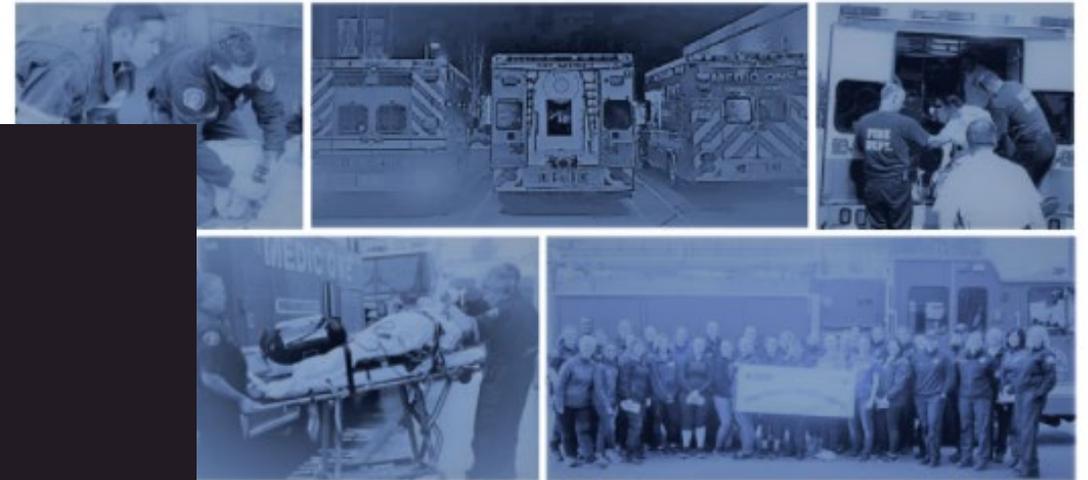




Impacts of Extreme Weather on Emergency Medical Services (EMS) in King County, WA

PRESENTATION TO KING
COUNTY SUMMER HAZARDS
SEMINAR 5/19/2022

Medic One/Emergency Medical Services



Background

EMERGENCY MEDICAL SERVICES

June 26, 2019

EMS Tiered Response System



Access to EMS System:

Bystander calls 9-1-1



Triage by Dispatcher:

Use of Emergency Medical Dispatch (EMD) Response Assessment Criteria



First Tier of Response:

All EMS service requests receive a first tier response from Basic Life Support (BLS) by firefighter/EMTs, CMTs, and Nurseline



Second Tier of Response:

Advanced Life Support (ALS) by paramedics



Additional Medical Care:

