



Korey Stringer Institute

Founded: April 23rd, 2010



Rebecca L Stearns, PhD, ATC, FNATA

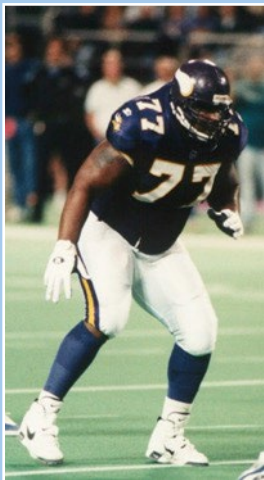
Korey Stringer Institute, Department of Kinesiology, College of Agriculture, Health and Natural Resources
University of Connecticut, Storrs, CT



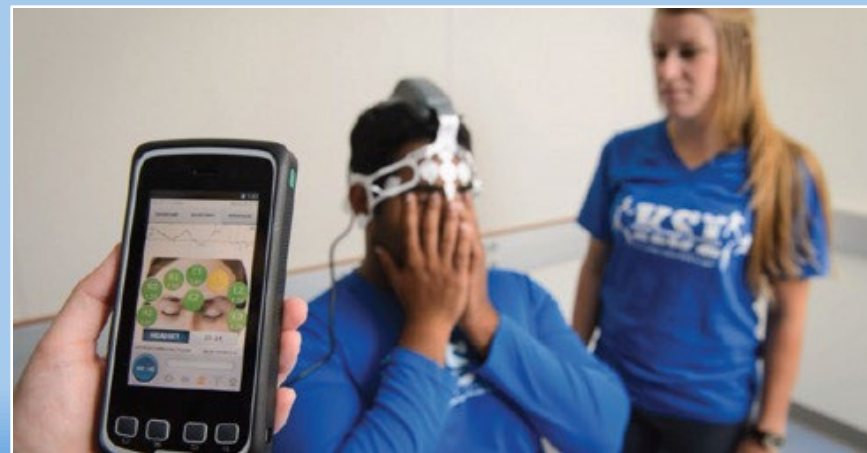
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Korey Stringer's Story & KSI's Mission

In August 2001 Korey Stringer, a Minnesota Vikings offensive lineman, died from exertional heat stroke.



The mission of the Korey Stringer Institute is to provide research, education, advocacy and consultation to maximize performance, optimize safety and prevent sudden death for the athlete, warfighter and laborer.

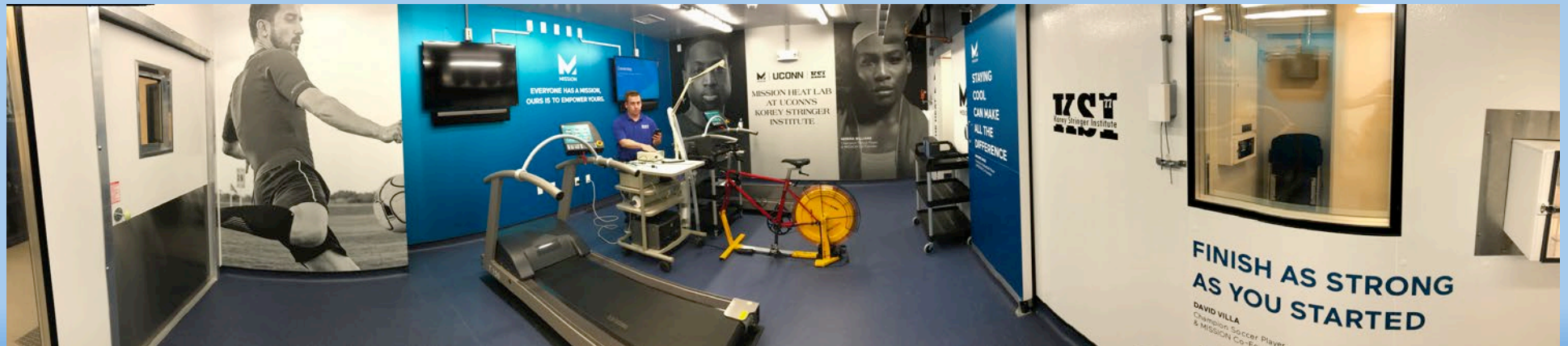




ENHANCING HEAT RESILIENCY



Mission Heat Lab at UConn's Korey Stringer Institute Grand Opening 2017



Enhancing Health For Secondary School Athletes

National Center for Catastrophic Sport Injury Research (NCCSIR)



NCCSIR Mission

To conduct surveillance of catastrophic injuries and illnesses related to participation in organized sports in the United States at the collegiate, high school, and youth levels of play

Fatal Exertional Heat Stroke Trends in Secondary School Sports From 1982 Through 2022

Rebecca L. Stearns, PhD, ATC ^{ID},* Kristen L. Kucera, PhD, ATC, Yuri Hosokawa, PhD, ATC ^{ID}, Erica M. Filep, PhD, ATC ^{ID}, Aleksis Grace, MS, ATC, Randi DeLong, MPH, and Douglas J. Casa, PhD, ATC

Sports Health, 2024

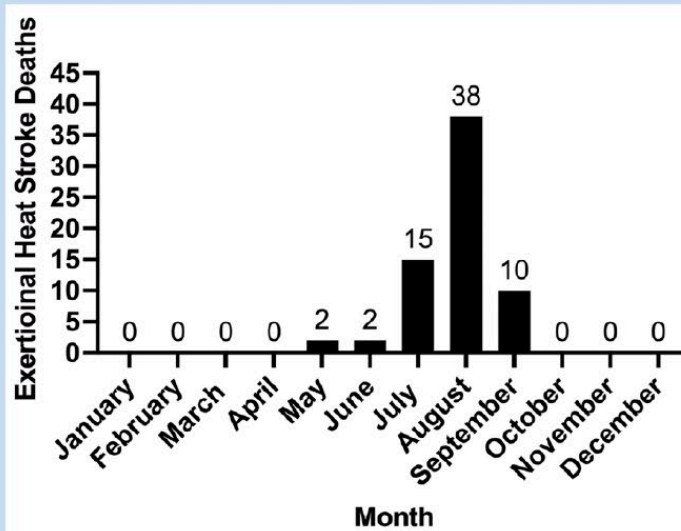


Figure 1. US secondary school athlete EHS deaths from academic years 1982/1983 to 2021/2022 by month. Number above each bar represents the total number of deaths for that month. EHS, exertional heat stroke; US, United States.

