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

Dear Editor:

We read with great interest the recent article “State-Level Implementation of Health and Safety Policies to Prevent Sudden Death and Catastrophic Injuries Within Secondary School Athletics” by Adams et al. The authors, and the Korey Stringer Institute with which they are affiliated, deserve tremendous credit for their work in advancing the health and safety of athletes. We also commend the authors for exploring sports safety policy development in this article—an area that garners scant attention in the sports medicine literature. However, we believe aspects of the methodology and approach used by the research team undermine the results and conclusions presented.

In this study, the authors developed a rubric “utilizing current evidence-based best practices” to objectively assess “where individual states ranked in terms of health and safety policies aimed at preventing the leading causes of sudden death and catastrophic injuries in sport.” However, examination of the rubric and the supporting citations reveals several inconsistencies related to the evidence base and the weighting of the rubric’s components that call into question its validity. While a point-by-point discussion of the rubric is beyond the scope of this letter, we think it is important to highlight just a few examples that elucidate our concerns.

With respect to the heat acclimatization best-practice components contained in the rubric, the authors provide as evidence for the effectiveness of these components an abstract whose results suggest that the adoption of mandated heat acclimatization guidelines by 14 states since 2011 resulted in a decreased number of deaths due to exertional heat stroke. However, in the current study, only 7 of these 14 states met all of the rubric’s components for heat acclimatization (according to data provided in the Appendix). While it is possible that this inconsistency is due to the use of a different set of criteria in the 2 analyses, it is difficult to reconcile how the abstract can be used as evidence for the effectiveness of the heat acclimatization policy components evaluated in the current investigation if half of the states included in the abstract are not in compliance with current best practices. Moreover, it is unclear how the relative weighting of each best-practice subsection in the overall exertional heat stroke section was determined. Specifically, the authors provide no rationale for why the treatment-related subsections (eg, availability and use of on-site cold water immersion) were given more weight than the activity-based modifications and roughly the same weight as the totality of the heat acclimatization subsection.

Similarly, we were surprised by the weight given to the requirement for comprehensive training and education for coaches in the form of USA Football’s “Heads Up Football” educational program or equivalent. While we support and require the use of “Heads Up Football” for high school coaches in our state, there is no evidence that this program reduces injury risk when it is not coupled with contact restrictions. Nonetheless, this requirement is worth 10 points (10% of the total points for the entire rubric) and equal to the weight given to requiring an appropriate health care professional, such as a certified athletic trainer, at collision/contact practices. We agree that the rubric should have differential weighting for policy criteria that have greater evidence or greater impact, but the rationale underlying the weighting system used is not adequately explained, and greater weighting of policy criteria that have more evidence of effectiveness was not applied uniformly throughout the rubric.

Regardless of our concerns about the validity of the rubric, it is also imperative to make clear that this investigation was an assessment of policy adoption—not implementation—as the authors did not evaluate to what extent, if any, high schools in each state actually complied with the mandated policies. Unfortunately, the inference that will likely be drawn from this article by most readers is not the creation of a mandated policy but rather that the evidence-based best practices contained in any potential policy are/are not being used by high schools in the state. This is a fundamental mistake given the challenges in implementing health policy and the need to not just create policy but to directly evaluate “the impact of policies on community- and individual-level behavior changes.” The most important factor in improving student-athlete safety is not the creation of a mandated policy but rather that the evidence-based best practices contained in any potential policy are used day in and day out in our high schools.

State high school athletic associations, in collaboration with their sports medicine advisory committees, are tasked with protecting the health and safety of high school athletes to the extent possible. While mandated policies are one approach that may be used for this purpose, these groups must carefully consider whether their member schools are capable of successfully implementing policies before enacting them. For instance, mandating that all member schools have an athletic trainer or other appropriate health care professional on site at all collision/contact practices would be ideal, but this could put smaller, rural schools in a

The Orthopaedic Journal of Sports Medicine, 6(2), 2325967117752128 DOI: 10.1177/2325967117752128 © The Author(s) 2018

This open-access article is published and distributed under the Creative Commons Attribution - NonCommercial - No Derivatives License (http://creativecommons.org/licenses/by-nc-nd/4.0/), which permits the noncommercial use, distribution, and reproduction of the article in any medium, provided the original author and source are credited. You may not alter, transform, or build upon this article without the permission of the Author(s). For reprints and permission queries, please visit SAGE’s website at http://www.sagepub.com/journalsPermissions.nav.
“no-win” situation by mandating a policy that cannot be fulfilled due to a lack of trained professionals in their communities. Therefore, many state associations and sports medicine advisory committees have chosen to create best-practice recommendations, rather than mandates, and they then work with schools to support them in meeting those recommendations to the level possible given each individual school’s constraints. Although the authors cited evidence that shows recommendations can be an effective means for improving health behaviors,1 their evaluation fails to incorporate the effects that alternative (eg, nonmandated) health and safety initiatives—put into place by the many well-intentioned and serious men and women serving on sports medicine advisory committees and in state high school associations—have on preventing sudden death and catastrophic injuries.