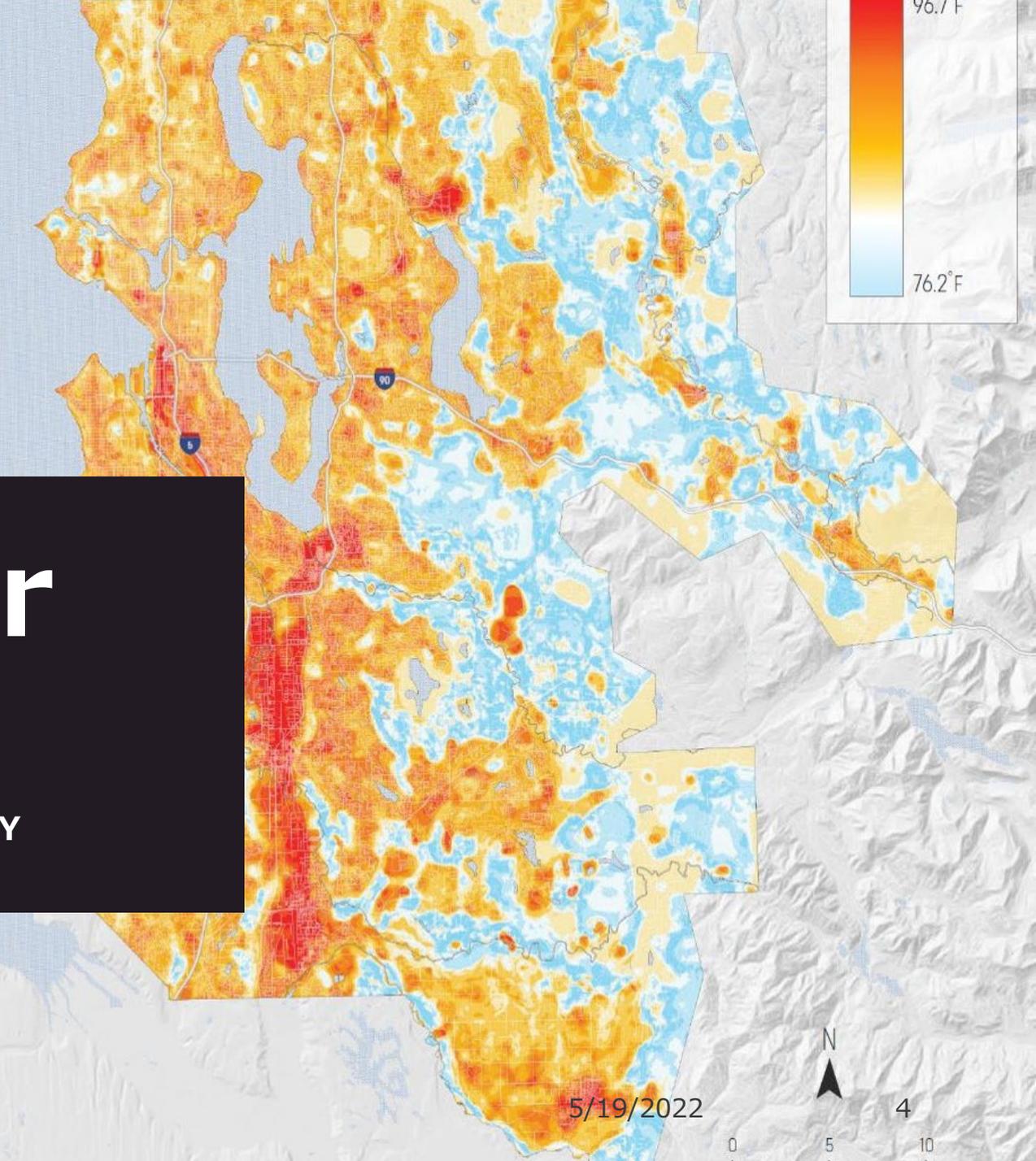
Transport to hospital

“It takes a system to save a victim.”