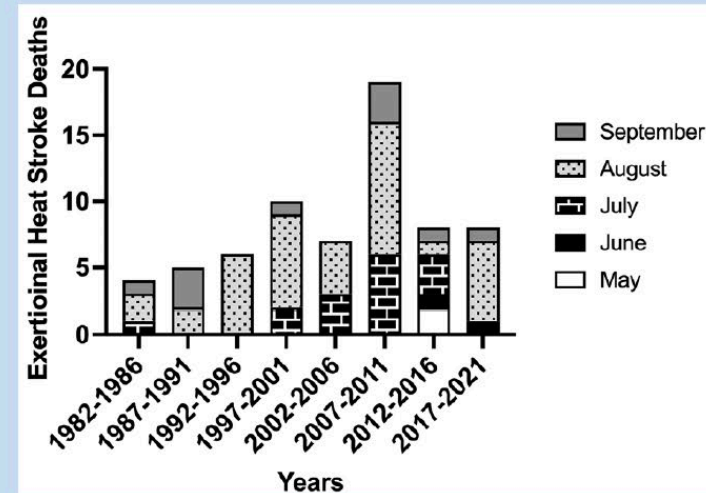
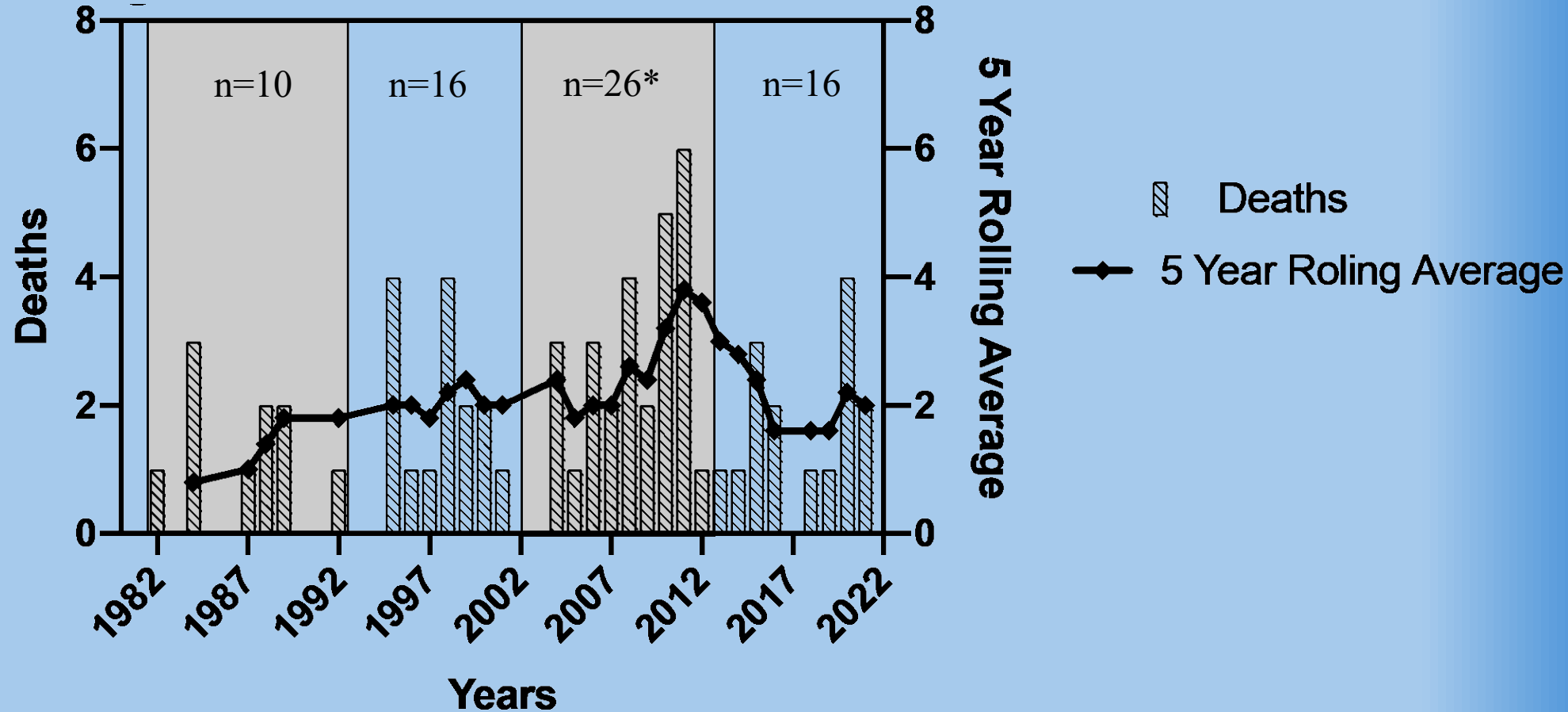


Figure 2. US secondary school athlete EHS deaths by 5-year block and month from academic years 1982/1983 to 2021/2022. EHS, exertional heat stroke; US, United States.