The disconnect between reality and the inference that could be drawn by readers from the authors’ decision to disregard any approach other than a mandate when scoring states is highlighted by Hawaii’s score for “Appropriate Health Care Coverage.” Despite serving as a nationwide model for having athletic trainers providing services at 100% of its public high schools without a mandate requiring it,4 Hawaii was awarded just 10 of a possible 20 points in this category because (1) athletic trainers in Hawaii are registered rather than licensed by the state (even though registration in Hawaii requires certification from the Board of Certification), and (2) there is no state-level policy requiring that the athletic trainer—which every public high school has—be present at all collision/contact practices and competitions. As a result, the rankings put forth in this study likely do not reflect the true extent of each state’s implementation of best-practice recommendations and could result in some states that were scored lower in the analysis, but use alternative approaches, to be unfairly cast in a negative light. Such negative publicity may ultimately lead these state associations to consider adopting empty policy mandates that they cannot enforce, may not fit all of their member schools’ communities, and may not be the best approach for improving student-athlete safety. Therefore, we fundamentally disagree with the approach of one-size-fits-all state-level requirements and mandates with the hope that this will automatically result in improved safety for high school student-athletes.

There is no question that preventing sudden death and catastrophic injuries in secondary schools is essential. Therefore, we applaud the authors for the significant contributions that they have made to improve student-athlete welfare over the years and have no doubt that this investigation was well intended. However, given our concerns over the methodology employed and our view that policy mandates are not always the best approach to effect change, we believed it was necessary to contribute to an open and constructive exchange of ideas so that families, schools, and state associations can act using only the best available evidence as we strive for the same thing: safer sports for all athletes.

Michael C. Koester, MD
Eugene, Oregon, USA
Samuel T. Johnson, PhD, ATC
Marc F. Norcross, PhD, ATC
Corvallis, Oregon, USA

Address correspondence to Michael C. Koester, MD (email: mkoester@slocumcenter.com).

One or more of the authors have declared the following potential conflicts of interest or source of funding: M.C.K. serves as chair of the National Federation of State High School Associations (NFHS) and Oregon School Activities Association (OSAA) Sports Medicine Advisory Committees. S.T.J. and M.F.N. are members of the OSAA Sports Medicine Advisory Committee. The views expressed in this letter have not been approved or endorsed by the NFHS, OSAA, or their respective Sports Medicine Advisory Committees.

REFERENCES

1. Adams WM, Scameo SE, Casa DJ. State-level implementation of health and safety policies to prevent sudden death and catastrophic injuries within secondary school athletics. Orthop J Sports Med. 2017;5(9):2325967117727262.

2. Attanasio SM, Adams WM, Stearns RL, Huggins RA, Casa DJ. Occurrence of exertional heat stroke in high school football athletes before and after implementation of evidence-based heat acclimatization guidelines. J Athl Train. 2016;51(suppl 6):S-168.

3. Brownson RC, Chiriqi LJ, Stamatakis KA. Understanding evidence-based public health policy. Am J Public Health. 2009;99(6):1576-1583.

4. Buxton BP Jr, Okasaki EM, McCarthy MR, Ho KW. Legislative funding of athletic training positions in public secondary schools. J Athl Train. 1995;30(2):115-120.

5. Doppson S, Locom L, Gabby J, Ferie F, Fitzgerald L. Evidence-based medicine and the implementation gap. Health. 2003;7(3):311-330.

6. Henderson B. Hundreds have died playing high school sports. Why NC ranks high for preventing more. Charlotte Observer. http://www.charlotteobserver.com/news/local/article160083942.html. Published August 8, 2017. Accessed October 3, 2017.

7. Kerr ZY, Yeagain S, Valovich McLeod TC, et al. Comprehensive coach education and practice contact restriction guidelines result in lower injury rates in youth American football. Orthop J Sports Med. 2015;3(7):2325967115594578.

8. Lawler EC. Effectiveness of vaccination recommendations versus mandates: evidence from the hepatitis A vaccine. J Health Econ. 2017;52:45-62.

9. Saracevic A. How California puts high school athletes at great risk. San Francisco Chronicle. http://www.sffchronicle.com/sports/article/How-California-puts-high-school-athletes-at-great-12219210.php. Published September 21, 2017.