

## **State-Level Implementation of Health and Safety Policies to Prevent Sudden Death and Catastrophic Injuries Within Secondary School Athletics: Response**

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### **Abstract:**

We read with attentiveness the letter to the editor regarding our recently published article,<sup>1</sup> and we thank the authors for sharing their thoughts. As in every study, there are limitations; however, we also wish to express urgency for the implementation of the 2013 best-practice recommendations for preventing sudden death in secondary school athletics.<sup>5</sup> The letter to the editor calls into question the methodological approach used in our study, indicating that it undermines the subsequent conclusions—a statement with which we strongly disagree. The rubric was developed to assess health and safety policies at the secondary school level and was derived from “The Inter-Association Task Force for Preventing Sudden Death in Secondary School Athletics Programs: Best-Practices Recommendations,”<sup>5</sup> which is fully endorsed by 14 medical and sport organizations, including the National Federation of State High School Associations, American College of Sports Medicine, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, American Osteopathic Academy of Sports Medicine, Canadian Athletic Therapists Association, Gatorade Sports Science Institute, Korey Stringer Institute, Matthew A. Gfeller Sport-Related Traumatic Brain Injury Research Center, National Athletic Trainers’ Association, National Center for Catastrophic Sport Injury Research, National Council on Strength and Fitness, National Interscholastic Athletic Administrators Association, and National Strength and Conditioning Association.<sup>5</sup> Furthermore, accompanying position statements,<sup>2,4,8,9</sup> consensus statements,<sup>3,12</sup> and interassociation task force documents<sup>6,7,10</sup> were also used to ensure that rubric contained the most current evidence-based best practices for preventing the leading causes of sudden death and catastrophic injury in sport and physical activity.

**Keywords:** sudden cardiac death | exertional heat stroke | traumatic head injuries | emergency action plans | preparticipation examination

### **Article:**

**\*\*\*Note: Full text of article below**

# State-Level Implementation of Health and Safety Policies to Prevent Sudden Death and Catastrophic Injuries Within Secondary School Athletics: Response

## Authors' Response:

We read with attentiveness the letter to the editor regarding our recently published article,<sup>1</sup> and we thank the authors for sharing their thoughts. As in every study, there are limitations; however, we also wish to express urgency for the implementation of the 2013 best-practice recommendations for preventing sudden death in secondary school athletics.<sup>5</sup> The letter to the editor calls into question the methodological approach used in our study, indicating that it undermines the subsequent conclusions—a statement with which we strongly disagree. The rubric was developed to assess health and safety policies at the secondary school level and was derived from “The Inter-Association Task Force for Preventing Sudden Death in Secondary School Athletics Programs: Best-Practices Recommendations,”<sup>5</sup> which is fully endorsed by 14 medical and sport organizations, including the National Federation of State High School Associations, American College of Sports Medicine, American Medical Society for Sports Medicine, American Orthopaedic Society for Sports Medicine, American Osteopathic Academy of Sports Medicine, Canadian Athletic Therapists Association, Gatorade Sports Science Institute, Korey Stringer Institute, Matthew A. Gfeller Sport-Related Traumatic Brain Injury Research Center, National Athletic Trainers' Association, National Center for Catastrophic Sport Injury Research, National Council on Strength and Fitness, National Interscholastic Athletic Administrators Association, and National Strength and Conditioning Association.<sup>5</sup> Furthermore, accompanying position statements,<sup>2,4,8,9</sup> consensus statements,<sup>3,12</sup> and interassociation task force documents<sup>6,7,10</sup> were also used to ensure that rubric contained the most current evidence-based best practices for preventing the leading causes of sudden death and catastrophic injury in sport and physical activity.

The best practices within the rubric were taken word-for-word from current best practices and then fully vetted by 5 independent reviewers to ensure that all best practices pertaining to the leading causes of sudden death and catastrophic injury in sport were represented in full. This

strategic methodology established an objective evaluation and reduced potential bias from the assessment of these policies. The subsequent scoring of each state was then performed upon reviewing publicly available health and safety policies from each state's high school athletics association handbook, bylaws, constitution, website, department of education policies, and enacted legislation. Having this information publicly available for all coaches, school administrators, athletes, and parents allows for a greater sense of accountability for individual states and provides guidance to individual schools as to what standards are considered best practice. It is ethically responsible behavior to assess the current status of best-practice implementation from the 2013 best-practice document for the public to gain awareness of domains that are properly addressed and policies that are deficient and still need to be addressed. Given that secondary school health and safety standards (including topics of preventing sudden death) are ultimately decided on by nonmedical administrators, it is more imperative that parents are aware of the decisions that are being made that can influence the health and safety of their children.