High School Exertional Heat Stroke Deaths



Note: 5-year rolling average represents the average yearly deaths based on previous 5-year numbers.
 Gray blocks distinguish separate decades.

* Chi-Square goodness of fit was significant for 2002-2011 block ($p=0.0326$)

Team Up For Sports Safety (TUFSS)

The goal of TUFSS is to propel adoption of policies proven to reduce the incidence of catastrophic sport injuries for secondary school athletes.



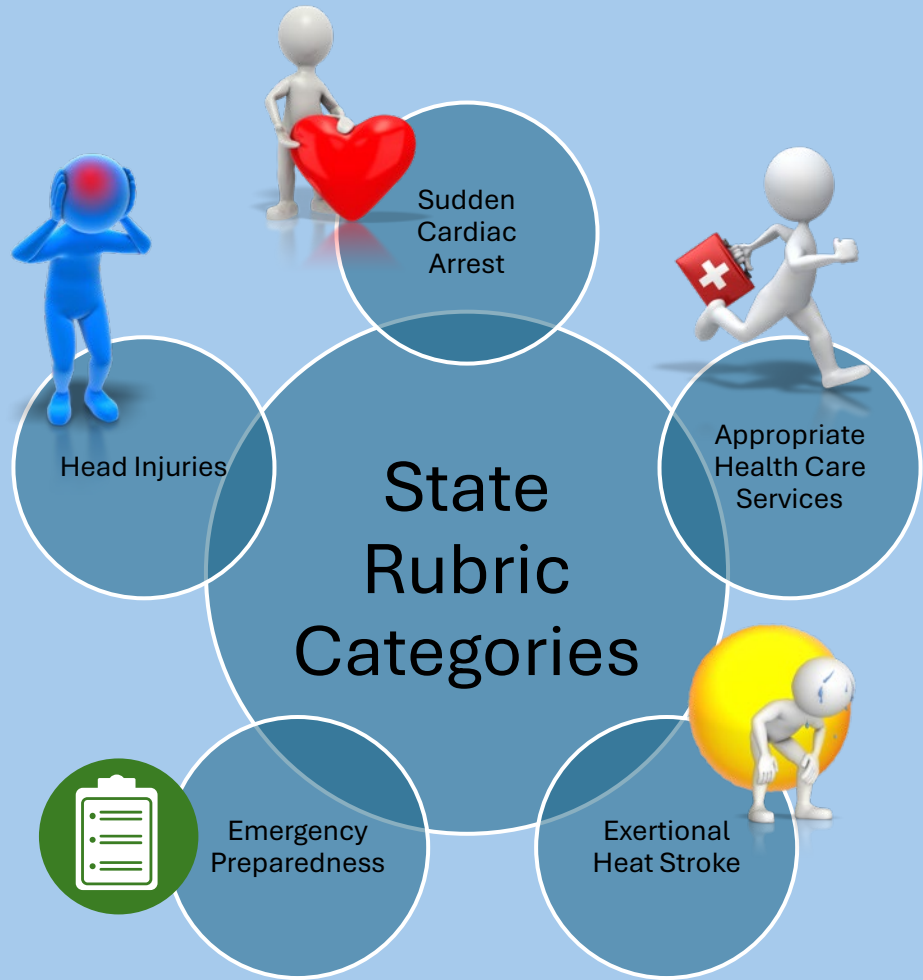
Upcoming Visits

Visited



VT	March 2024
NH	Nov. 2019/21
MA	Aug. 2020 May 2023
RI	Dec. 2022
CT	Jan. '20&'21
NJ	Mar 2018
DE	Oct. 2019
DC	Oct. 2018 Oct. 2022

State Policy Tracking





Total New Policies Adopted Since 2018 (7 Year total across all states)

Reaching 100% Adoption

- Shifted average number of policies adopted from 31% to 54% of total policies
- All topic areas (aside from health care coverage) are now over 50%
- All started below 50%

