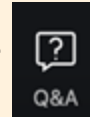



**FROM CONCERN TO ACTION:
Health Professionals Leading the
Charge for Extreme Heat Protection**

October 22, 2024

Housekeeping

- Stay muted during the session
- This session will be recorded
- Submit questions using the Q&A feature



This webinar is brought to you by:



Alliance of Nurses for
Healthy Environments



Speakers



Moderator: Nicole Duritz

*Director of Programs,
Outreach and Strategy*

*The Medical Society Consortium
on Climate and Health*

**Ruth McDermott-Levy, PhD,
MPH, RN, FAAN**

Professor and Co-Director

*Mid-Atlantic Center for Children's Natural Resources Defense Council
Health and the Environment*

Juanita Constible

*Senior Advocate
Environmental Health*

William "Brett" Perkison, MD, MPH

*Assistant Professor
The University of Texas School
of Public Health*

Why Health Voices Matter

- Health professionals, notably doctors, nurses, and pharmacists, are widely perceived as highly trusted sources of information for the public.
- Public trust extends to their role as a source of information about climate change, including among politically conservative groups, making them effective messengers for communicating important information about climate change and health.
- Research has shown that public responses to health professionals who engage in climate advocacy are generally positive, enhancing rather than diminishing trust.

George Mason Center for Climate Change Communications

Just Work & Clinical Practice in a Warming Planet

Ruth McDermott-Levy, PhD, MPH, RN, FAAN
Professor & Co-Director, Mid-Atlantic Center for
Children's Health & the Environment (R3
PEHSU)

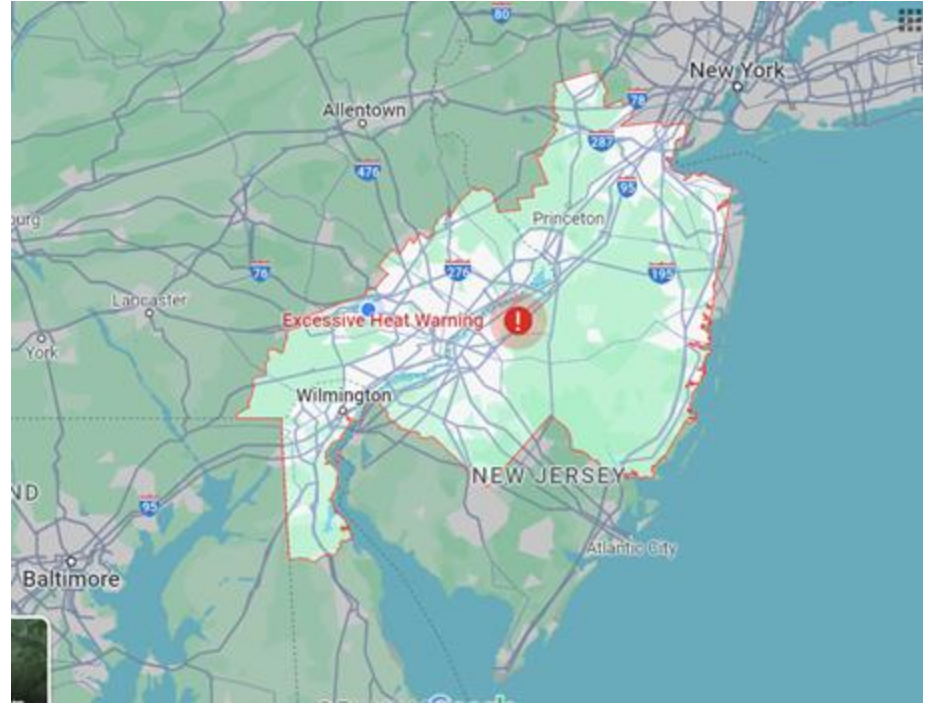
M. Louise Fitzpatrick College of Nursing,
Villanova University

Alliance of Nurses for Healthy Environments,
Steering Committee



Heat Mortality

- Heat is the greatest cause of extreme weather mortality.
- The first heat wave is the deadliest.
- Nationally, heat-related deaths have steadily increased: (Data from CDC):
- 2021: 1,563
- 2022: 1,702
- 2023: 2,297 (provisional)
- Estimated 80% of deaths are people ≥ 60 y/o
- Agriculture industry: 2021: 453(all cause) 19.5 deaths/100,000 workers.



Excessive heat warning on July 17, 2024

Heat and Sleep

Nighttime cooling is necessary for the body to recover from the heat of the day and higher

High temperatures

frequent and longer awakenings

reduction in REM sleep and N3 sleep (deep sleep) decreased

Sleep disturbances exacerbates pre-existing chronic disease and affects cognitive and emotional functioning (Buguet et al., 2023).

