

HEALTH MATTERS

Riverside University Health System – Public Health

Epidemiology & Program Evaluation

June 2022



Heat-Related Illnesses and Mortality, Riverside County, CA

Introduction:

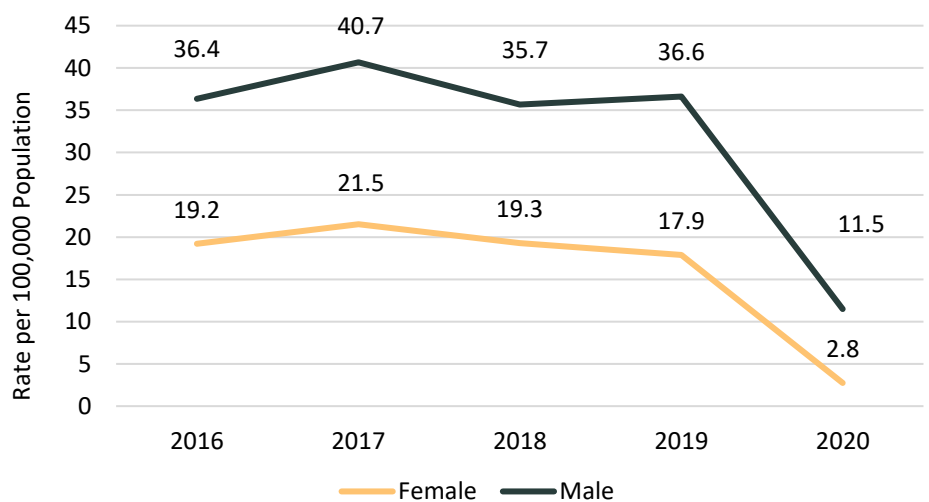
On average, deaths due to heat-related illness are reported more than any other weather hazard in the United States (U.S.) every year.¹ In California, warmer months and excessive heat waves contribute towards heat-related mortality (deaths) and morbidity (illnesses) each year.¹ Heat-related illnesses consist of heat stroke, heat exhaustion, rhabdomyolysis, heat syncope, heat cramps, and heat rash.² Older adults, young children, and those with health conditions are more likely to become victims to Heat-related illnesses.³ The following brief is intended to raise awareness of heat-related illness (HRI) and heat-related mortality (HRM) affecting Riverside County Residents.

OVERVIEW

Key Findings:

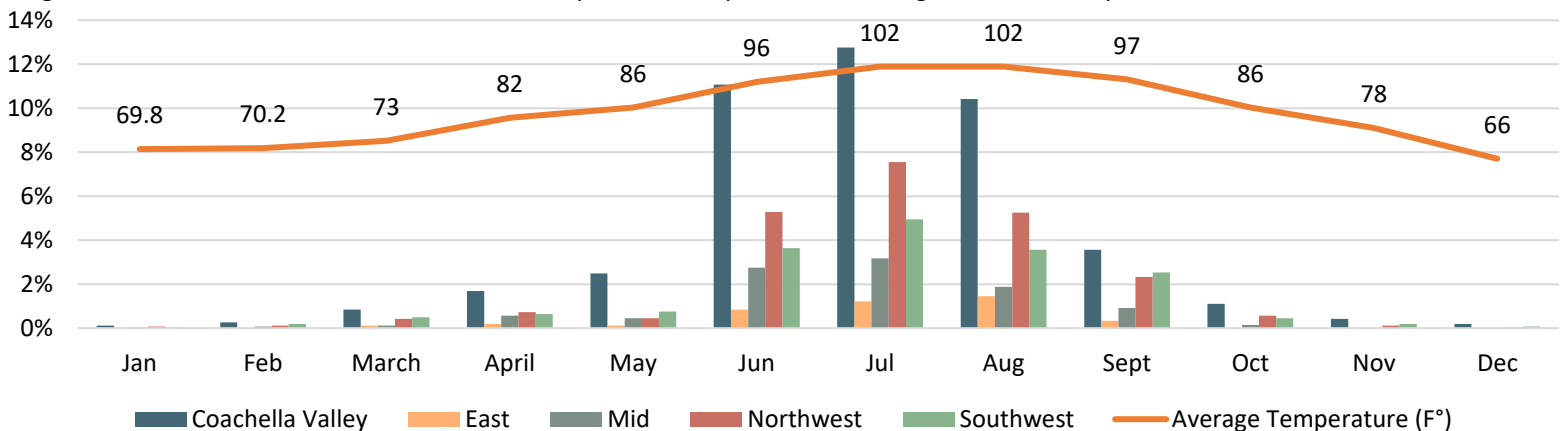
- Black/African Americans experience significantly higher rates of HRI ED visits (35.5 per 100,000 population) on a yearly average.⁴
- HRI emergency department (ED) visits was higher between June and August every year from 2016 – 2020 with the greatest burden, 32.7% (n = 2,732), falling on the Coachella Valley.⁴
- Rate of HRI was consistent among both sexes with a gradual decline during 2020, possibility due to the COVID-19 pandemic.⁴