Athlete Services



USWNT 2020 Tokyo
Olympics Prep



Falmouth Road Race
Medical Tent

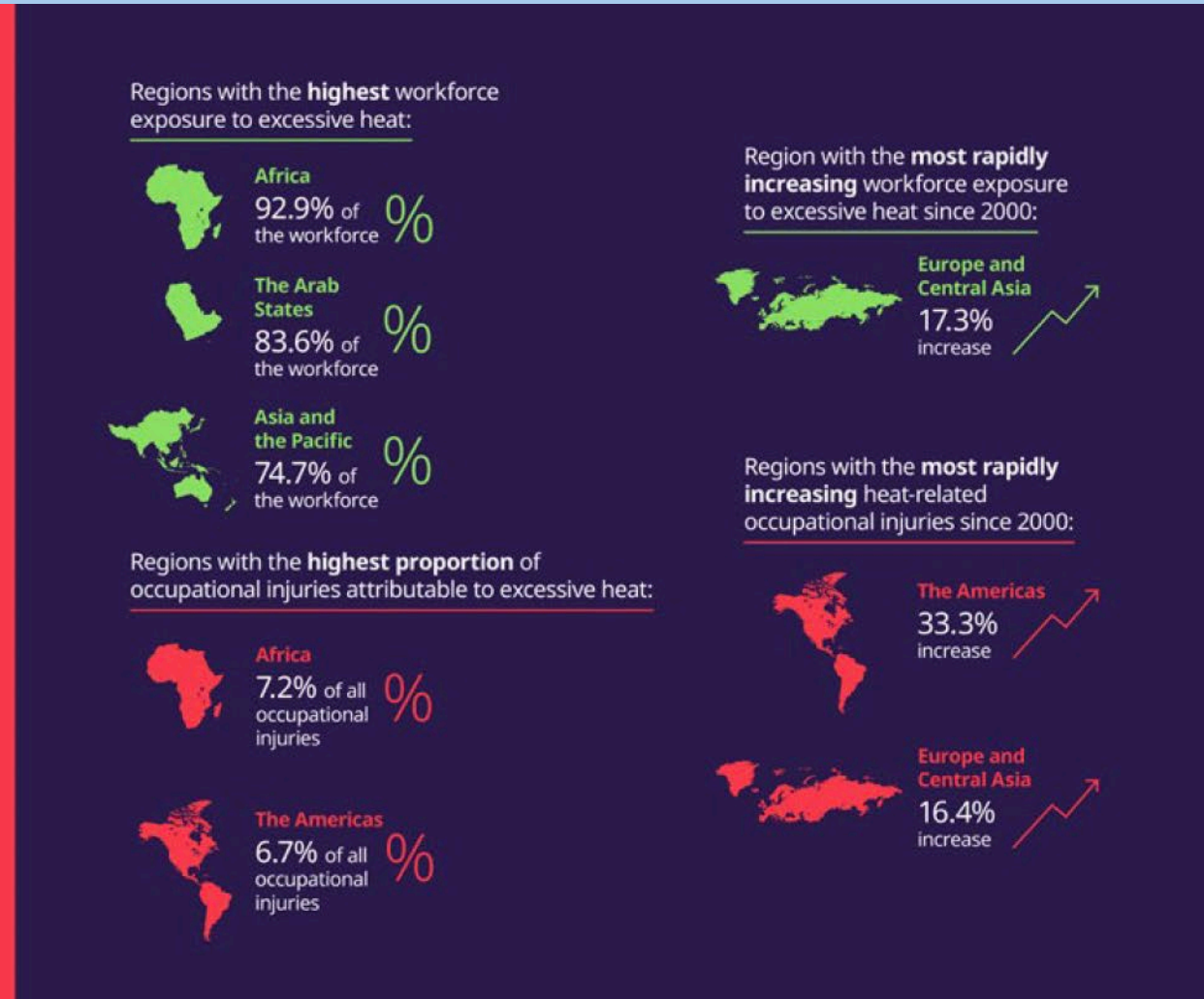
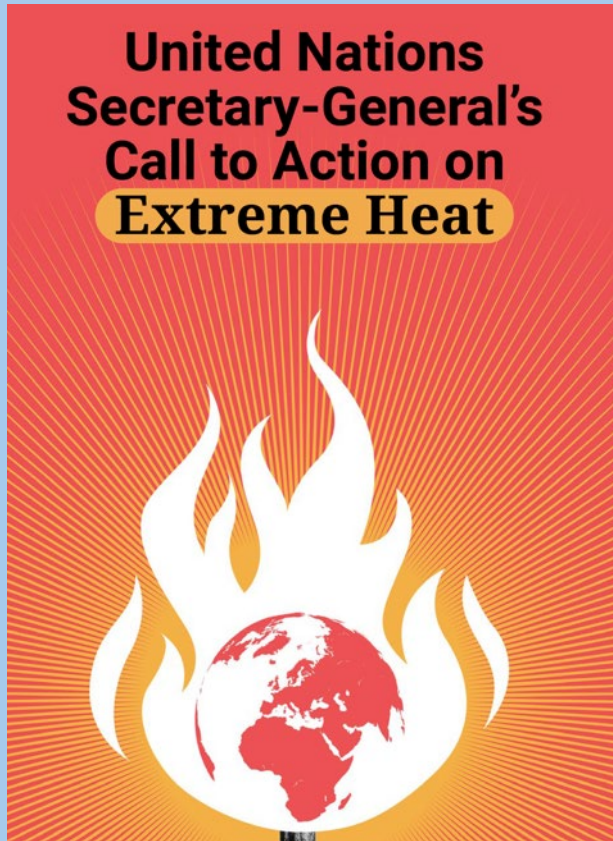


Heat Stroke
Recovery Testing



KSI and Laborer Heat Safety

High Occupational Heat Injuries in US





BOILING POINT

June 2022

OSHA Must Act Immediately to Protect
Workers From Deadly Temperatures

PUBLIC CITIZEN 50
YEARS

Public Citizen

Table 2: Estimated Annual Heat-Related Workplace Fatalities Derived by Applying Academic Estimates on Total Heat-related Fatalities to Federal Data on Work vs. Total Heat-related Fatalities

Study	Estimate of Total Heat-related Fatalities	Ratio of Workplace-to-Total Heat-related Fatalities in Government Data	Annual Workplace Heat-related Fatality Extrapolation
Weinberger <i>et al.</i>	9,079	1:17	605
Shindell <i>et al.</i>	12,000		706



The Struggle of Working In The Heat- We Can Do Better Protecting Workers From Heat Stress





Warfighter Readiness & Safety

Department of Defense Research

- Grant #1: Physiological Effects of Exercise in the Heat & Heat Acclimation
- Grant #2: Effectiveness of Different Heat Acclimation Protocols
- Grant #3: Wearable Devices in the Heat

2 Million Dollars Each
Each Study 3 Years
(18 DOD Grants in Past 8 Years)

Policy Implementation and Impact

“State high school athletic association-mandated heat acclimatization guidelines that met NATA-IATF recommendations were associated with a **55% reduction in the incidence of EHI**”

The Association between Mandated Preseason Heat Acclimatization Guidelines and Exertional Heat Illness during Preseason High School American Football Practices

Zachary Y. Kerr,¹ Johna K. Register-Mihalik,¹ Riana R. Pryor,² Lauren A. Pierpoint,³ Samantha E. Scarneo,⁴ William M. Adams,⁵ Kristen L. Kucera,¹ Douglas J. Casa,⁴ and Stephen W. Marshall⁶

