2025 Heat-associated Deaths & Emergency Department Visits Clark County, NV

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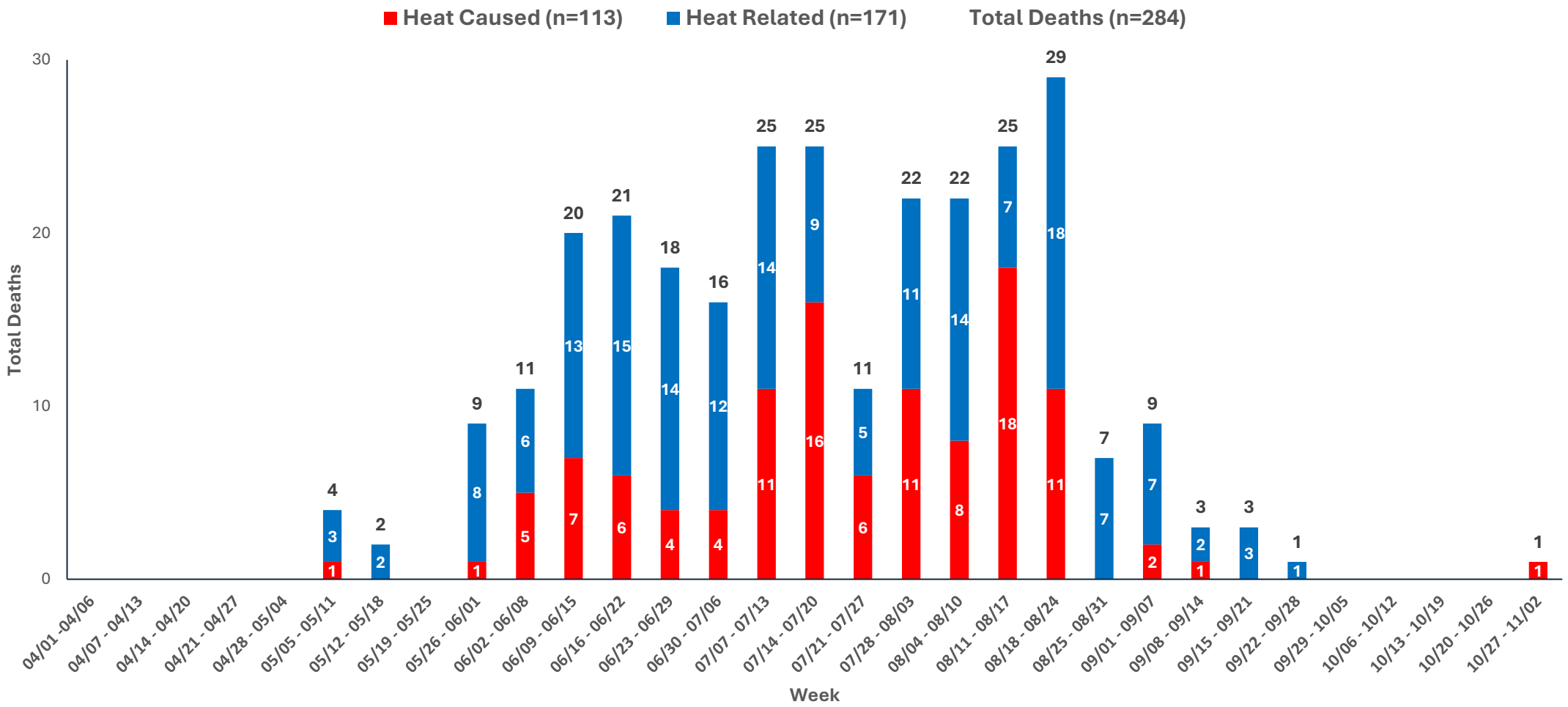
Heat-Associated Deaths