K I N G C O U N T Y E M S M A N T R A

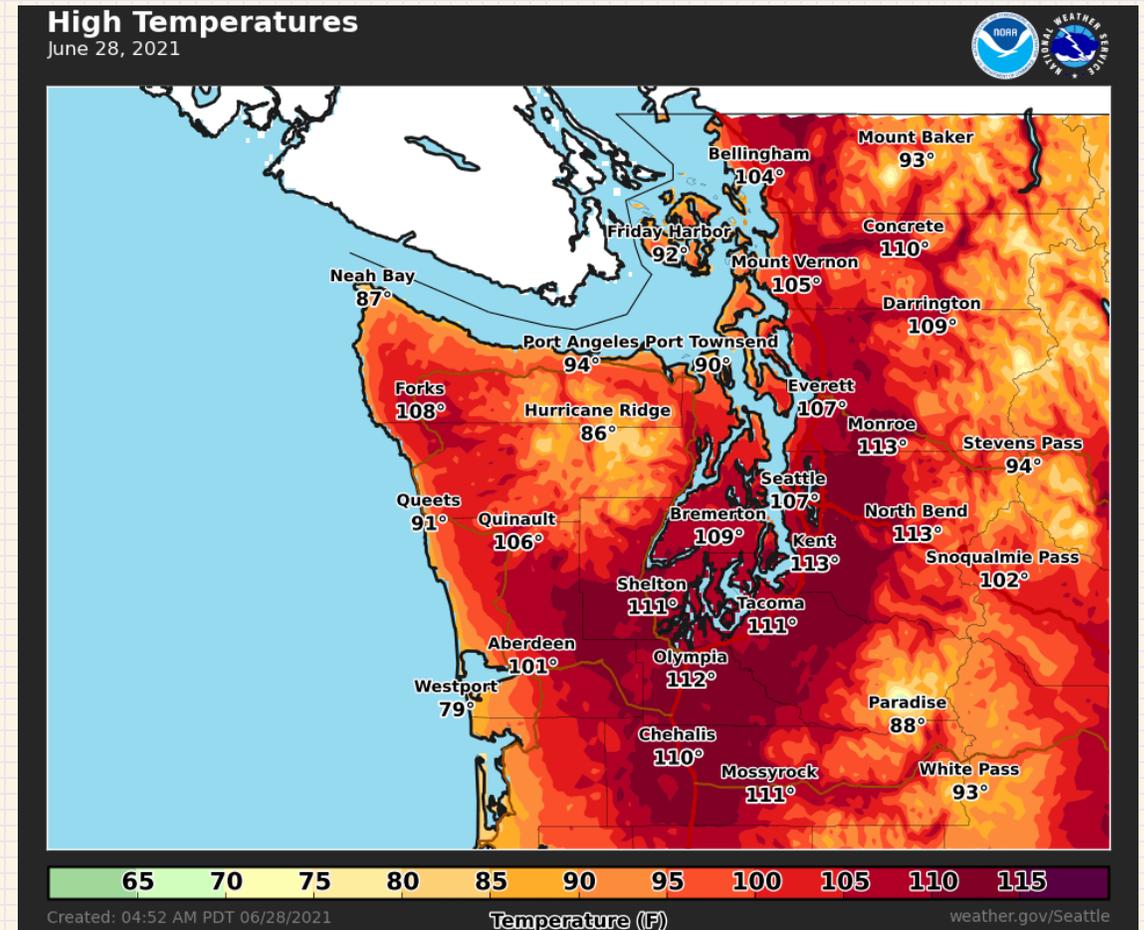
2021 Summer Heat Events

EMS IMPACTS IN KING COUNTY



Pacific Northwest Year 2021 June Heat Dome: Temperature

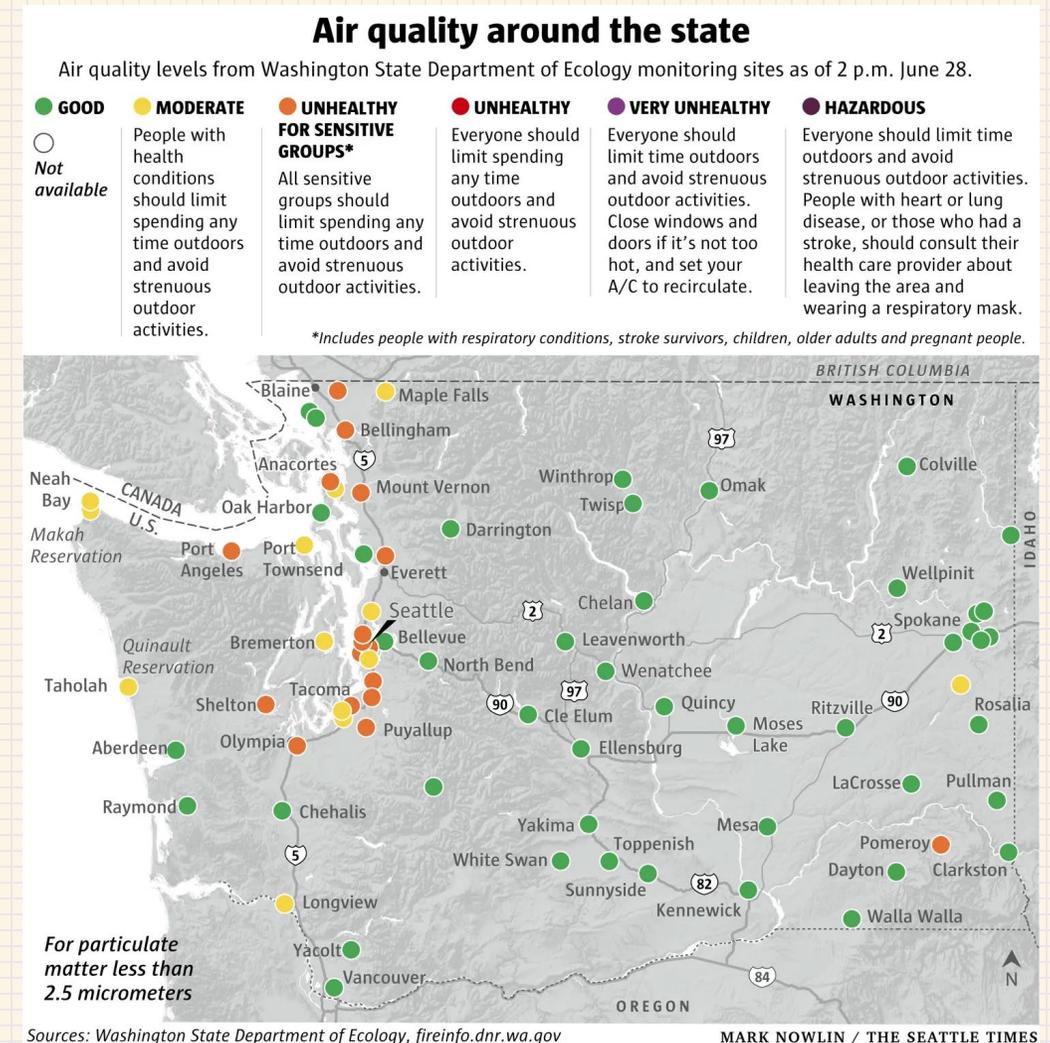
- Record-setting temperatures starting June 27th with lingering effects of elevated temperature for days, weeks.
- Health risks: heat-related illness, exacerbation of pre-existing conditions such as various respiratory, cerebral, and cardiovascular diseases.