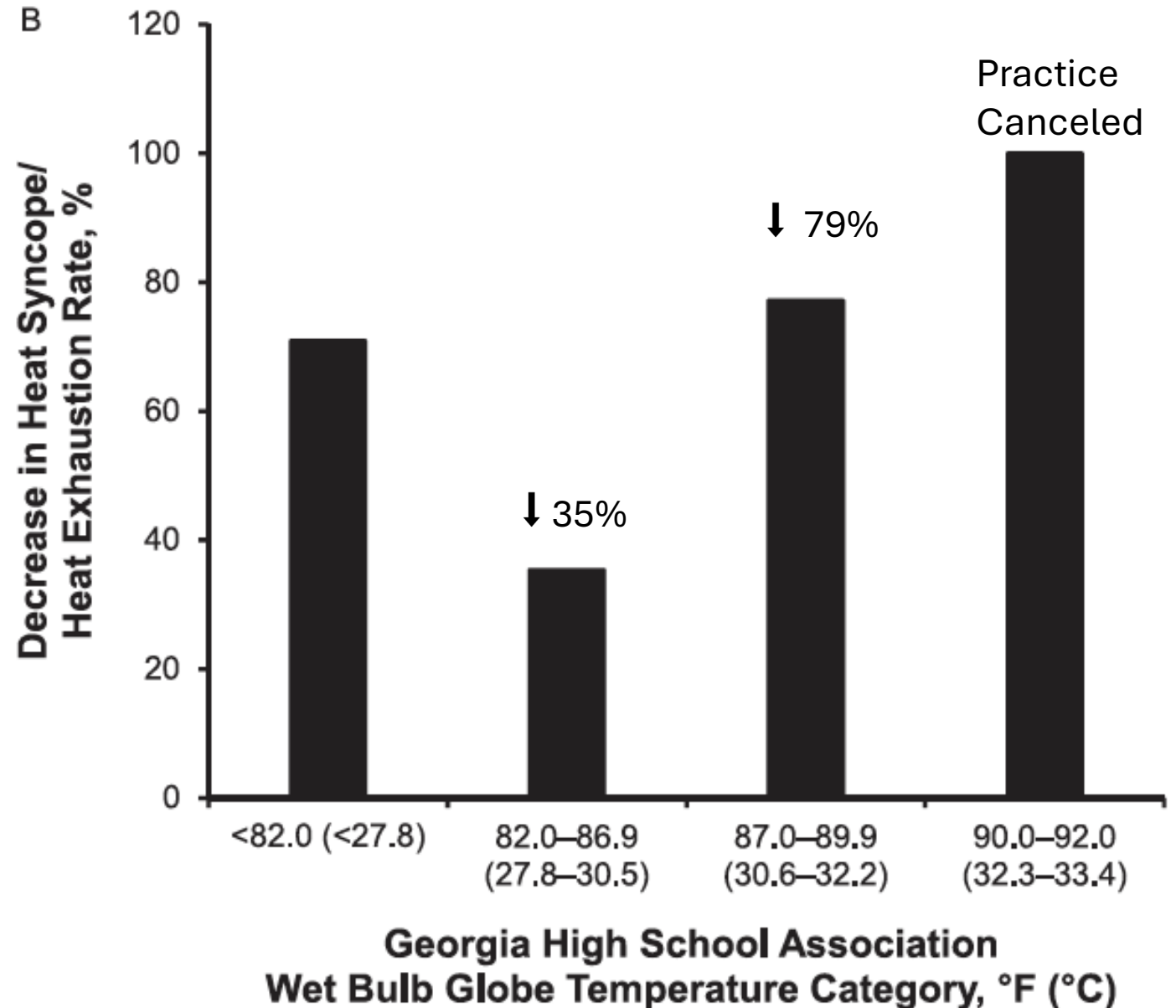
Environmental Health Perspectives

047003-1

127(4) April 2019

455 state-years, from 48 states - 32 state years (7%) from 8 states with mandated guidelines