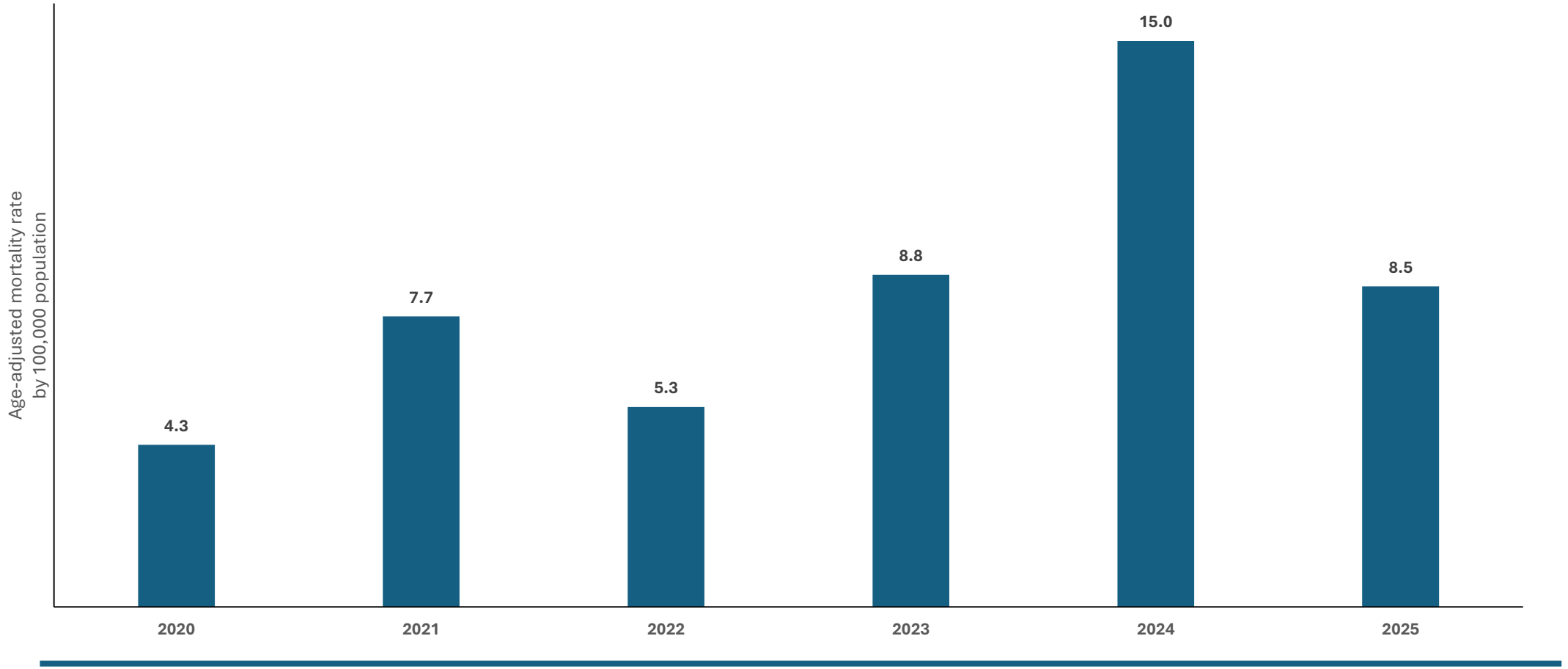
Heat-associated Deaths, 2025
Clark County, NV

- 284 heat-associated deaths occurred in Clark County, NV
- 45% decrease in deaths compared to 2024 (513)
- 21% non-Clark County residents

