July 20, 2023

Dear Professor Berenbaum, Editor-in-Chief and *PNAS* Editorial Board:

The summer of 2023 is proving to be among the hottest on record for the United States. Over 100 million people have been exposed to dangerous heat since June. Among the 2 million incarcerated people, concerning reports have recently surfaced of heat-related mortality. This is not surprising – they are at high risk for heat-related morbidity and mortality because they are physical confined, social isolated, and they have rates of chronic mental and physical illnesses (4). Unlike most of the US population, most incarcerated people live in the 44 states that do not provide universal air conditioning in carceral facilities. While a nascent body of research has begun to quantify how dangerous heat is impacting incarnated people, researchers and policymakers have largely ignored this issue. As the impacts of climate change accelerate, impacting where incarcerated people are espoused to dangerous heat in the US is imperative to advancing environmental justice for perhaps the most marginalized groups in the United States.

In the accompanying manuscript, titled “Trends and Disparities of Dangerous Humid Heat Exposure Among Incarcerated People in the United States”, my co-authors and I aim to fill this knowledge gap. We map daily maximum wet bulb global temperatures to 4,078 federal, state, and local carceral facility across the US to measure the trends in the number of dangerous humid heat days per year from 1982 – 2020 and recent exposure to dangerous heat from 2016 – 2020. We characterize dangerous humid heat at each carceral facility location and by facility type and state; (2) measure how exposure to dangerous humid heat at carceral facility locations compares with the rest of the population nationally and by state; and (3) calculate how the trends over of dangerous humid heat at carceral facilities has changed over time.

Our results reveal new and pressing insights about the dipartites incarcerated people in the US face when contending with dangerous humid heat. We find:

* During 2016 – 2020, on average annually, there were 41.25 million person-days of exposure at US carceral facilities, with the greatest contribution from state prisons (61%).
* There was a consistent disparity during 1982 - 2020, with carceral facilities exposed to an average of 5.5 more dangerous humid heat days annually.
* An estimated 915,627 people (45% of total) are incarcerated in 1,739 facilities that experienced an annual increase in the number of dangerous humid heat days during 1982 – 2020.
* Southern US facilities exhibited the most rapid warming, though many of these states do not mandidate access to air conditioning for incarcerated people.

By identifying where incarcerated people are exposed to dangerous heat conditions, our work highlights how incarcerated populations in the US are systematically exposed to dangerous humid heat with the greatest exposure and rates of increase concentrated in state-run institutions. We expect our work can aid federal, state, and local laws that mandate safe temperature ranges, enhanced social infrastructure, and health system interventions could mitigate the effect of dangerous heat on this underserved and overburdened group. To this end, all data and code supporting this analysis will be made publicly available upon publication, including the entire historical daily WBGT record for each facility in the US.

Because of the pressing and novel nature of our findings, we are submitting this manuscript for publication as a Research Brief to *PNAS*. None of this material has been published or is under consideration elsewhere. We hope you find the paper worthy of peer-review.

On behalf of myself and my co-authors, thank you for your time and consideration.

Sincerely,

Cascade Tuholske, PhD (he/his)

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