Figure 1. Rate of Heat-Related Illness ED Visits by Sex Assigned at Birth Among Riverside County Residents, 2016 - 2020



Source: ⁴Healthcare Access and Information. Data and Reports. Published May 18, 2022. Accessed May 18, 2022. <https://hcai.ca.gov/data-and-reports/>
*Transgender/gender non-conforming data unavailable.

Figure 2. Percent of Heat-Related Illness ED Visits by Place of Hospitalization Among Riverside County Residents, 2016 – 2020



Source: ⁴Healthcare Access and Information. Data and Reports. Published May 18, 2022. Accessed May 18, 2022. <https://hcai.ca.gov/data-and-reports/>

EMERGENCY DEPARTMENT VISITS FROM HEAT-RELATED ILLNESSES

- The average rate of HRI ED visits was higher among those 25 – 34 years (32.2 per 100,000 population).⁴
- ED visits decreased significantly in 2020 among all age groups 4 years and older.⁴
- Black/African Americans experience higher ED visit rates when comparing the yearly average to other race/ethnicities. Specifically in 2017, Black/African Americans experienced the highest ED visit rate overall (47.2 per 100,000 population).⁴

Figure 3. Rate of ED Visits from Heat-Related Illness Among Riverside County Residents by Age Group, 2016 - 2020

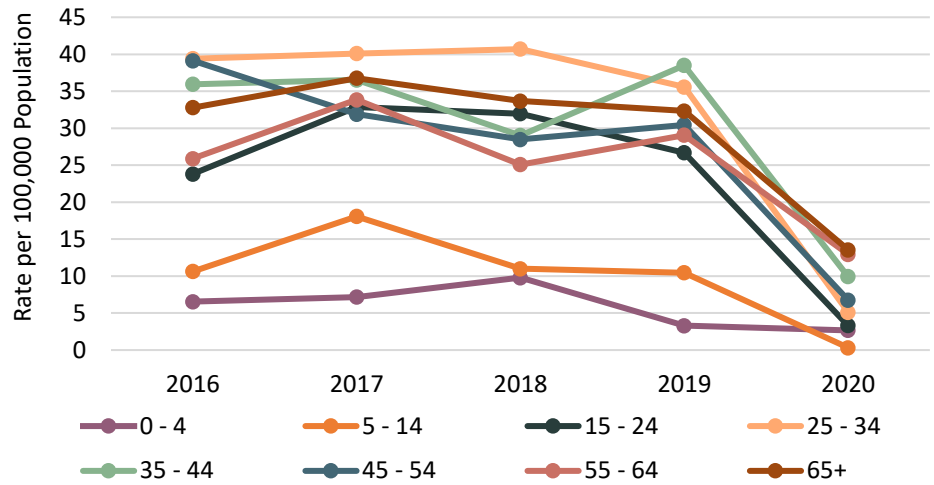
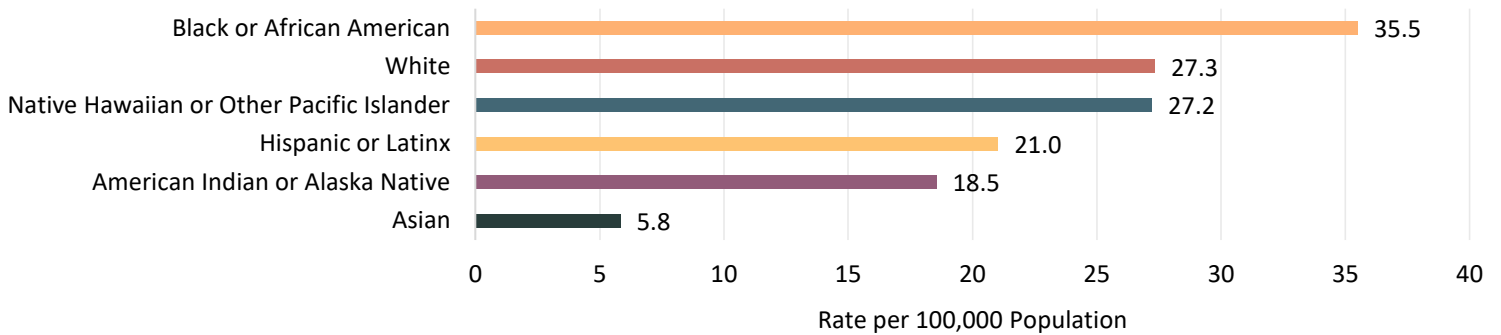