A large Japanese study (n: 24,721,226) all-cause deaths over four decades. Nighttime heat played a role in increased deaths, and this was especially true for older people with co-morbidities of cardiovascular disease and renal disease (Kim et al., 2023).

Associated Environmental Impacts from Heat

- **Poor Air Quality:**
 - ground level ozone & particulate matter
- **Extreme weather:**
 - rain and flooding
- **Wildfires:**
 - Safety risks
 - Poor air quality
- **Can lead to:** loss of energy source, communication, access to health services





Secondary Health Impacts of Heat

Vector-borne diseases

Extreme Weather &
Flooding

Shelter

Mold & Fungal illnesses

Food security

Loss of
Employment/Income

Mental health: stress -
PTSD

Groups most vulnerable to heat: Physical factors

Pregnant people

Infants

Children

Outdoor workers or activities (work in non-ac environment)

Older adult

Co-morbidities (CVD, DM, Resp, Renal)

Substance use disorders

People experiencing disabilities: cognitive, physical, sensory, mental



Medications that Contribute to Heat Sensitivity.

For full list: [CDC Clinical Guidance](#)

- **Diuretics, ACE inhibitors, Angiotensin II Receptor Blockers:** reduced thirst sensation.
- **Antipsychotics, anticholinergics, & stimulants:** Interfere with central thermoregulation.
- **Selective Serotonin Reuptake Inhibitors (SSRIs), Serotonin and Norepinephrine Reuptake Inhibitors (SNRIs), decreased with Tricyclic Antidepressants (TCAs), typical and atypical antipsychotics, anticholinergic agents:** Impaired sweating.
- **Non-steroidal anti-inflammatory drugs (NSAIDs), diuretics, beta blockers, TCAs, laxatives:** Volume depletion, hypotension, and/or reduced cardiac output
- **Check with Pharmacist or USPI**
- **Many medications lose efficacy in heat (59-85 F or 15-30 C)**



Groups most vulnerable to heat: Social factors

- Low-income
- Low educational attainment
- Communities of color
- Immigrant and marginalized groups
- Low English proficiency
- Substandard housing
- People experiencing homelessness



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Environmental Justice

“A neighborhood or community, composed predominantly of persons of color or a substantial proportion of persons below the poverty line, that is subjected to a disproportionate burden of environmental hazards and/or experiences a significantly reduced quality of life relative to surrounding or comparative communities.”

Welsch (1997), University of Michigan



Climate change is an EJ issue

Disproportionately burdens low-income communities who tend to produce fewer greenhouse gases (Resnik, 2022).

Environmental Justice Influence on Health

Increased environmental
risks & exposures

Existing co-morbidities

Challenges changing
situation

- Cost of running air conditioner (McIntyre et al., 2023)
- Changing employment
- Access to health care
- Immigration status
- Language barriers

Employment risks



Impact on the Health System: Admissions

- Increase in HRI and renal disease
- Intimate partner violence (IPV) and conflict
- Motor vehicle injuries
- Stress and anxiety
- Health care providers with limited experience in addressing HRI (from prevention thru critical care)
- Language and cultural barriers
- Trust



Impact on the Health System: Administrative

- Increased clinic visits and admissions
- Using the ED as a cooling center
- Loss of power of essential equipment supporting health
- Disruptions in transportation (goods, emergency vehicles, staff)
- Staffing issues



Provider's response

- **Engage in policy:**
 - Address heat especially for outdoor workers (people who work in non-ac settings)
 - Seamless accessible EMR across all health systems
 - Air conditioning in rental units
- **Use ICD-10 Codes!** There are codes for environmental and social conditions
- **Continuing education (CME, CE):** HRI and AKI
- **Include HRI prevention and response in clinical encounters**
- **Promote PSAs that include HRI prevention and response**
- **Prioritize EJ communities and the residents**
- **Consider influence of heat and climate change in patient symptoms**

Thank you

Ruth.mcdermott.levy@villanova.edu



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for CHILDREN'S HEALTH
and the ENVIRONMENT



Bringing the Power of Health Voices to OSHA's Heat Rulemaking

Juanita Constible, Natural Resources Defense Council

October 2024

Most U.S. workers are not formally protected from heat



Only 6 states have full or partial standards
(CA, CO, MN, MD, OR, WA)

A handful of cities have ordinances
(e.g., Phoenix, AZ)