Discussed in depth within the submitted letter to the editor are the concerns related to the weighting of the recommendations within the rubric. While we acknowledge there may be a difference in opinion about the application of weight and scoring, we believe a viable option was used for the purpose of this article. At the same time, the process of weighting the rubric was described in depth within the “Methods” section: “The grading rubric consisted of 5 equally weighted subsections: sudden cardiac arrest, exertional heat stroke, traumatic head injuries, appropriate health care coverage, and emergency preparedness. The weighting of the individual components within each subsection was derived from the number of components within each subsection.” The weighting was used to arrive at a total score of 100, not to prioritize which recommendations are more important than others. We used the 2013 document as a template and considered that the 3 leading causes of death (heart, head, heat) and infrastructure concerns surrounding these 3 causes of death should take priority. The goal is to prevent death in sport, so that was the focus of the rubric. More than 90% of all sudden deaths in secondary school athletics are covered when including exertional sickling.

The argument that member schools may not be fully capable of implementing best practices is largely shortsighted. It is clear from our published article that, at the state level, there are many states that have been successful in implementing best practices for their member schools, which creates the opportunity for those states to become a model for others that have not had success. Furthermore, the Collaborative Solutions for Safety in Sport initiative,<sup>15</sup> which was made possible from the support of the National Athletic Trainers' Association, American Medical Society

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for Sports Medicine, National Federation of State High School Associations, and the Korey Stringer Institute, brought together a representative from every state's high school athletic association and sports medicine advisory committee to discuss policy changes at the state level. This series of annual meetings allowed for discussion and brainstorming on methods to successfully implement change at the state level, with many states finding success in policy adoption and implementation in the years following these meetings. We believe the identification of the costs associated with policy change, which has been noted in the employment of an athletic trainer or other appropriate health care provider at the secondary school level, to claim that secondary schools are incapable of implementing best-practice policies pertaining to emergency action plans, heat acclimatization, access to and training on the use of an automated external defibrillator (AED), environmental-based activity modifications, and care and management of the concussed athlete is invalid. Implementation of many of these policies requires minimal cost for the school and is attainable, as evidenced by our study showing that many states adhere to many of these recommendations.

While it is acknowledged that cost has been identified as a barrier for employing an athletic trainer or other appropriate health care provider in secondary schools, it is indisputable that these licensed medical professionals are essential for providing care to injured student athletes, and their employment should take precedence when deciding to fund an athletics program at any secondary school. More important, we feel that secondary schools that do not have access to an athletic trainer or other appropriate health care provider (approximately 33% of schools in the United States do not currently have access to an athletic trainer),<sup>13,14</sup> especially those in rural locations, would benefit even more from having best-practice policies in place. In schools without an athletic trainer, the decision maker for the health and safety of the participating student-athletes is likely an individual with no medical expertise, which may place the student-athletes at risk. Also, for rural schools, where the time to medical care is delayed or prolonged in the event of not having appropriate health care coverage, having policies in place may help optimize outcomes for the student-athlete in the event of a medical emergency. For example, in the event of a sudden cardiac arrest, having immediate access to an AED where a shock is delivered by an individual with training on how to use the AED has been shown to enhance survival of this event.<sup>11</sup> Not having a policy in place that requires access to an AED within 1 to 3 minutes of every athletics venue and having all athletics personnel trained in the use of an AED will delay the care delivered to a student-athlete, which will severely impact survivability. Given this example, and many other similar circumstances, we believe that rural schools need best-practice policies more so than do schools that have more rapid access to medical care.

We respect and appreciate the work of the members serving on state sports medicine advisory committees (SMACs), as these health care providers are essential for the continued promotion of the health and safety of our student-athletes. However, SMACs are often limited by the

governing structure of state high school athletic associations, which often results in nonmedical personnel being ultimately responsible for the approval of health and safety standards. To enhance the rapid implementation of best practices to prevent sudden death and catastrophic injury in secondary school athletics, we believe the state SMACs should be establishing and approving all health and safety standards for secondary school athletes.

We agree with the authors that this topic is an important consideration, and future research is needed to fully vet the factors that influence the implementation of best practices at the local level and examine whether they ultimately reduce risk. It is important to remember that this publication was limited to the state level alone and is a starting place for the evaluation of policy adoption and implementation at the state and local level. Ultimately, the goal of this project was to advocate for the advancement of health and safety standards for secondary school student-athletes.

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