Source: National Weather Service Seattle

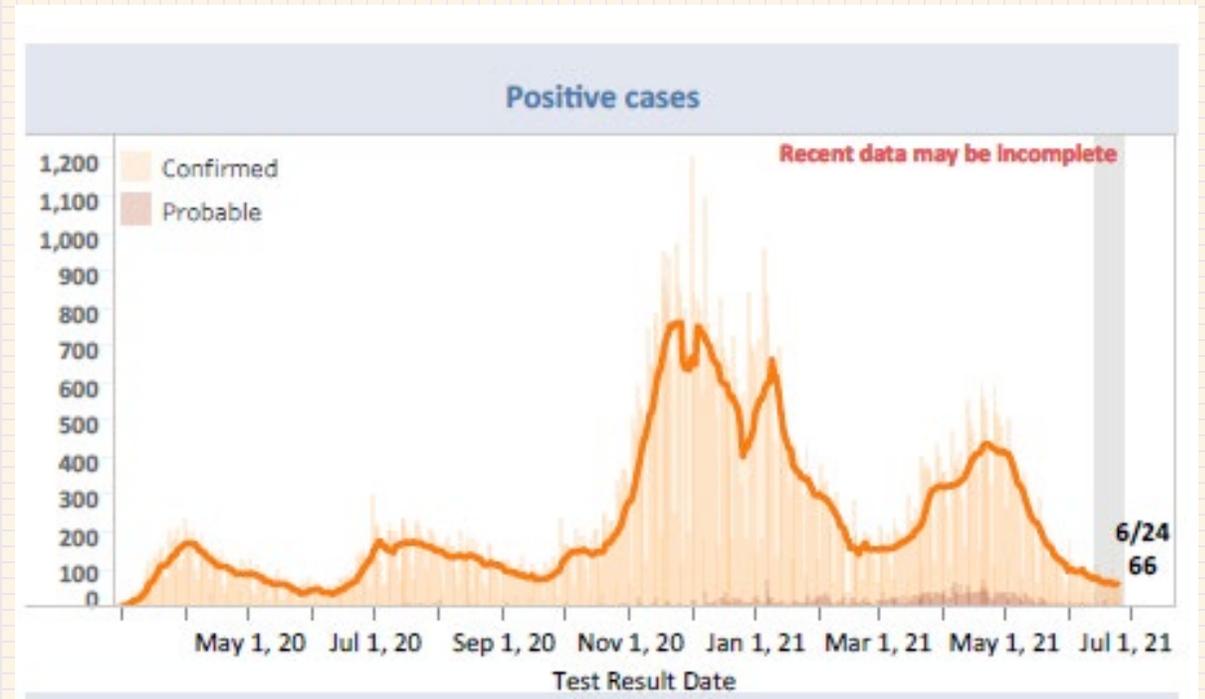
Pacific Northwest Year 2021 Heat Dome: Air Quality

- Several local wildfires emerged.
- Air quality alert issued because of ozone levels.
- Health risks: respiratory illness, eye/throat irritation, exacerbation of pre-existing conditions such as various respiratory and cardiovascular diseases.



Pacific Northwest Year 2021 Heat Dome: COVID-19

- Case counts tapering off from the most recent surge in May 2021.
- COVID-19 “Delta” variant transmission ramping up.
- Hospitals continued to experience staffing shortages, high ED volumes, and ICU/ acute care staffed bed capacity challenges.



