other school personnel.

The adolescent population presents a challenge when it comes to concussion management. Therefore, Children's School Services understands that it is important that school nurses are familiar with signs and symptoms commonly associated with concussive injury, as well as the complications that can occur as a result of a concussion. We are committed to the provision of competence-based education and training to assure that school nurses are prepared to respond appropriately when faced with an injured

student-athlete during the school day. Dr. Gioia has already conducted educational programs about concussions for Children's nurses; however, moving forward, efforts to enhance school nurse education and training will be implemented to meet the requirements established in the "Athletic Concussion Protection Act of 2011".

It is our recommendation that the Children's School Services leadership staff be included in facilitating the concussion education program for parents, students, and other key stakeholders. School nurses should also be identified and included as one of the key school personnel that should receive concussion education provided within the schools.

Conclusion

Children's National Medical Center is committed to policies that improve the health and well-being of the children we serve. In fact, it is part of Children's National's mission to improve health outcomes for children regionally, nationally and internationally. As such, Children's National Medical Center supports passage of Bill 19-0007. We must put an active program of concussion education in place in addition to mandating compliance with the current medical guidance for removal and protection of injured student-athletes and proper return to play. This law is a proactive step that will safeguard the student-athletes in the District, and reduce the risk of long-term effects of sports-related concussions.