National Safety Council

Case Study

WORKtoZERO
an nsc program

VITAL SIGNS MONITORING FOR HEAT STRESS MITIGATION

What's the Risk?

According to the Occupational Safety and Health Administration (OSHA), between 2011 and 2020, an annual average of 3,389 workers experienced heat-related injuries or illnesses resulting in days away from work[1]. In 2022 alone, 43 workers lost their lives to heat exposure, marking a 19% increase from 2021. Along with impacting worker productivity, cognitive functioning, and wellbeing, excessive heat exposure has been linked to a number of serious illnesses and injuries, including:

- Heat cramps
- Heat rash
- Heat exhaustion
- Heat stroke
- Death (NIOSH, 2020)[2]

Perrigo is a leading manufacturer of pharmaceuticals and consumer products, including powdered infant formula. During the production process, liquid formula is sprayed into large box dryers where the liquid is circulated, evaporating the moisture and leaving a dry formula ready for packaging. However, the heat generated in these box dryers, along with elevated ambient temperatures in the manufacturing environment, elevates the risk of heat-related illnesses and injuries for workers. Therefore, to inform and bolster their existing heat stress program, Perrigo began trialing SlateSafety's BAND V1 (later updated to V2), a wearable device designed to monitor physiological parameters such as physical exertion, heart rate and core body temperature, all of which can be used to identify and mitigate heat-related illness risks.

Impacts

[1] Occupational Safety and Health Administration. (2023). *Heat injury and illness prevention in outdoor and indoor work settings SBREFA.* U.S. Department of Labor. https://www.osha.gov/heat/sbrefa#

[2] National Institute for Occupational Safety and Health. (2022b). *Heat related illness: Types of heat-related illnesses.* U.S. Department of Health and Human Services. https://www.cdc.gov/niosh/topics/heatstress/heatrelillness.html

In general, Perrigo cited several key benefits of leveraging SlateSafety's wearable devices for heat stress mitigation. First and foremost, real-time physiological monitoring and alerts notify workers and supervisors if they have reached a predetermined threshold for excessive heat exposure. For workers, these data can serve as a helpful prompt to slow down, take breaks, rehydrate or leave the area to cool down. For supervisors, they serve as a key metric for decision making regarding work/rest cycles and worker shifts to limit worker exposure to heat. Notably, in the three years since adoption of the technology, Perrigo has had zero reported incidents of heat illnesses and injuries at the trial sites.

The data collected from the wearable devices has also been used to identify "hot spots" within the facilities where heat exposure risks are elevated, informing both workplace policies and controls. Since adopting the wearables, Perrigo has instituted several strategies to reduce worker heat exposure, including institution of dedicated cooling areas, cooling garments, spot cooling practices and revisions to work/rest cycles for high-risk tasks.

Finally, in addition to its use as a heat-mitigation solution, the technology also serves a dual purpose as a lone worker monitoring device at Perrigo. Through GPS monitoring, downed worker notifications and SOS alerts, the SlateSafety BAND V2 provides an extra layer of protection for those working alone or in isolated areas within the facilities.

Lessons Learned

Perrigo identified several lessons learned during the initial pilot and scaling of SlateSafety's BAND V1 and V2:

- **Engage with workers early and often**
  The collection and use of physiological data can pose a significant barrier to the successful implementation of wearable safety solutions. Transparency is amongst the most important factors contributing to worker buy-in. Perrigo leveraged town-hall style meetings with their workers, allowing them to openly ask questions and provide feedback on the technology before and during the pilot. During these meetings, they also explained what data was being collected and how it was being stored, along with the benefits of the technology for worker safety and wellbeing, During the initial pilot, Perrigo's Environment, Health and Safety team actively participated in the trial, working alongside workers and serving as a secondary outlet for feedback.

- **Identify and involve key team members as early as possible**

  Perrigo also recommends identifying and involving key internal stakeholders at the beginning of the procurement and adoption process. These individuals may come from Human Resources, IT, Legal and EHS, and play a key role in ensuring the seamless adoption of new technology. For instance, Perrigo's legal team was involved early on to ensure the collection and storage of sensitive worker data aligned with their own internal policies. The IT team was also instrumental, helping to integrate the system on

their internal network and connect the SlateSafety dashboard to their preexisting EHS software. By engaging early, key stakeholders are given the opportunity to ask questions, provide feedback or recommendations for improvement, and allocate the necessary resources for a successful pilot.

- **Engage with vendor(s) and external partner(s) to innovate further**

  The feedback and learnings gathered during technology pilots can be invaluable for improving or informing technology solutions. For instance, Perrigo identified the daily registration of the devices and the need for worker flexibility as being potential barriers to the use of wearables. Therefore, they engaged with SlateSafety to implement a seamless scanning process, allowing workers to quickly and easily sign the devices in and out during the workday. Perrigo also partnered closely with the Korey Stringer Institute to benchmark their heat stress program, validate their heat stress thresholds, and to better understand how certain medical conditions and exposures might make workers more susceptible to heat-related injuries and illnesses. By providing feedback and engaging with vendors and other external partners, organizations can not only validate their existing heat stress policies and procedures but play a key role in the continuous improvement of safety technologies.

Perrigo

Since 1887, Perrigo has been a leading manufacturer of pharmaceuticals, over-the-counter self-care products and infant formula. Headquartered in Dublin, Ireland, Perrigo employs approximately 9,000 employees across the United States and Europe.

SlateSafety

SlateSafety is a technology start-up based in Atlanta, Georgia, at the edge of the connected safety revolution. The team's mission is to bring reliable, rugged and easy-to-use safety solutions to heavy industrial applications focused mainly around heat stress. SlateSafety's flagship product is the BAND V2, a real-time wearable device that can alert workers and supervisors immediately when unsafe thresholds are met.