Public Health – Seattle & King County Preparedness

“Stay Safe in the Heat” mini comic book

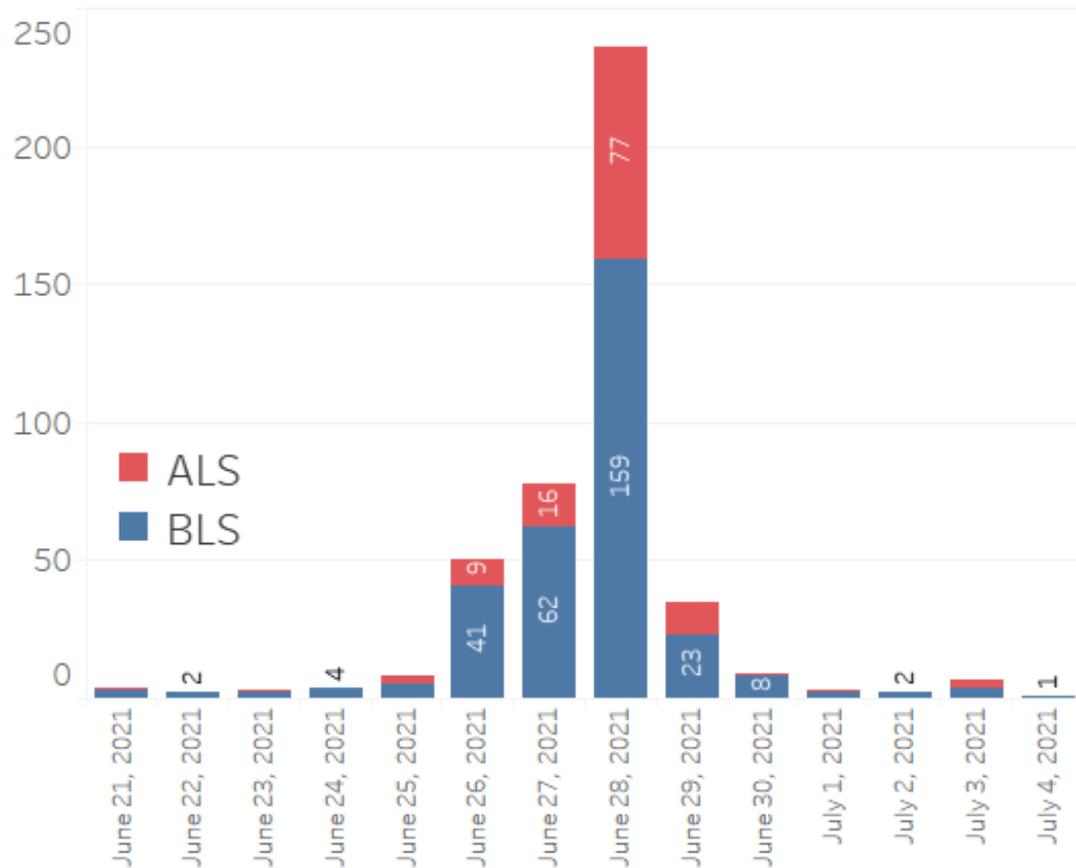
Translated languages:

English, Amharic, Arabic,
Chinese, French, Korean,
Russian, Somali, Spanish,
Tagalog, Ukrainian,
Vietnamese



HMAC/ EMS Data Request: Heat-related Illness

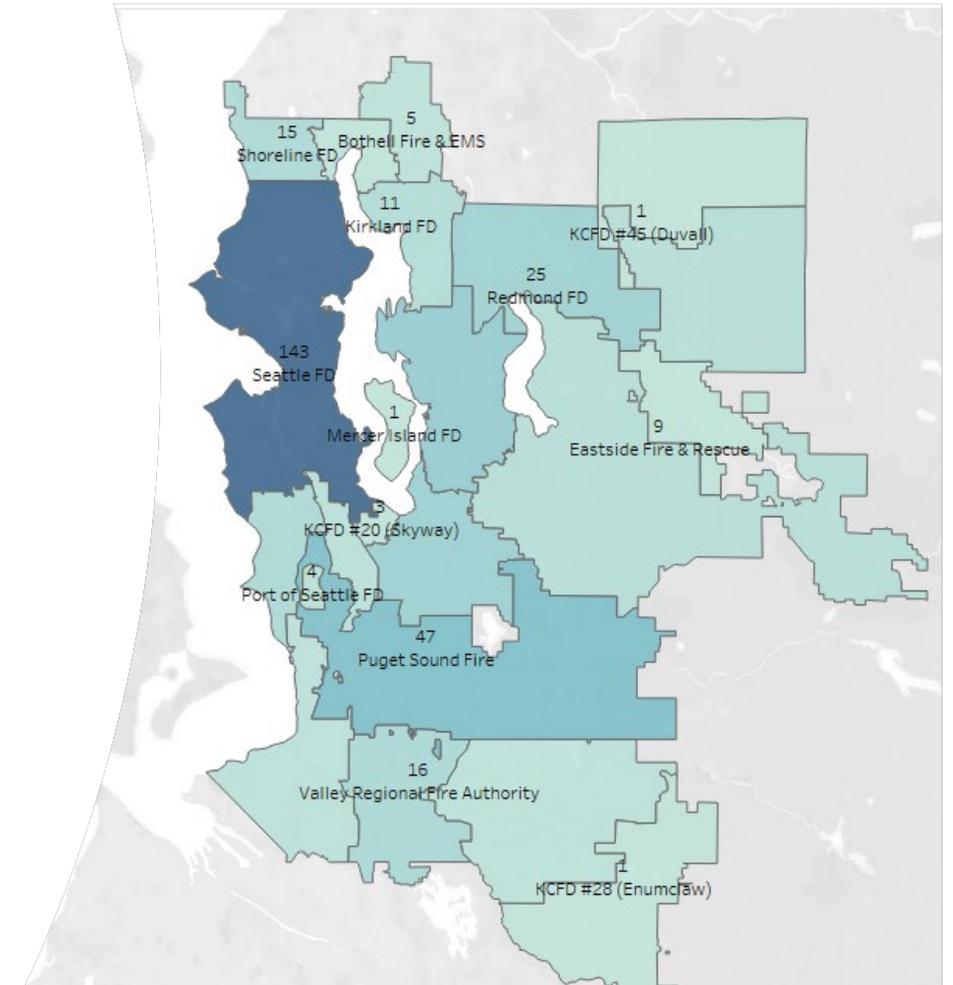
Heat-Related Illness Incidents by EMS Response Level