A WBGT Policy Reduces Heat Illness Rates by 35-100% in Warm & Hot Temperatures

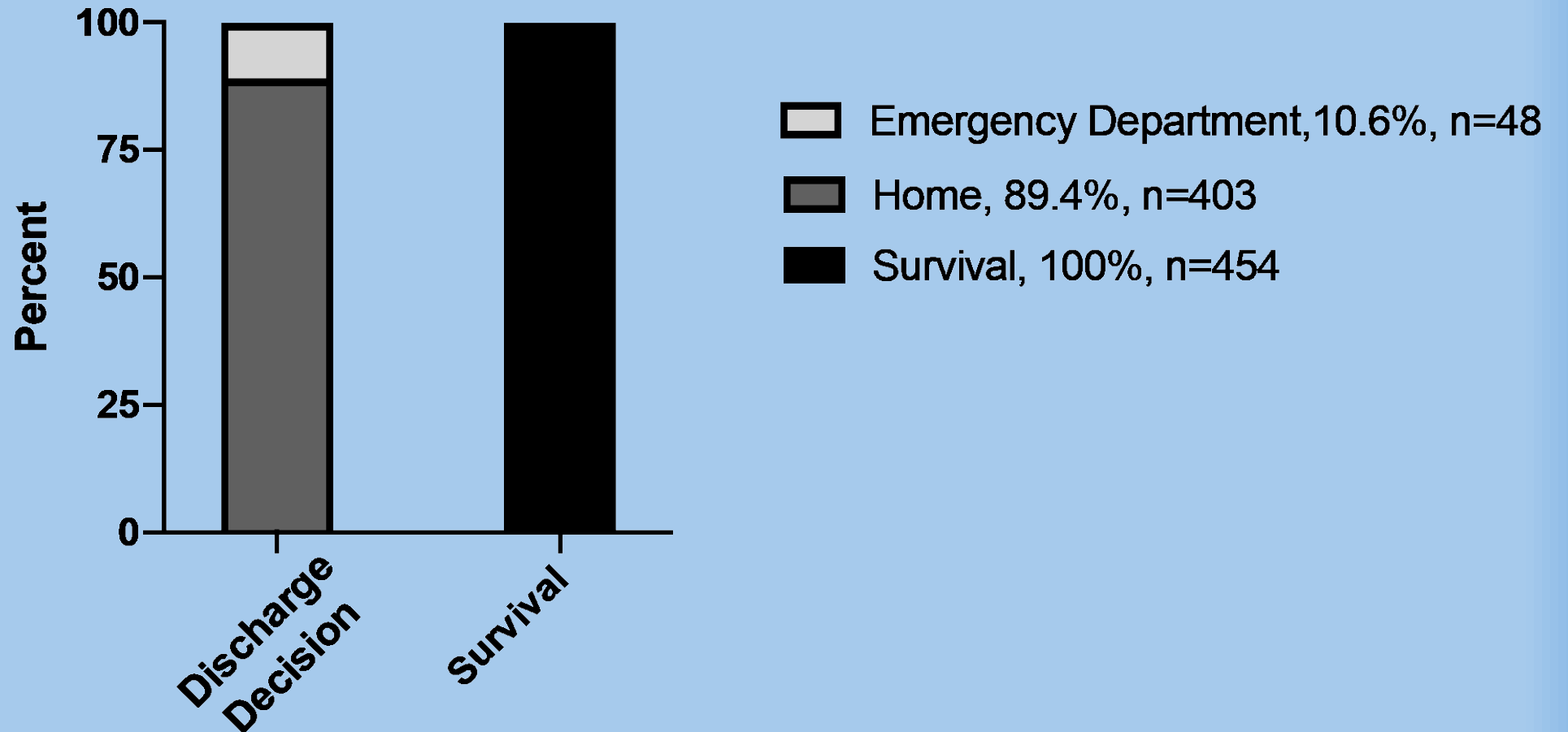


The Falmouth Model





CWI for EHS at the Falmouth Road Race (n=454)



National EMS Guidelines



National Model EMS Clinical Guidelines

March 2022

VERSION 3.0

These guidelines will be maintained by the National Association of State EMS Officials (NASEMSO) to facilitate the creation of state and local EMS system clinical guidelines, protocols, or operating procedures. System medical directors and other leaders are invited to harvest content as will be useful. These guidelines are either evidence-based or consensus-based and have been formatted for use by field EMS professionals.

A MASSIVE STEP FORWARD

Connecticut
June 2019

EXERTIONAL HEAT STROKE PROTOCOL

EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS

Exertional heat stroke (EHS) is a unique and emergent hyperthermic condition that occurs in individuals performing intense physical activity, typically but not limited to, warm environments.

INDICATION:

Consider EHS in any intensely exercising athlete, laborer, fire or EMS personnel with altered mental status.

PROTOCOL:

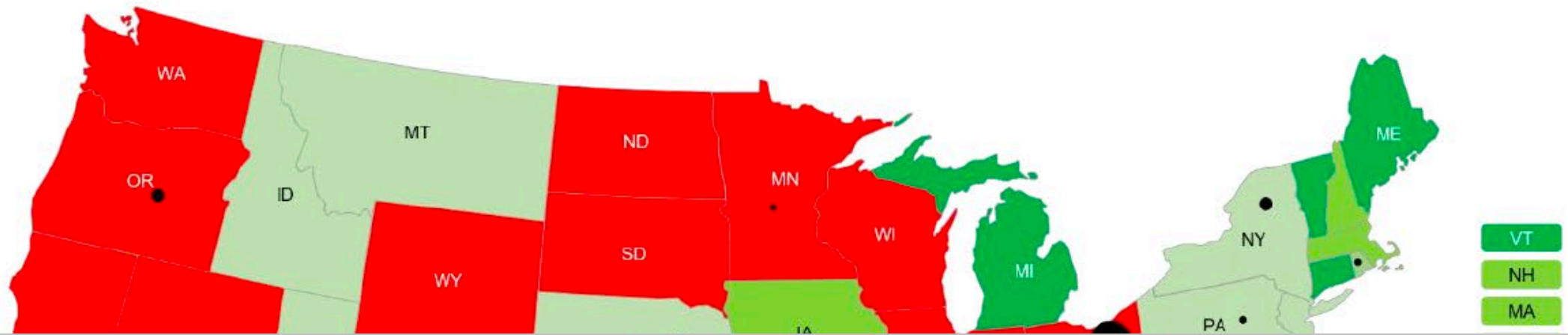
1. Perform Rapid Routine Assessment (<5 min). Assess for other causes of AMS including but not limited to hypoxia, hypoglycemia, inadequate perfusion or head injury.
2. Consider EHS in any intensely exercising athlete, laborer, fire, police or EMS personnel with altered mental status.
3. If EHS has been confirmed and appropriate cooling has been initiated by an appropriate onsite medical team, athletic trainer, coach, or instructor, DO NOT interrupt cooling for assessment or transport.
4. If care not already initiated and EHS is suspected, immediately perform a rectal temperature (T_{REC}) assessment at an insertion depth of 15 cm.
5. If T_{REC} is at or above 40°C (104°F), initiate immediate rapid cooling to a temperature less than 40°C within 30 minutes of collapse. The recommended minimum cooling rate is 0.15°C per minute.
 - a. Best practice for cooling an EHS patient is whole-body cold water immersion from the neck down ($0.2\text{--}0.3^{\circ}\text{C}$ per minute)
 - b. Immersion in ice water filled body bag or tarp may also yield acceptable cooling rates ($0.15^{\circ}\text{--}0.17^{\circ}\text{C}$ per minute).
 - c. Ice packs, fans, cold water dousing or shower do not achieve acceptable cooling rates. Rotating ice water towels covering as much of body surface area as possible should be considered a minimum cooling modality en route.
6. Discontinue cooling at 39°C (102°F). If a T_{REC} is not available, cooling should not be interrupted or delayed in cases of suspected EHS. Cool for a minimum of 20 minutes / clinical improvement if resources available on scene, or transport with best available active cooling method (Body bag with ice water or rotating ice water soaked towels)
7. Do not interrupt cooling for diarrhea, emesis, combativeness, or seizures. IV/IM medications are rarely needed.
8. Transport, with full notification to closest receiving facility that EHS is suspected, request T_{REC} be reassessed on turnover.