Heat-associated Deaths by Week, 2025



Heat-associated Deaths, 2025
Age-adjusted mortality rate, Clark County Residents



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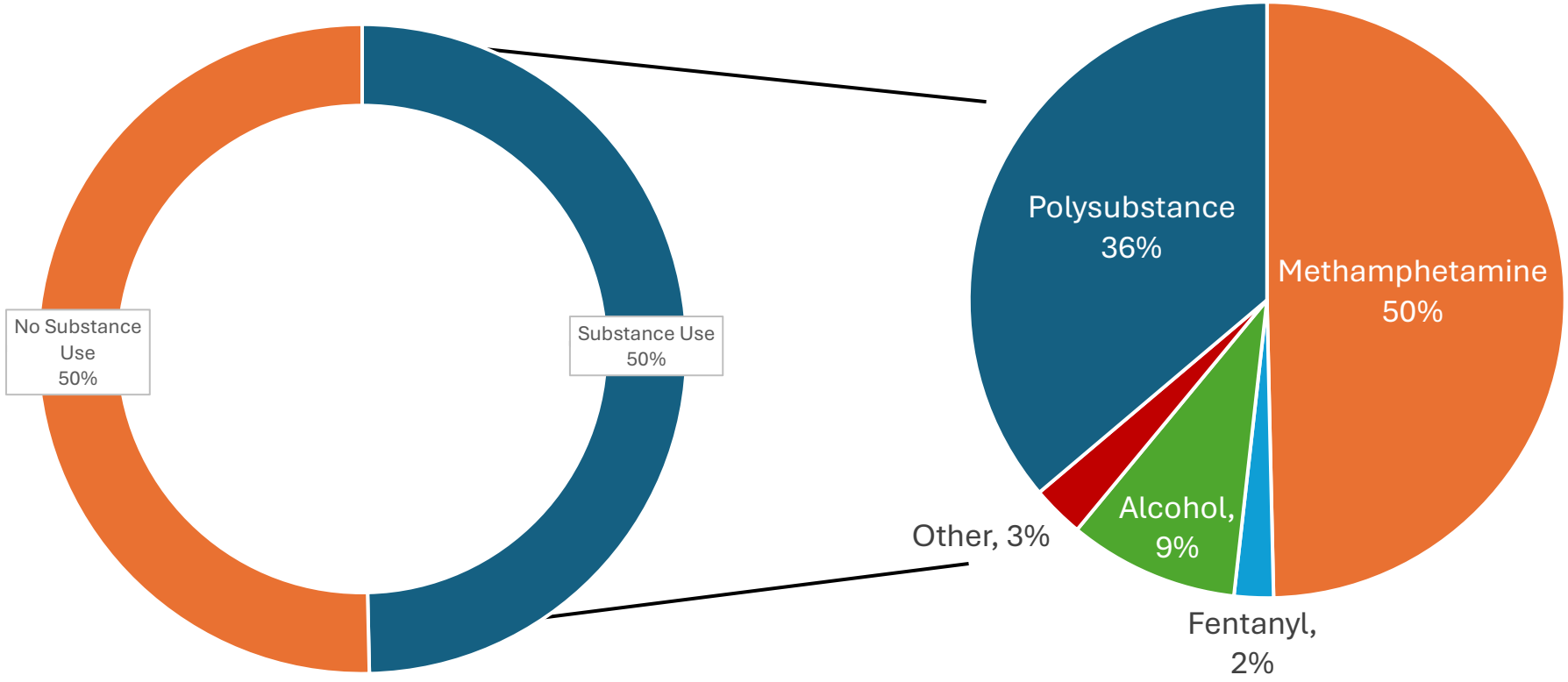
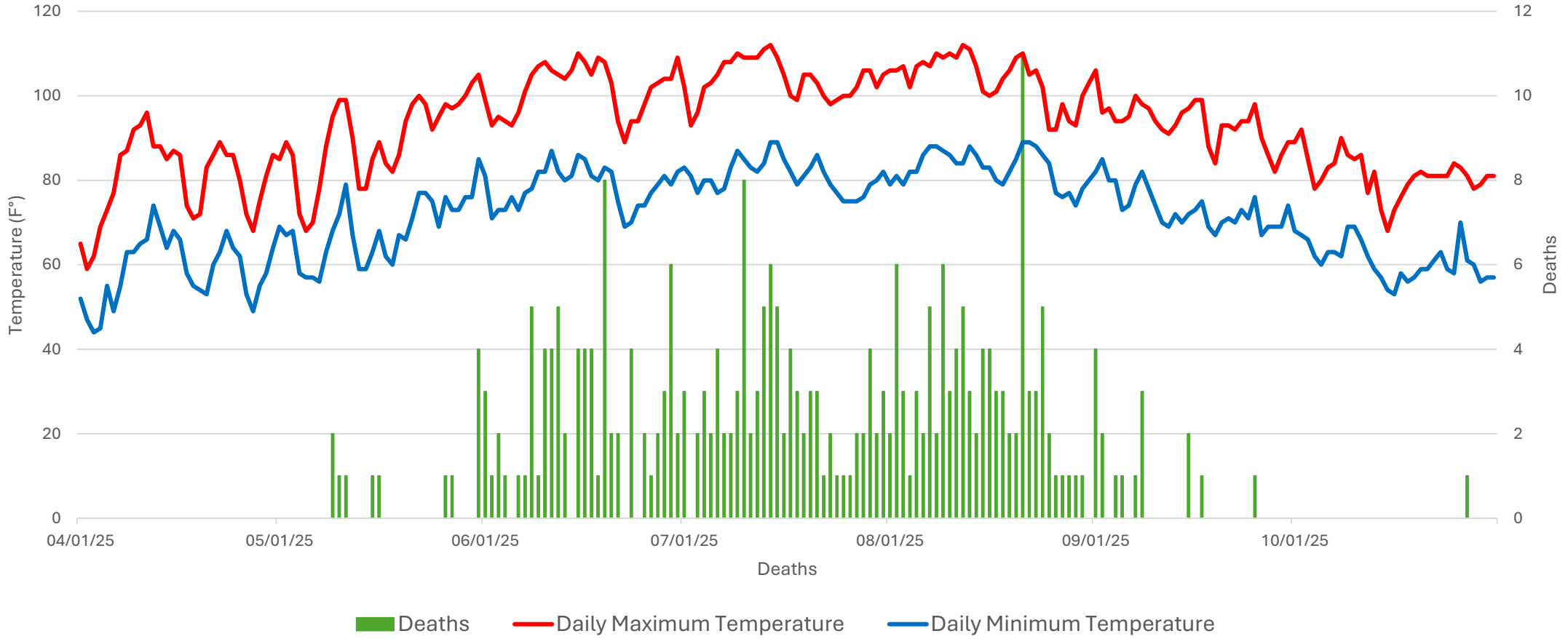
Heat-associated Deaths and Substance Use, 2025