NO federal standard



PROPOSED HEAT STANDARD

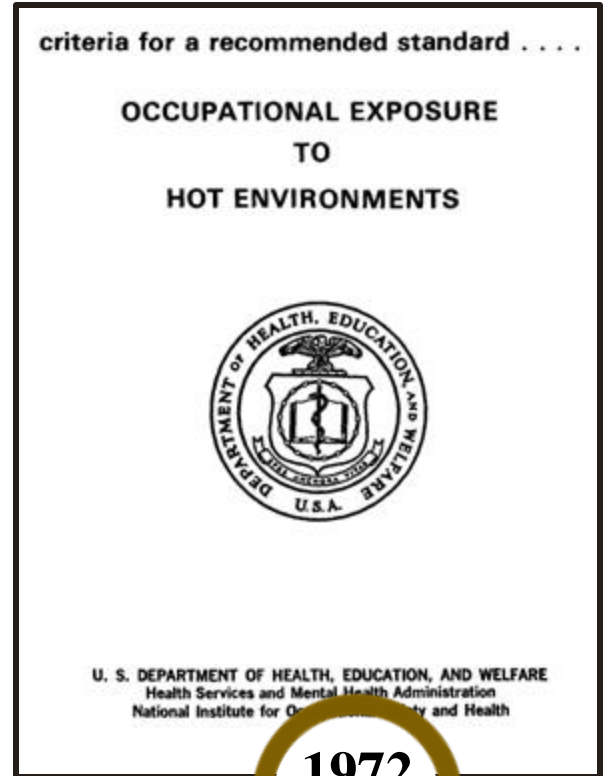
As proposed in July 2024:

- Would cover approximately **36 million** indoor and outdoor workers
- Estimated annual benefits of **\$9.2 billion** from avoided deaths and illnesses

A “new” solution to a very old threat

“The dangers arising from heat prostration affect most particularly that portion of the community which is obliged to work at all times, irrespective of weather and in exposed situations.”

— Charles F. Withington, MD, writing in the *Boston Medical and Surgical Journal* in **1895**



1972

Programmatic, not prescriptive



vs.



Employers must evaluate their own workplaces
and implement appropriate controls for the context

Key requirements of OSHA's heat proposal



- Written Heat Illness & Injury Prevention Plans, shaped with worker input
- Clean drinking water at no cost to employees
- Paid rest breaks in cool or shaded areas
- A period for new workers to get used to the heat
- Training for workers and supervisors

Workers covered by federal OSHA

- ✓ Most private sector
- ✓ U.S. Postal Service
- ✓ Most other federal agencies
- ✗ Self-employed
- ✗ Immediate family of farm employers
- ✗ Workers exposed to hazards covered by other agencies
- ✗ State and local government



PHOTO: Elvert Barnes, Creative Commons / CC BY-SA 2.0

Some other proposed exemptions from the heat standard

Sedentary indoor workers

Firefighting organizations

Emergency medical services



OSHA wants to hear from you by December 30!



OSHA is required to provide substantial evidence that their proposal:

- Addresses a hazard that carries significant risks of serious harm for **workers**
- Contains “reasonably necessary or appropriate actions” that would reduce risk
- Is technologically and economically feasible

Specific requests for additional / contrary evidence:

www.osha.gov/heat-exposure/rulemaking

You are a valuable source of evidence!

Health professionals can help make the case for:

- What's already in the proposal
- What OSHA needs to change



Pro tip: The evidence doesn't need to be peer-reviewed



Ways to comment



Use an action alert

Check with your favorite advocacy org



Join a sign-on letter

Check with your professional networks



Write your own comment

Submit at [regulations.gov](https://www.regulations.gov)



Estimated timeline



Next year (maybe):
Public hearings

2+ years after that:
Final rule

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HEAT
KILLS
HEAT STRESS STANDARD
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**THANK YOU, worker
health & safety
partners!**



Prevention - OSHA

- The Supreme Court has ruled that OSHA can define a significant risk
- OSHA has determined that heat demonstrates a “significant risk” and that a standard would “substantially reduce or eliminate that risk”.
- 2021 OSHA published its notice of the proposed heat standard
- 965 unique public comments were submitted
- 2023-2024 panels and committees convened
- July 2024 the proposed standard was published.
- OSHA has estimated it will decrease heat-related illness up to 96% and fatalities up to 100%



Review of the OSHA Heat Stress Standard

Brett Perkison, MD, MPH, FACOEM

Disclosures

- The presenting work group members have no financial or professional conflicts of interest.
- The presentation represents the opinions of the presenting work group and is for informational purposes only.
- The content of this presentation is free of commercial bias.
- This research was partially funded by the Centers for Disease Control and Prevention/National Institute of Occupational Safety and Health (Award No. T42OH008421) through the Southwest Center for Occupational and Environmental Health (SWCOEH). The content is solely the responsibility of the authors and does not necessarily represent the official views of the Centers for Disease Control and Prevention/National Institute of Occupational Safety and Health.

Disclosures

- Thanks to Dr. Tommy Hysler and Houston Area Safety Council for their review and slide development of the OSHA safety standard.