- Heat-related illness included patient symptoms of heatstroke, heat exhaustion, and heat syncope.
- The date with the highest recorded temperature in our region, Monday June 28th, also had the highest daily count (n=237) of heat-related illness.

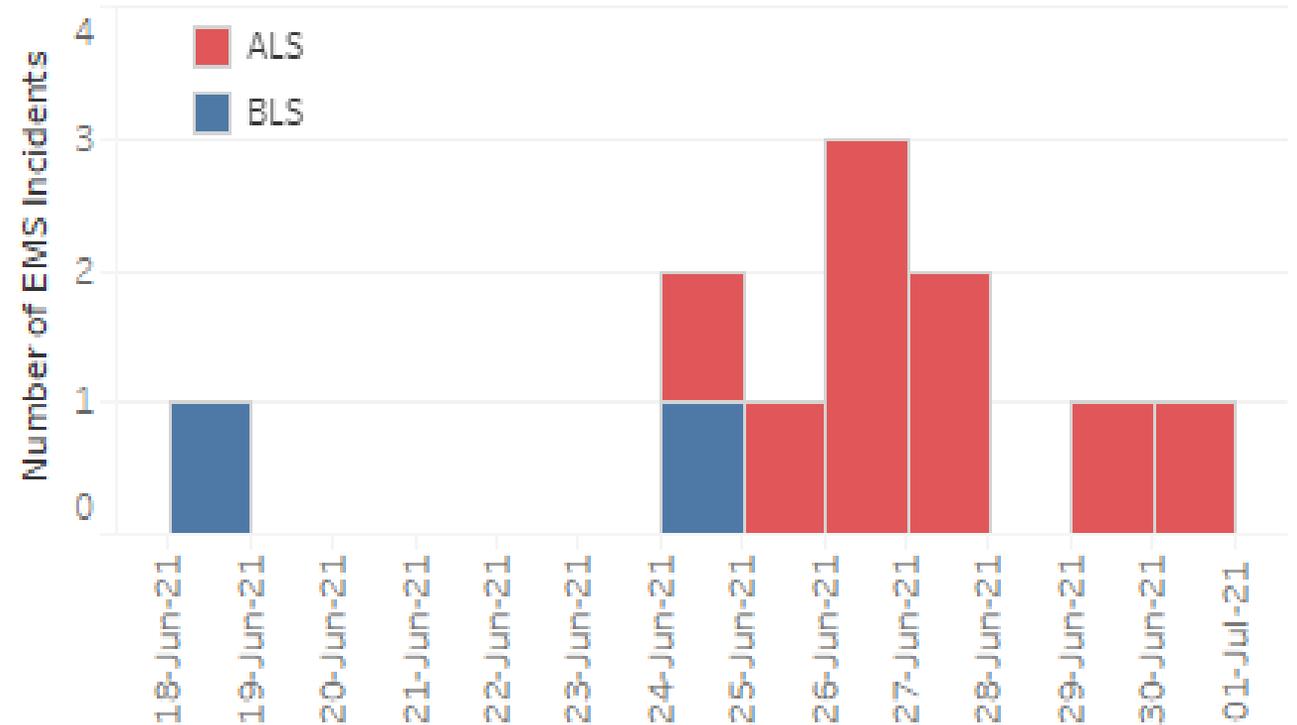
EMS Data: Geographic Distribution

- While incidents for heat-related illness were in every part of the county, they were not equally distributed.