Figure 4. Yearly Average Rate of ED Visits Among Riverside County Residents by Race/Ethnicity, 2016 - 2020



Source: ⁴Healthcare Access and Information. Data and Reports. Published May 18, 2022. Accessed May 18, 2022. <https://hcai.ca.gov/data-and-reports/>

HEAT-RELATED MORTALITY

Heat is the leading cause of weather-related deaths in the U.S. Under-resourced communities are at higher risk of heat-related deaths due to higher temperatures and limited resources.⁵ Between 2000-2019, the average crude death rate among Black/African Americans was .27 per 100,000 population in California.⁶ In 2020 alone, the rate of HRM among Black/African Americans was higher when compared to other racial/ethnic groups in Riverside County (2.8 per 100,000 population).⁷ In addition, 72% of HRM were among males (n = 147), while 28% of HRM were among females (n = 54) between 2016 – 2021.⁷

Figure 5. Rate of Heat-Related Mortality Among Riverside County Residents by Race/Ethnicity, 2020

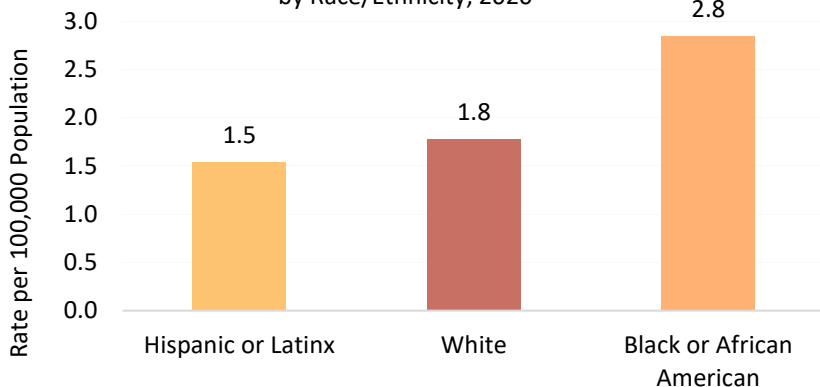
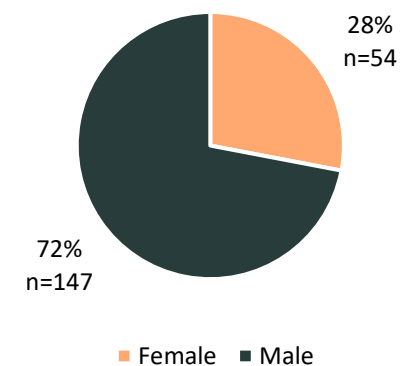


Figure 6. Heat-Related Mortality Among Riverside County Residents by Gender, 2016 - 2021



*Gender reported as stated on death certificate

Source: ⁷California Integrated Vital Records System. Accessed April 20, 2022. <https://casadm.calivrs.>

In the U.S., deaths attributed to natural heat exposure continues to be a public health concern.⁸ Older adults (ages 65 years and older) are more susceptible to HRI, and if not properly treated could lead to HRM.⁵ Among Riverside County residents the average rate of HRM by age group shows that adults 65 years and older experience higher rates of HRM (3.0 per 100,000 population) with an age-adjusted rate of (7.5 per 100,000 population) between 2016 – 2021.⁷ The average rate of HRM among place of residence was highest among two Riverside County regions, East (20.5 per 100,000 population) and Coachella Valley (19.5 per 100,000 population) between 2016 – 2021.⁷ HRM continues to impact people throughout Riverside County, especially during summer months where average temperatures range between 96°F - 102°F.^{7,9}