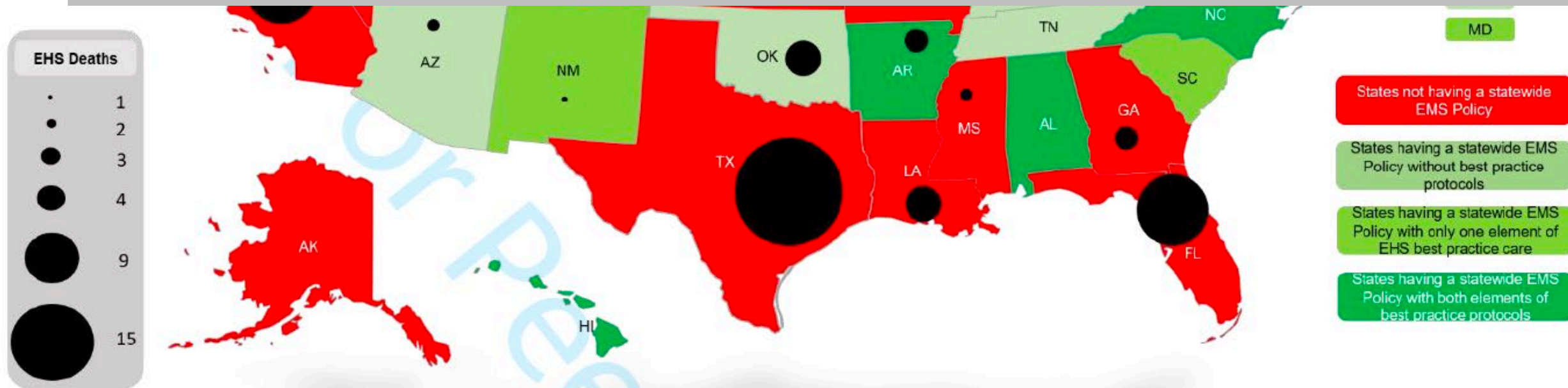
- For events with medical personnel and cooling means on-site, the only appropriate standard is to cool the EHS patient in place. Transportation of an EHS patient should only be done if it is impossible to adequately cool the patient, or after adequate cooling has been verified by a rectal temperature.
- The only accurate or acceptable body temperature measurement in exercising individuals is a rectal temperature (T_{REC}).
- EMS must ensure early pre-notification of hospitals if they will be receiving an inadequately cooled EHS patient, or suspect EHS in a scenario where treatment has not been initiated



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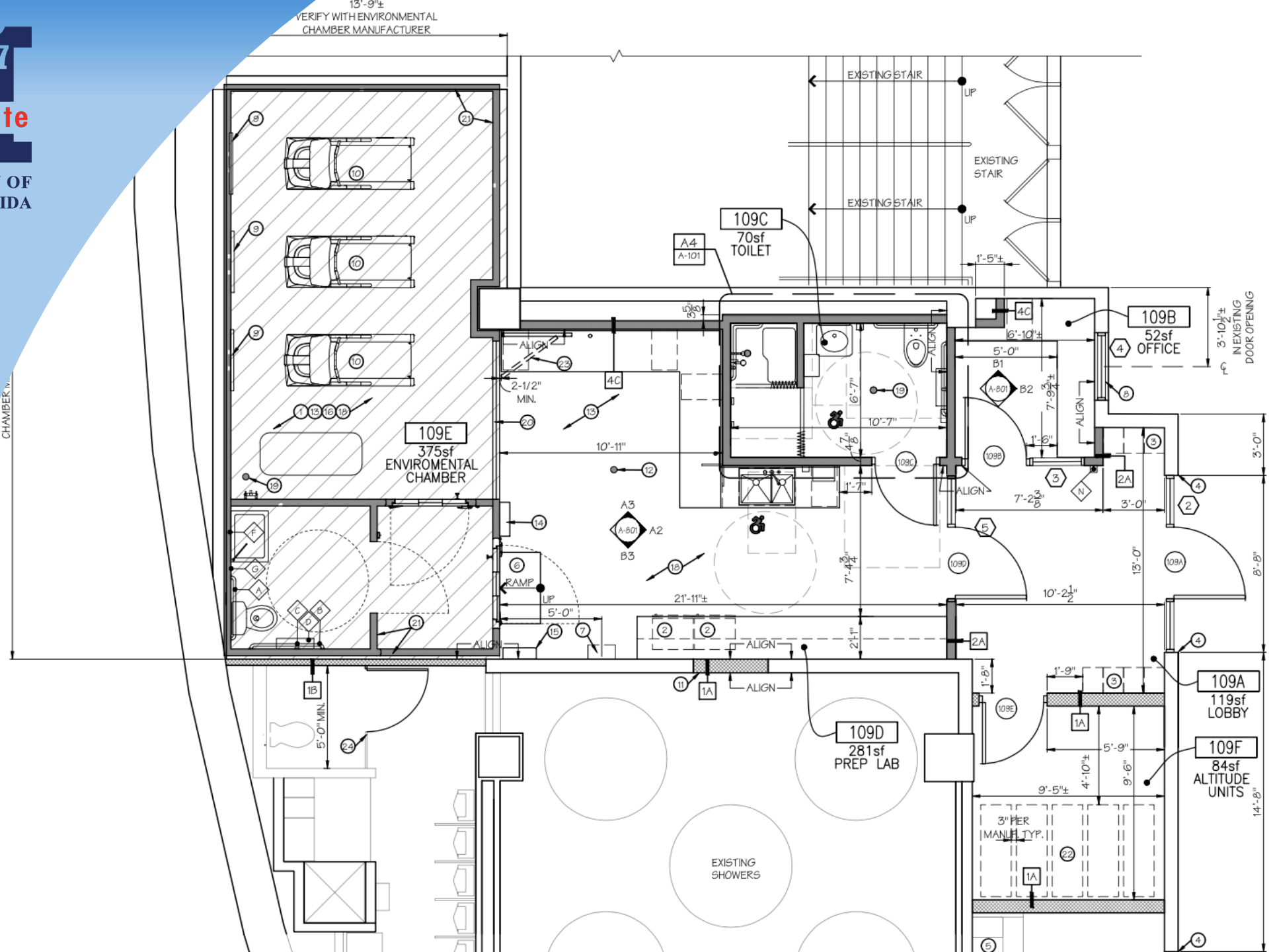