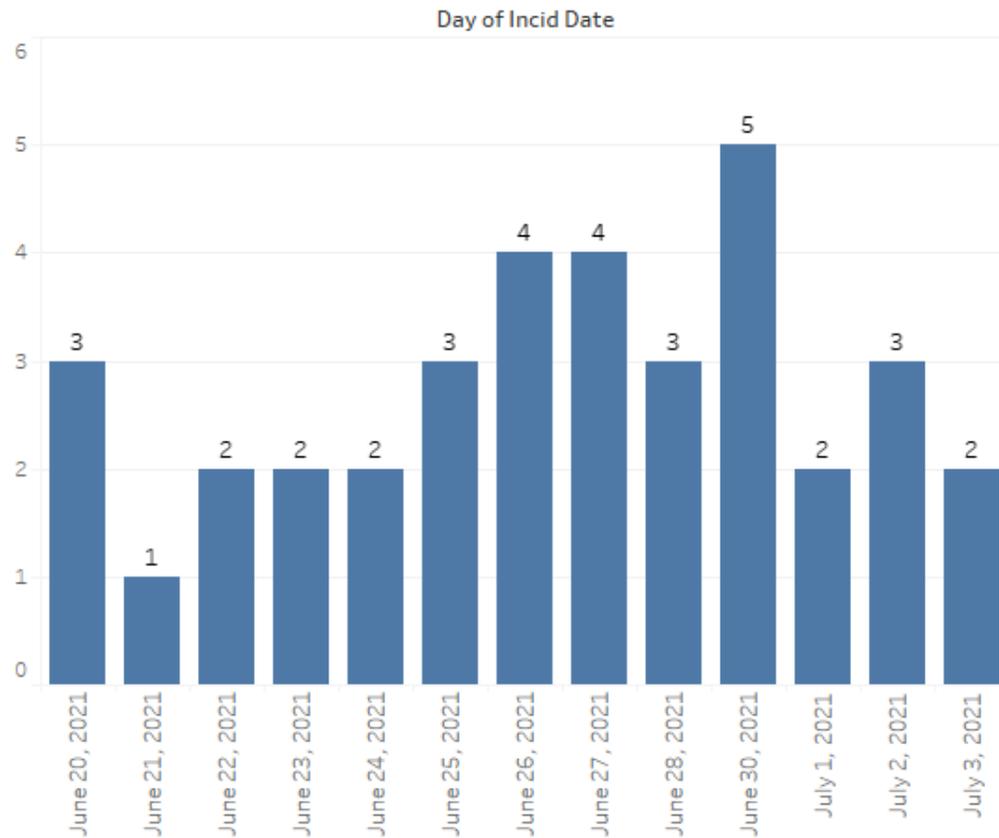
HMAC/ EMS Data Request: Drowning

- An uptick in drowning events occurred the week of the extreme heat event.