Heat-associated Deaths by Day and Maximum/Minimum Temperature, 2025



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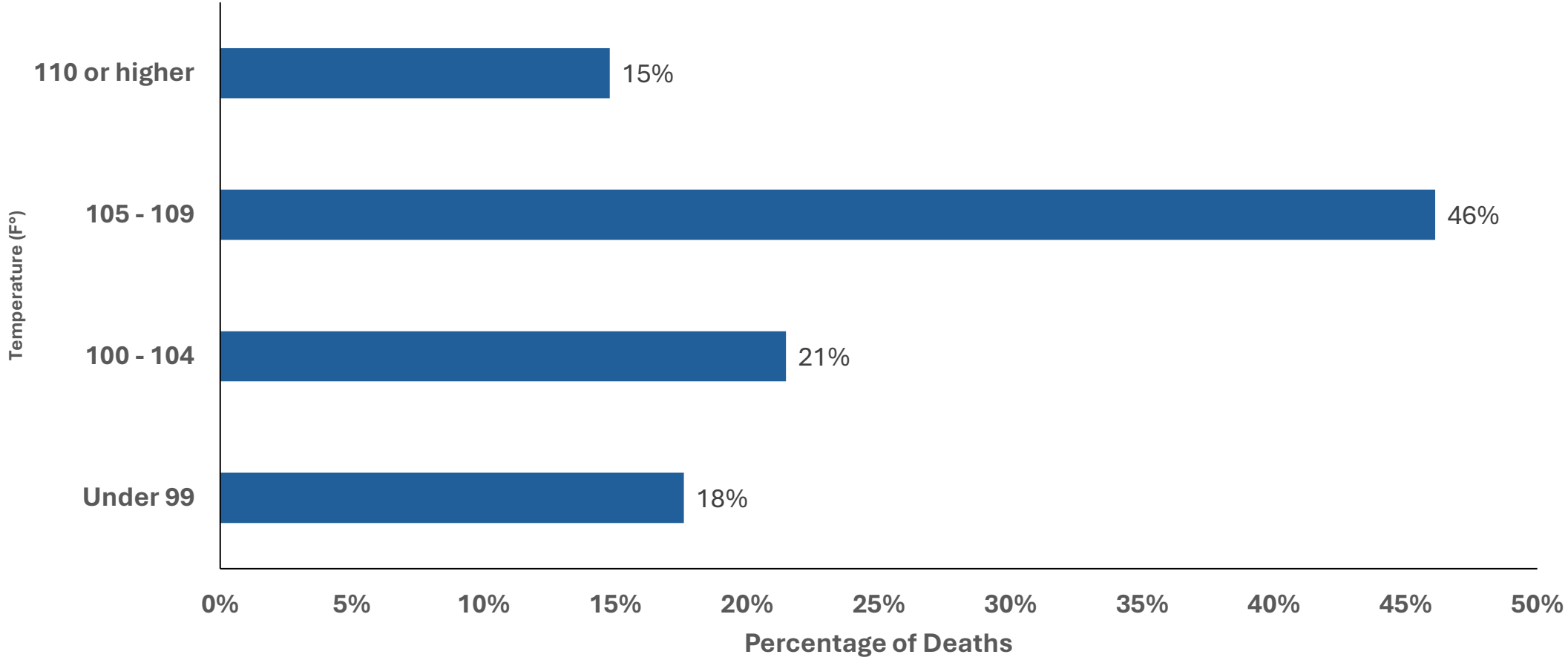
Heat-associated Deaths by Maximum Temperature, 2025



