



Heat Hazards on the Job: Stories of Preventable Heat-related Illnesses & Deaths at U.S. Worksites

Methods

We compiled heat-related enforcement data primarily from three public databases managed by the U.S. Occupational Safety and Health Administration (OSHA) that contain overlapping, but distinct, sets of workplace incidents.

1. **OSHA's Severe Injury Report database (SIR)** contains reports made by employers about inpatient hospitalizations, amputations, and losses of an eye from any cause. The public version of the SIR does not include private sector or non-federal government employers in states with their own OSHA. We downloaded the entire SIR and selected reports with an Event and Nature that mentioned "heat," "sunstroke," or "dehydration" or a Source that mentioned "environmental heat." Records related to crushing injuries from heating equipment, burns, explosions, or intense heat from flames were excluded. Dehydration-related records without a reasonable connection to heat were likewise excluded. A small percentage of reports trigger OSHA inspections, so we used OSHA's Inspection Information Search to find additional information on those inspections.
2. **OSHA's Investigation Summaries database (IS)** contains investigation summaries developed by OSHA in response to fatalities; inpatient hospitalizations of three or more workers in a single event; or a referral to an employer made by government agencies, the media, or other specific stakeholders. The data in the IS comes from OSHA offices in the areas in which workers were affected. The IS cannot be downloaded in its entirety, so we manually extracted individual records with "heat," "sunstroke," or "dehydration" in the description field of the search tool. As with the SIR, we excluded records related to burns, explosions, or intense heat from flames and dehydration cases without a reasonable connection to heat. We also excluded records in which the accident summary explicitly ruled out the role of heat in a death or injury. We used OSHA's Fatality Inspection Data tool to search for the names of deceased workers associated with heat-related inspections. Note that only a subset of incidents that incur citations under state heat standards appear in the IS. The remaining citations are in the Department of Labor's Open Data Portal and will be added in a future iteration of the tool.
3. **OSHA's General Duty Standard database (GDS)** contains inspections that resulted in General Duty Clause citations for heat-related violations that resulted in inpatient hospitalizations, fatalities, non-hospitalized injuries and illnesses, and undefined health outcomes. The General Duty Clause is a catchall regulation that is OSHA's main tool for penalizing unsafe employers when a worker is harmed by heat. As with the IS, the GDS comes from OSHA offices and cannot be downloaded in its entirety. We used the same procedure as with the IS, with "heat,"

“sunstroke,” or “dehydration” entered in the query field of the search tool. Note that citations issued under state heat standards do not appear in the GDS.

OSHA uses six-digit codes from the North American Industry Classification System (NAICS) in its enforcement data to classify industries. NAICS codes are updated every five years, and employers and OSHA investigators are slow to adopt the latest codes, meaning our 10-year span of data includes multiple vintages of NAICS. We used the U.S. Census Bureau’s NAICS concordance tables to assign a 2022 NAICS code to every record. We also corrected obviously incorrect NAICS codes that disagreed with all other pieces of information in the record. (This occurred most frequently with records involving the U.S. Postal Service.)

A subset of heat-related incidents appears in two or more of the SIR, IS, and GDS databases. We used inspection ID numbers and event descriptions to identify duplicate records and relied on the inspection with the most information in the case of incidents that generated multiple inspections. Employers are required by law to submit SIRs within 24 hours, meaning that the records occasionally contain information that is later corrected in the inspection reports (e.g., city, zip code, NAICS). We relied on inspection reports in the case of disagreement between the two data sources.

Non-federal government employers are not covered by federal OSHA, meaning that they rarely appear in OSHA enforcement records. Therefore, we restricted our analysis to federal and private sector employers. Our final database included 3,122 records with an event date from 2015 to 2024, from 49 U.S. states and the District of Columbia.

Finally, we used all available information in the OSHA databases plus minimal details from public obituaries to write the stories in this database without the help of artificial intelligence. Open inspections appear in the numerical summaries for each state, but not in any of the stories. However, our stories do include details from citations that were deleted by OSHA after being contested by employers.