Prevention - The Standard

- The proposed standard covers both indoor and outdoor work
- Sets an initial trigger of 80°F heat index where most of the rules take effect
- Sets a high heat trigger of 90°F heat index where additional rules take effect

- Why these temperatures?
- A study (Gubernot, 2015) looked at 327 fatalities where ambient temperature played a role.
- 96% of the fatalities occurred when heat index was 80 or higher
- 86% occurred above 90°
- 72% occurred above 95°
- Therefore, OSHA set the initial trigger at 80°, to protect more workers



Prevention – 8 Steps

1. Designate
2. Monitor temperatures
3. Water and shaded rest
4. Acclimatize
5. Modify
6. Train
7. Monitor for signs/symptoms
8. Plan for emergencies



Designate & Plan

- *Must* designate a safety coordinator to develop, implement, and manage the program.
- This can be a person at a corporate level, or at the site level
- *Must* have the authority to ensure compliance
- *Must* have a written prevention plan in place at *each* jobsite
- The plan *must* include non-managerial worker input
- When a recordable heat event occurs, the plan *must* be re-evaluated

**** This is also part of the OSHA NEP****



Monitor - Temperatures

- OSHA says you *must* monitor the heat
 - Heat index of 80°F as an initial trigger
 - Heat index of 90°F as high heat trigger
- Must monitor *location specific* temperatures and forecasts
- “Houston” is not the same as 302 County Road, Houston TX 77557
- Must keep monitoring records for 6 months

**** This is part of the OSHA NEP****

Provision	All Covered Employers (See Scope)	At or Above Initial Heat Trigger	At or Above High Heat Trigger
Identifying heat hazards	●	●	●
Heat illness and emergency response procedures	●	●	●
Training for employees and supervisors	●	●	●
Heat injury and illness prevention plan(HIIPP)	●	●	●
Recordkeeping	●	●	●
Drinking water		●	●
Break area		●	●
Indoor work area controls		●	●
Acclimatization plan for new or returning workers		●	●
Rest breaks (if needed)		●	●
Effective communication means with employees		●	●
Rest breaks (minimum 15 min every 2 hours)			●
Supervisor or buddy system to observe for signs and symptoms			●
Hazard alert			●



Summary

- Reduce the risk – create a prevention plan
- Understand the new proposed standard
- Compliancy with the current NEP rules
- Spread your knowledge

Resources and References

- [Employer Checklist for Outdoor and Indoor Heat Illness and Injury Prevention](#)
- [Heat Related Illness One Page for Employers and Employees](#)
- [Heat Illness Prevention Training Guide](#)
- [Prevention of Occupational Heat Illnesses](#)
- <https://www.cdc.gov/niosh/topics/heatstress/>
- <https://www.cdc.gov/niosh/docs/2011-174/>
- https://www.osha.gov/SLTC/heatillness/heat_index/pdfs/all_in_one.pdf
- [Perkison, W. B., Schaefer, C. M., Green-McKenzie, J., Roy, R. W., Shofer, F. S., & McCarthy, R. B. \(2024\). Outcomes for a Heat Illness Prevention Program in Outdoor Workers: A 9-Year Overview. *Journal of occupational and environmental medicine*, 66\(4\), 293–297. <https://doi.org/10.1097/JOM.0000000000003051>](#)
- [Julien D. Périard, Thijs M. H. Eijsvogels, Hein A. M. Daanen 27 AUG 2021 <https://doi.org/10.1152/physrev.00038.2020>](#)
- [Somanathan, E., Somanathan, R., Sudarshan, A., and Tewari, M. \(2021\). The impact of temperature on productivity and labor supply: Evidence from Indian manufacturing. *Journal of Political Economy*, 129\(6\), 1797–1827. <https://doi.org/10.1086/713733>.](#)
- [Wright CY, Mathee A, Goldstone C, et al. Developing a Healthy Environment Assessment Tool \(HEAT\) to Address Heat-Health Vulnerability in South African Towns in a Warming World. *Int J Environ Res Public Health*. 2023;20\(4\):2852. Published 2023 Feb 6. doi:10.3390/ijerph20042852](#)
- [McCarthy RB, Shofer FS, Green-McKenzie J. Outcomes of a heat stress awareness program on heat-related illness in municipal outdoor workers. *J Occup Environ Med* 2019;61:724-728.](#)
- [Flouris, A. D., Notley, S. R., Stearns, R. L., Casa, D. J., & Kenny, G. P. \(2024\). Recommended water immersion duration for the field treatment of exertional heat stroke when rectal temperature is unavailable. *European journal of applied physiology*, 124\(2\), 479–490. <https://doi.org/10.1007/s00421-023-05290-5>](#)

Action Opportunities & Resources

Scan the QR code for our fact sheet and action toolkit. Inside, you'll find:

- Individual action alert
- Organizational sign-on letter
- Sharing resources
- Additional action items



bit.ly/HeatActionToolkit

Thank You!