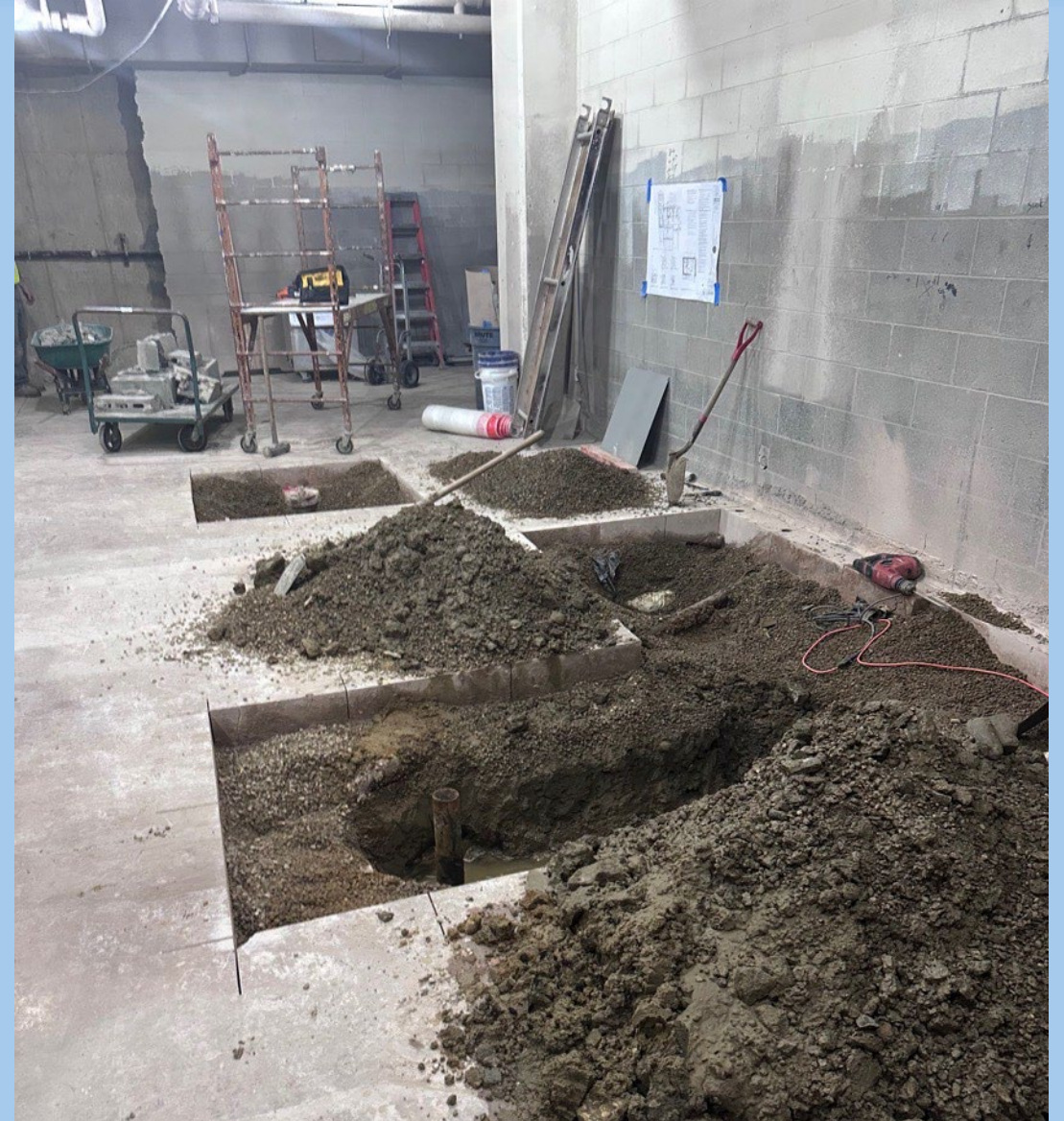
Laborers are 3.0-3.7 times less likely to die from EHS when statewide EMS guidelines contain CWI or CFTS, respectively



New Developments & Expansion

MASSIVE MOMENT FOR KSI 2025









National Laboratory for Occupational Heat Safety



Corporate Partners



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