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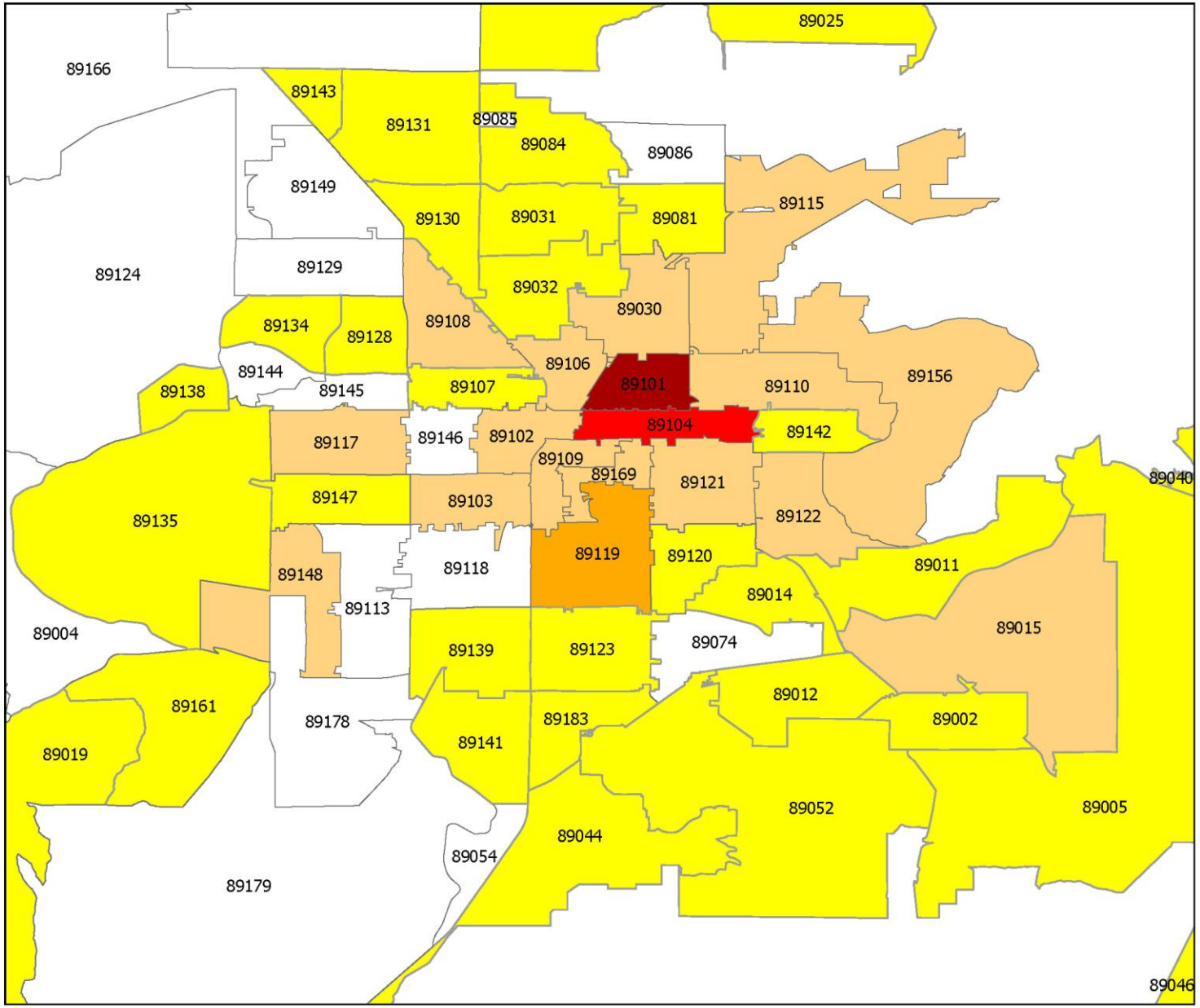
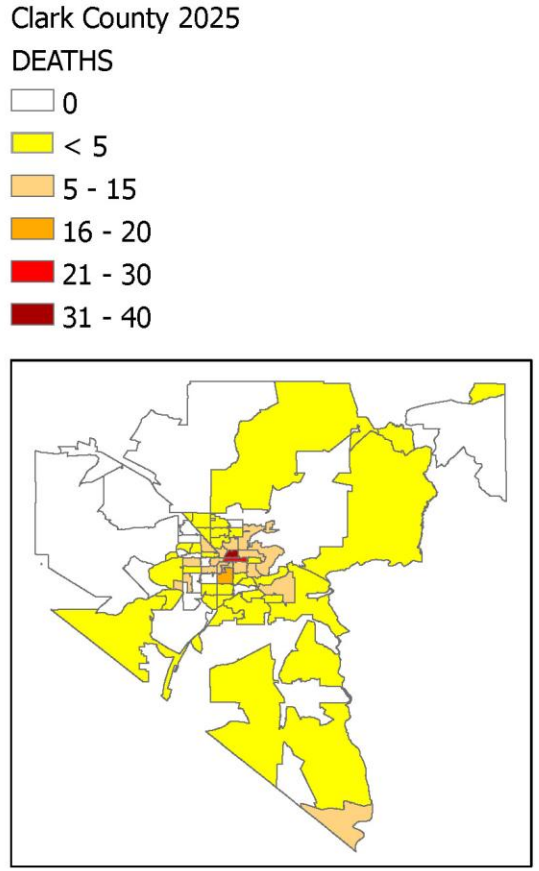
Location of heat injury by Clark County ZIP Code





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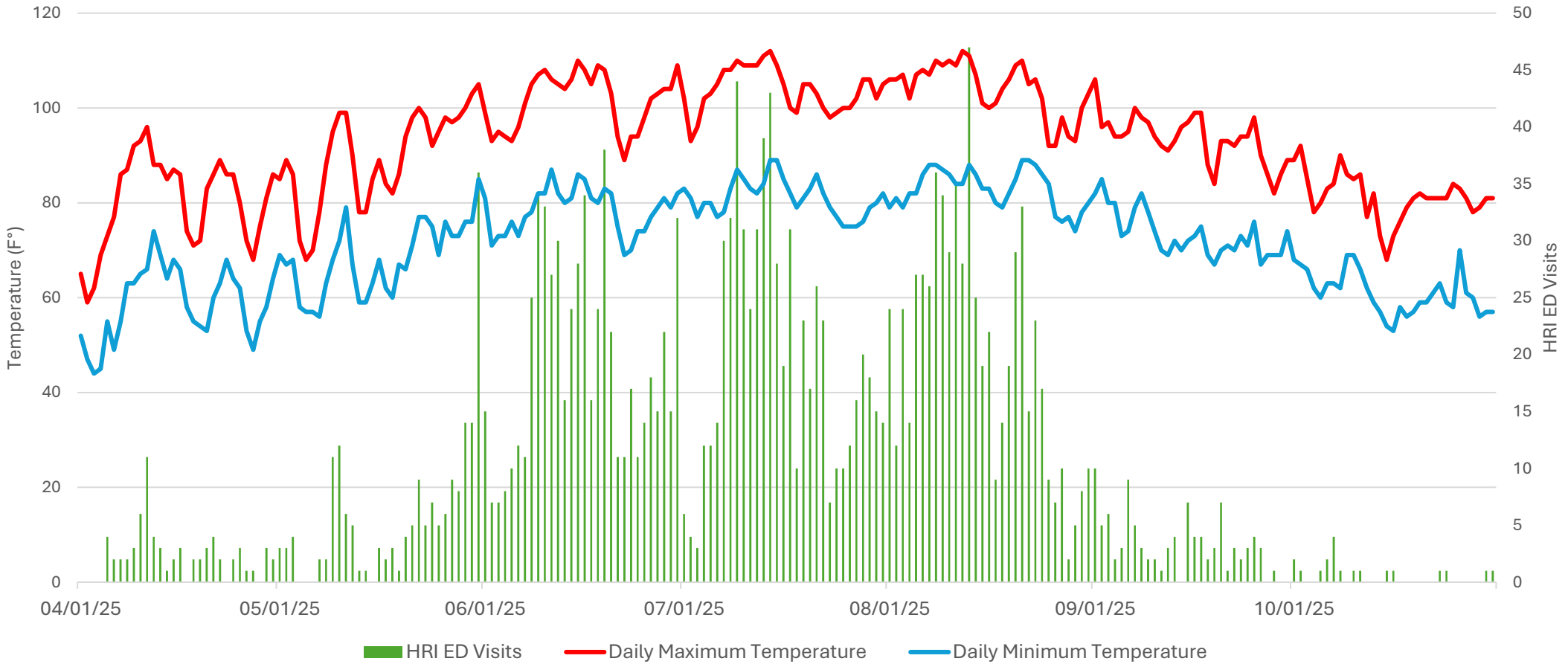
Heat Emergency Department Visits

