



A MULTI-LEVEL APPROACH TO HEAT-RELATED ILLNESS PREVENTION FOR AGRICULTURAL WORKERS

YEAR 5 of 6 (2016-2022)

PI: June Spector, MD, MPH

Associate Professor, University of Washington

Challenge

Heat stress is a preventable cause of injury, illness, and death for outdoor workers. Heat events are projected to become more frequent and occur for longer periods of time, and agricultural communities are looking for practical solutions. Few studies have examined heat prevention solutions that consider individuals, workplaces, and communities all together.

Project Overview

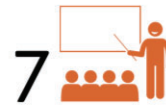
This project is developing and evaluating a multi-level approach to prevent heat illness by providing training tools and resources for employers, supervisors, and workers. The Heat Education & Awareness Tools (HEAT), developed in collaboration with agricultural workers, educators, and other stakeholders features a facilitator's guide, heat awareness mobile application, worksite posters, and interactive educational materials for workers in English and Spanish. The goal is to determine if the HEAT Toolkit is effective at reducing heat illness among agricultural workers. To accomplish this, a 3-month field study was conducted on 4 farms, among a total of 78 workers in 2019. We recorded worker's tasks and signs and symptoms of heat illness and placed monitors to measure heart rate and temperature of surrounding environment. We are determining whether workers who received HEAT Toolkit and education ('intervention group') had less signs and symptoms of heat-illness than those that did not ('usual practice group').



HEAT TOOLKITS
DISTRIBUTED



TOOLKIT RESOURCES
DOWNLOADED



PRESENTATIONS
WITH 461
PARTICIPANTS



TRAINING PLATFORMS
ADOPTED HEAT TOOLKIT
(INCLUDING WA STATE OSHA)

Findings to Date

- Results from the analysis of heat knowledge question responses from 2019 indicate improvement in knowledge scores at the end compared to the beginning of the season in the 'intervention group.'. Scores in the 'intervention group' improved more than scores in the 'usual practice' group from the beginning to the end of the season (Marquez and others, 2021, in review).
- Preliminary results suggest a decrease in physiologic strain in the 'intervention' compared to the 'usual practice' group, particularly for participants who worked with high effort, compared to low/medium-low effort (publication to be submitted soon).
- Algorithms using heart rate and initial body temperature were tested and demonstrate promise for assessing worker heat strain in research settings (Egbert and others, 2021, in review).

Accomplishments

- Published one peer-reviewed article, two are under review, and two are in progress.
- Developed study procedures to assess a multi-level (individual, workplace, and community) heat prevention approach, which we hope will advance the literature by providing insight into assessing the impact of heat stress interventions in the workplace ([Krenz and others, 2021](#)).
- Launched the 2021 Be Heat Smart campaign in collaboration with NIOSH Ag Centers and regional partners, including WA State Department of Labor and Industries. The summer-long campaign produced 124 social media posts on Facebook, Instagram and Twitter. Across all platforms, the campaign resulted in 31,118 impressions and 973 engagements.
- Produced 3 radio programs to promote heat and wildfire smoke safety and resources through the Be Heat Smart Campaign in collaboration with Radio KDNA, WA Grower's League, WA Department of Health, and the WA Department of Labor and Industries.
- Integrated the heat awareness mobile application within WSU AgWeatherNet.
- Developed the Prevention of Heat-Related Illness [course](#) which is part of the University of Washington Continuing Education Program: Principles for the Practicing Industrial Hygienist Series.

Next Steps

The HEAT team continues to work in collaboration with PNASH's Outreach Core to disseminate information on heat-related illness prevention, results of analyses, and the promotion of the HEAT Toolkit. The team will evaluate the HEAT toolkit and educational materials in the coming year. Finding ways to engage small farms, particularly those owned by Latino farmers, would likely help to disseminate materials and safety messages to workers who might not receive adequate safety training. We are currently working with WSU AgWeatherNet on developing a "How-to" Guide for installing and using theApp that will be shared with current and potential users of the application. The team is also working with WSU's AWN team to optimize the App. Four upcoming publications have been submitted or will be submitted by the end of 2021.

Resources

Visit our webpage to learn more or to download resources in English & Spanish.



Heat Illness
[webpage](#)



Heat [Toolkit](#)



Workplace
[Posters](#)



Peer-reviewed
[article](#)