Figure 7. Overall Average Rate of Heat-Related Mortality Among Riverside County Residents by Age Group, 2016 - 2021

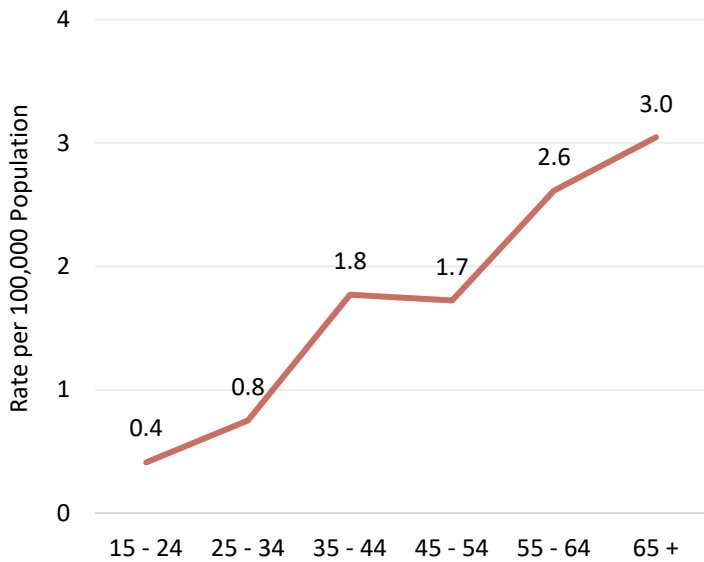


Figure 8. Overall Average Rate of Heat-Related Mortality by Riverside County Region, 2016 - 2021

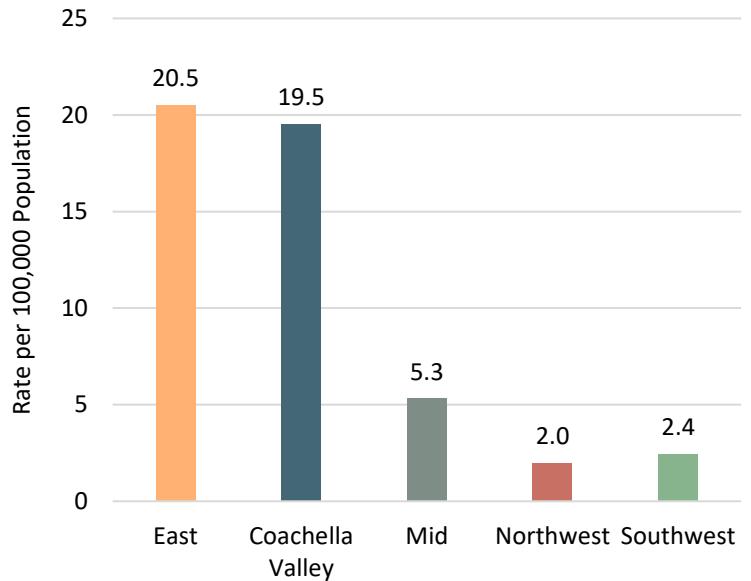
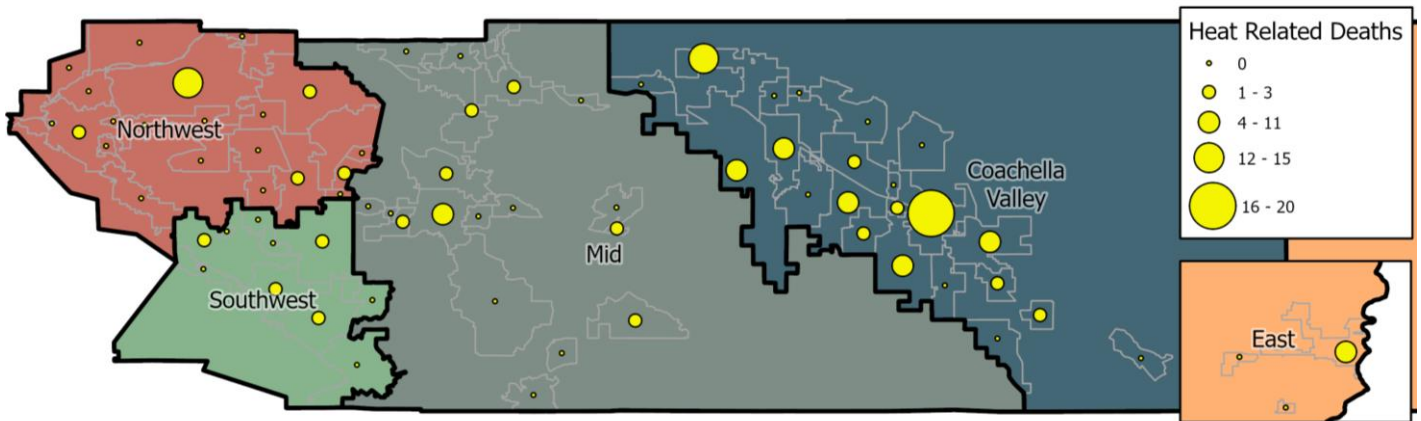


