

## Extreme Heat and Workforce Health in Southern Nevada

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**Abstract :** Summertime temperature data from Clark County was collected and used to estimate two different heat-related indexes: the heat index (HI) and excess heat factor (EHF). These two indexes were used jointly with data of health-related deaths in Clark County to assess the effect of extreme heat on the exposed population. The trends of the heat indexes were then analyzed for the 2007-2016 decade and the correlation between heat wave episodes and the number of heat-related deaths in the area was estimated. The HI showed that this value has increased significantly in June, July, and August over the last ten years. The same trend was found for the EHF, which showed a clear increase in the severity and number of these events per year. The number of heat wave episodes increased from 1.4 per year during the 1980-2016 period to 1.66 per year during the 2007-2016 period. However, a different trend was found for heat-wave-event duration, which decreased from an average of 20.4 days during the trans-decadal period (1980-2016) to 18.1 days during the most recent decade (2007-2016). The number of heat-related deaths was also found to increase from 2007 to 2016, with 2016 with the highest number of heat-related deaths. Both HI and the number of deaths showed a normal-like distribution for June, July, and August, with the peak values reached in late July and early August. The average maximum HI values better correlated with the number of deaths registered in Clark County than the EHF, probably because HI uses the maximum temperature and humidity in its estimation, whereas EHF uses the average medium temperature. However, it is worth testing the EHF of the study zone because it was reported to fit properly in the case of heat-related morbidity. For the overall period, 437 heat-related deaths were registered in Clark County, with 20% of the deaths occurring in June, 52% occurring in July, 18% occurring in August, and the remaining 10% occurring in the other months of the year. The most vulnerable subpopulation was people over 50 years old, for which 76% of the heat-related deaths were registered. Most of the cases were associated with heart disease preconditions. The second most vulnerable subpopulation was young adults (20-50), which accounted for 23% of the heat-related deaths. These deaths were associated with alcoholic/illegal drug intoxication.

**Keywords :** heat, health, hazards, workforce

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