Emergency Department Heat Related Illness Visits by Day and Maximum/Minimum Temperature



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Excessive Heat Exposure and Lag Effect

Distributed Lag Non-Linear Model (DLNM)

- Uses a 2-dimensional cross-basis function to model a **joint exposure-lag-response surface**.
- Describes the potentially non-linear relationship between exposure and outcome across both **exposure levels** and **lags,** allowing the effect of exposure to vary flexibly over time.
- Summer month temperatures (2024)
  - June through September 2024, average temperature of 105°F
- 100°F Reference Temperature and 21-day lag structure
- Relative risks (RRs) were evaluated at:
  - lag 0 (**immediate effect**).
  - cumulative lag duration until RR returned to baseline (**lag effect**).
  - Duration of statistically significant elevated risk (95% confidence interval excluding 1.0)

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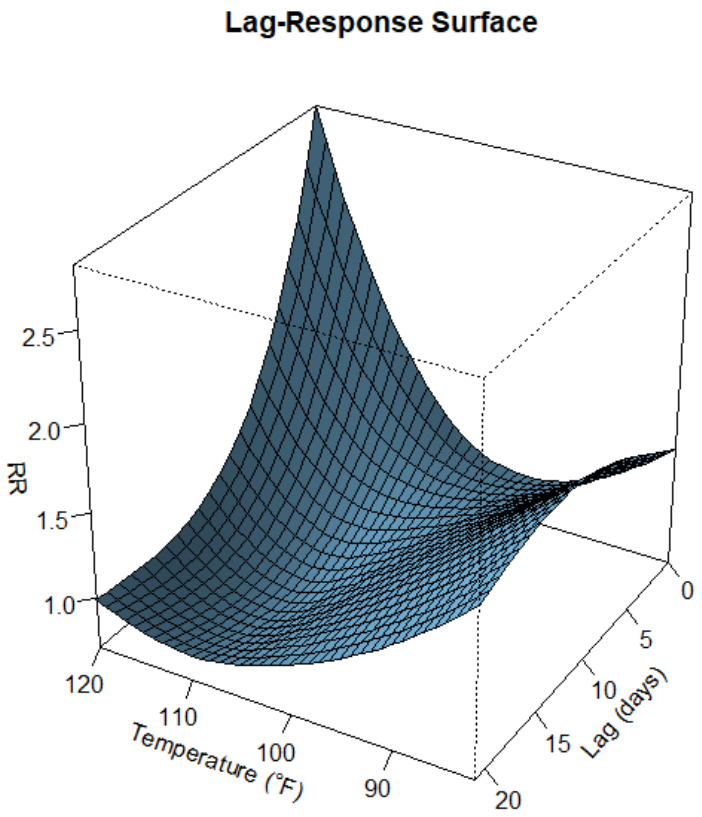
Results – Lag Effect



- At lag 0, RR was:
  - 1.16 at 105°F
  - 1.53 at 110°F
  - **2.08 at 115°F**
  - **2.85 at 120°F**
- Lag Effect
  - Moderate heat (105°F and 110°F) associated with elevated risk largely confined to first 3-5 days.
  - Extreme heat (≥115°F) produced higher and more persistent effects.
  - RR remains significantly elevated for up to 8 days returning to baseline by approximately 12 days.