Figure 9. Heat-Related Mortality by Community (Census Designated Place) of Residence and Region, 2016 - 2021



Source: ⁷ California Integrated Vital Records System. Accessed April 20, 2022. <https://casadm.calivrs.org>

Heat-Related Illnesses

Prevention Tips & Resources:

Heat-related illness is preventable when the right precautions are taken. For instance, keeping cool during warmer months by wearing lightweight/light colored clothing, staying in air-conditioned places as much as possible, drinking fluids regularly and not waiting until you are thirsty, keeping pets hydrated, check local news for extreme heat alerts and safety tips such as local cooling shelters throughout Riverside County.¹⁰

For more information: [Community Action Partnership of Riverside County \(https://www.capriverside.org/\)](https://www.capriverside.org/)

REFERENCES

1. Monserrat L. Heat-related mortality and morbidity. OEHHA. Published September 6, 2017. Accessed April 14, 2022. <https://oehha.ca.gov/epic/impacts-biological-systems/heat-related-mortality-and-morbidity>
2. Centers for Disease Control and Prevention. Heat Stress Related Illness | National Institute for Occupational Safety & Health |. Published November 13, 2020. Accessed April 14, 2022. <https://www.cdc.gov/niosh/topics/heatstress/heatrelillness.html>
3. Ready Riverside | Extreme Heat. Accessed April 18, 2022. <https://corweb.riversideca.gov/readyriverside/be-informed/hazards/extreme-heat>
4. Health Care Access and Information. Data and Reports. Published May 18, 2022. Accessed May 18, 2022. <https://hcai.ca.gov/data-and-reports/>
5. US Environmental Protection Agency. Climate Change Indicators: Heat-Related Deaths. Published July 1, 2016. Accessed May 3, 2022. <https://www.epa.gov/climate-indicators/climate-change-indicators-heat-related-deaths>
6. Tracking California | Heat Related Illness Summary Tables. Accessed May 9, 2022. <https://trackingcalifornia.org/heat-related-illness/heat-related-deaths-summary-tables>
7. California Integrated Vital Records System. Published 2022. Accessed April 20, 2022. <https://casadm.calivrs.org/cas-server/login?service=https%3A%2F%2Fcasadm.calivrs.org%2Fca-admin%2Flogin%2Fcas>
8. Vaidyanathan A. Heat-Related Deaths — United States, 2004–2018. MMWR Morb Mortal Wkly Rep. 2020;69. doi:10.15585/mmwr.mm6924a1
9. US Department of Commerce National Oceanic and Atmospheric Administration. Climate. Accessed April 19, 2022. <https://www.weather.gov/wrh/Climate?wfo=sgx>
10. Centers for Disease Control and Prevention | Tips for Preventing Heat-Related Illness | Natural Disasters and Severe Weather. Published April 14, 2020. Accessed May 5, 2022. <https://www.cdc.gov/disasters/extremeheat/heattips.html>

Suggested Citation: Avina, Robert. *Health-Related Illness and Mortality Data Brief 2022*. Riverside University Health System-Public Health, Epidemiology Program Evaluation.

Acknowledgements: Gimena Ruedas, MPH, Epidemiologist, Epidemiology & Program Evaluation Kevin Meconis, MPH, Epidemiologist, Epidemiology & Program Evaluation, Sheena Patel, MPH, Deputy Chief, Epidemiology & Program Evaluation and Wendy Hetherington, MPH, Branch Chief, Epidemiology & Program Evaluation.

Mentions: A special thanks to Gimena Ruedas, Kevin Meconis, Sheena Patel, Dulce Martinez-Luna, and Wendy Hetherington for advice and guidance in the preparation of this document.