A Spatiotemporal Analysis of Temperature and Drug Mortality in Clark County, NV

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BACKGROUND

Clark County, Nevada is experiencing overlapping public health crises:

- Extreme heat
- Drug overdoses

Both issues are well-documented independently, but their **interaction is not well understood**

This study aims to strengthen the evidence base by examining whether:

- Elevated temperatures are associated with increased overdose mortality

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Data Source: Nevada EDRS; Google Earth

METHODS

01 Climate Trend Analysis

Linear regression on Land Surface Temperature (LST) 1984–2024 via Google Earth Engine / Landsat archive

02 Overdose Mortality Rates

Age-adjusted mortality rates from Nevada Electronic Death Registry System (EDRS)

03 Spatial Hot Spot Analysis

Getis-Ord Gi* statistic ($p < 0.05$) for overdose deaths by ZIP code & CDC Heat & Health Index scores

04 Seasonal Temporal Patterns

Chi-Square tests for seasonal concentration of overdose mortality (2018–2024)

05 Daily Temperature Mortality Model

Poisson regression: daily max temp vs. daily overdose counts (2018–2024)

RESULTS

+7.5°F

LST increase
1984–2024

p = 0.048

12×

Fentanyl death
rate increase

1.46 → 18.77 per 100K

9

Overlapping hot
spot ZIP codes

Heat + Overdose

+0.54%

Overdose risk per
+1°F daily max

Poisson model, p < .0001

Seasonal peaks confirmed for all-drug (p < .0001), opioids (p = 0.006), and methamphetamine (p < .0001). Fentanyl showed no seasonal pattern (p = 0.265)

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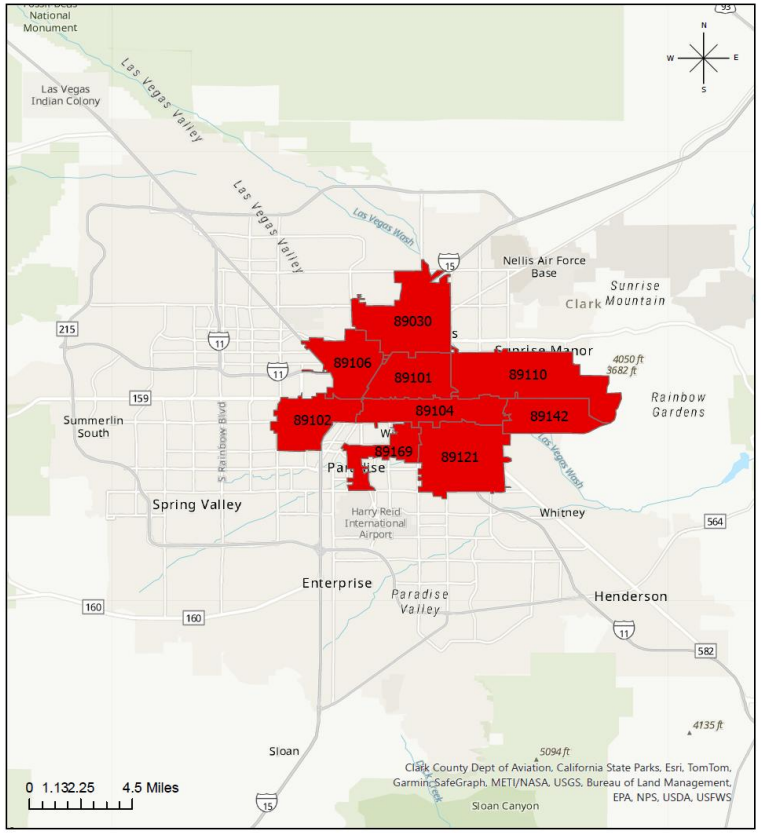
Data Sources: Nevada EDRS; Google Earth; CDC Heat & Health Index scores

RESULTS (CONT.)



Clark County, NV Hot Spot Overlap Map

9 ZIP Codes - Both Heat & Overdose Hot Spots:

89030	**89101**	**89102**
89104	**89106**	**89110**
89121	**89142**	**89169**

- Communities in these ZIP codes face compounded risk from both heat and drug mortality.
- Priority targets for integrated intervention.

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Data Sources: Nevada EDRS; CDC Heat & Health Index scores

DISCUSSION

Rising temps + escalating OD rates + overlapping hot spots + temperature-linked daily fatalities = extreme heat may amplify overdose risk

Geographic Targeting

Focus heat-mitigation AND overdose-prevention resources on the 9 overlapping high-risk ZIP codes

Co-Delivered Interventions

Naloxone distribution + heat-health education during high-risk summer months in hot-spot communities

Integrated Response

Coordinate healthcare providers, first responders, and public health to address intersecting crises

Public Awareness

Increase awareness of compounded summer risk; evaluate targeted messaging campaigns for at-risk populations

Discussion, Conclusion, Recommendations

Discussion

- From 2020 through 2024, 90% of heat-associated deaths occur during summer months of June through August; 45% decline in 2025
  - In 2025 there were 9 days of 110° or higher compared to 2024 with 36 days of 110° or above.
- ED visits also coincide with temperature increases/decreases.
- Males and individuals aged 45 to 64 years had most deaths and ED visits
- 50% of deaths involved substance use, 50% of these deaths involved only methamphetamine
- Individuals experiencing homelessness made up 26.4% of deaths
  - Possibly higher – 13% of decedent's had an "unknown" housing status
- ZIP codes with greatest percentage of heat injuries leading to death were 89101 (12.7%) and 89104 (7.7%)

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Conclusion

- Monitoring heat-related mortality and ED visits offers valuable insight into the importance of preventative measures during the summer months and periods of high temperatures in Clark County, NV.
- Vulnerable populations including older adults, individuals using substances, and those experiencing homelessness may experience the highest risk of heat illness, heat stroke and death.
- By identifying the highest risk factors, along with the location of greatest occurrence, further preventative measures, such as cooling stations, can be focused on these individuals and areas.

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Recommendations

- With 50% of heat related deaths associated with substance use, greater focus should be placed on educating the community on the effects of substances and high temperatures.
- Collaboration with Desert Research Institute (DRI) Heat Lab working group members to develop, implement, and evaluate evidence-based mitigation and response strategies aimed at reducing heat-related morbidity and mortality.
- Coordination with the State of Nevada on the development and operationalization of the Nevada Extreme Temperature Response Plan.
- Focus on cross-sector data sharing, enhancing risk communication with stakeholders and the public, and advancing the goals and strategic actions outlined in the Resilient and Healthy Community (All-In Community Plan)
- Supporting complementary local and regional heat mitigation initiatives.

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Information Sharing, Coordination, and Mitigation Efforts

- Need improved Data collection to make informed decision making and evaluate mitigation strategies, Use AAR and Other Source Documents
- 2018: CASPER for Extreme Heat to gather information from public to improve emergency response plans and mitigation strategies: Shared survey with DRI for 2024-2025 Cooling Center Survey
- 2019: Southwest Practitioners Adaptation Network, Big Cities Coalition-Preparedness Directors: Share best practices
- 2022: Drought Workshop with State DPBH-THIRA and climate threats
- 2022: State of Nevada Ad Hoc Heat Preparedness working group-Information Sharing, collaboration opportunities
- 2023 Community Sustainability and Climate Action Plan Pg 35-39
    - Resilient & Healthy Community: Preparing Community for climate-driven emergencies through strengthened natural and social systems
        - Prepare for and reduce the impacts of climate hazards on Clark County Residents and visitiors
        - Enhance emergency preparedness and response resources for all residents
        - Equitable access to resources and services for physical and mental health are provided to all community members
        - Natural spaces are protected, enhanced, and expanded to address the effects from a changing climate
        - 2030 and 2040 improvement metrics to measure progress
- 2023-present Heat Lab Working Group
- 2025: Extreme Heat Seminar Exercise-Southern Nevada Healthcare Preparedness Coalition
- 2026 DRI Extreme Heat Tabletop Exercise
- Current Barriers and mitigation strategies: Access- Expanded Hours Cooling Stations, MRC/CERT/VOAD staffing of future cooling station or pop up locations, transportation barrier-Bus Pass distribution for AFN mobility populations , Cross Cutting: RTC PROTECT Grant, Tree Canopy Projects-reduce heat island etc. Alternative funding sources for Nevada 211 Ride United Program

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Data Sources:

Mortality and Demographics: Nevada Electronic Death Registry System (EDRS) provided by the Nevada Department of Public and Behavioral Health Office of Analytics.

Population: State Demographer Vintage 2020,2021 and 2023 estimates, population with group quarters

Age-adjusted mortality rates are calculated per 100,000 population and include: Clark County residents, homeless individuals identified as living within Clark County or homeless individuals with an unknown or missing FIPS code.

Centers for Disease Control and Prevention (CDC). About Extreme Heat. https://www.cdc.gov/disasters/extremeheat/heat_guide.html. July 26th 2023.

Max/Min Temperature: National Weather Service. Past weather reported by Las Vegas WFO, NV.

Heat Associated Deaths: defined as those having an ICD-10 code of 'T67', 'X30, or identified as a heat associated death by the coroner or medical examiner in EDRS.

“Heat Caused” Deaths: Deaths in which a form of heat (ie. exposure, hyperthermia) is listed in Part I of the Cause of Death in the death certificate; either the immediate cause or part of the chain of events leading to immediate cause of death.

“Heat Related” Deaths: Deaths in which a form of heat (ie. exposure, hyperthermia) is listed in “Other Significant Conditions” or Part II of the death certificate but not listed in Part I.

Drug/Substance Use: defined as those having an ICD-10 code associated with the named drug or substance or if the substance is listed in Part I or Part II of the Cause of Death for those pending ICD-10 assignment.

Methamphetamine was identified using ICD-10 T43.6 and ‘Methamphetamine’ listed in Part I or Part II of the Cause of Death.

Homelessness: Data is provided by Clark County Office of the Coroner/Medical Examiner (CCCOME). The events not determined as homeless by the coroners office, but had an unknown home address in EDRS, were labeled as “unknown”.

ACKNOWLEDGMENTS

- Southern Nevada Health District Division of Disease Surveillance and Control

Have any questions on the presentation?

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