EMS Data Request: Cooling Shelters

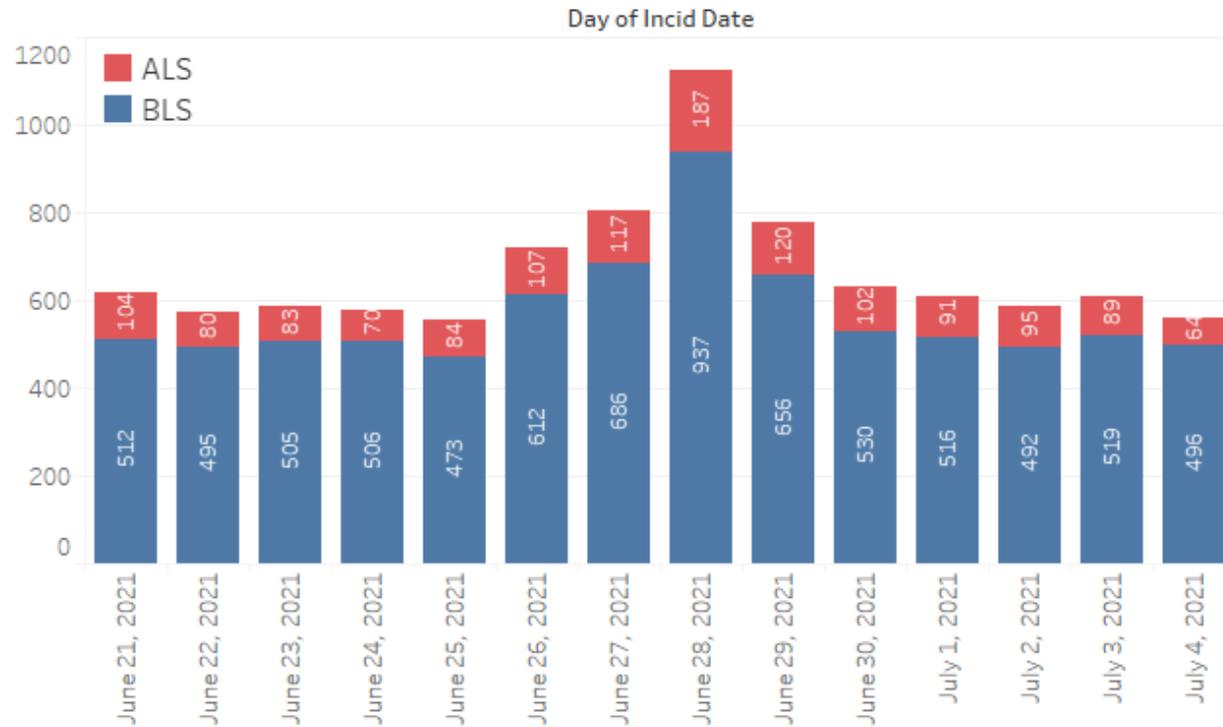
EMS Incidents to Cooling Centers



Source: King County Public Library

EMS Data: System

EMS Daily Incident Counts



- Typically 500-600 incidents daily
- June 28th set a record for the largest volume of EMS responses



“I would love to have 10 of us today to do a lot more of that outreach, but there's just no capacity.” –
Firefighter Matt Jung

SEATTLE FD HEALTH ONE
DURING HEAT DOME

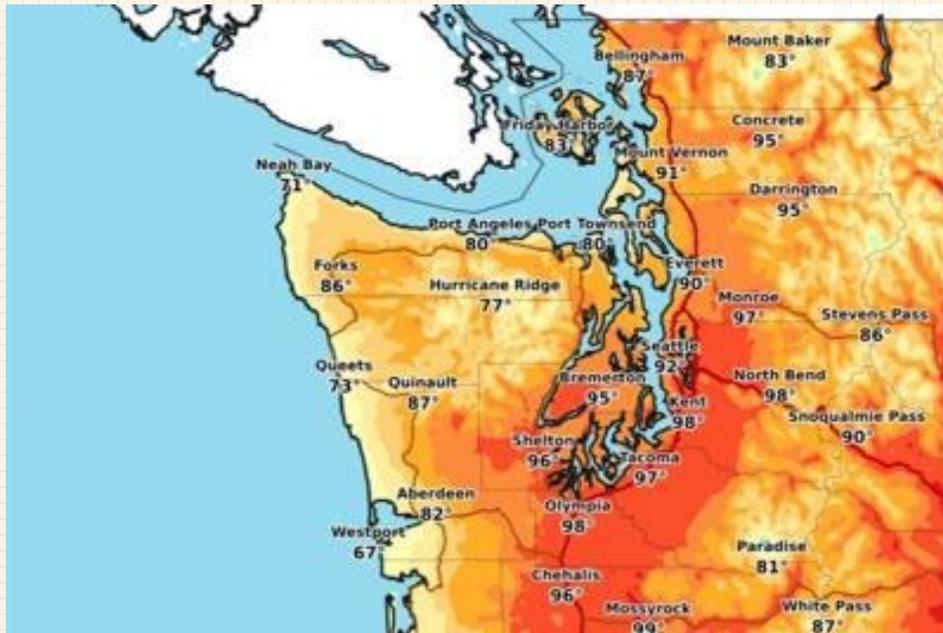
Post- Heat Event EMS Actions

- Improved communication channels with other organizational leaders to monitor emergency system impacts during extreme weather.
- Expanded EMS data dashboards (e.g., wildfire smoke) to inform public health response efforts.
- Joined the King County “Climate Health Action Team” and supported an assessment of public health surveillance options for climate change.



Pacific Northwest Year 2021 August Heat Event: Temperature

- August temperatures not as high as the June heat dome



NWS Seattle @NWSSeattle

Heat wave still on track. Cooler Saturday and back to normal temps Sunday. #wawx

Day	Tue	Wed	Thu	Fri	Sat	Sun	Mon
High	82°	87°	95°	95°	89°	79°	76°
Low	63°	66°	69°	67°	63°	61°	58°
Wind	N 7-11	N 8-12	N 6-10	NW 5-9	SW 7-11	SW 8-12	SW 6-13

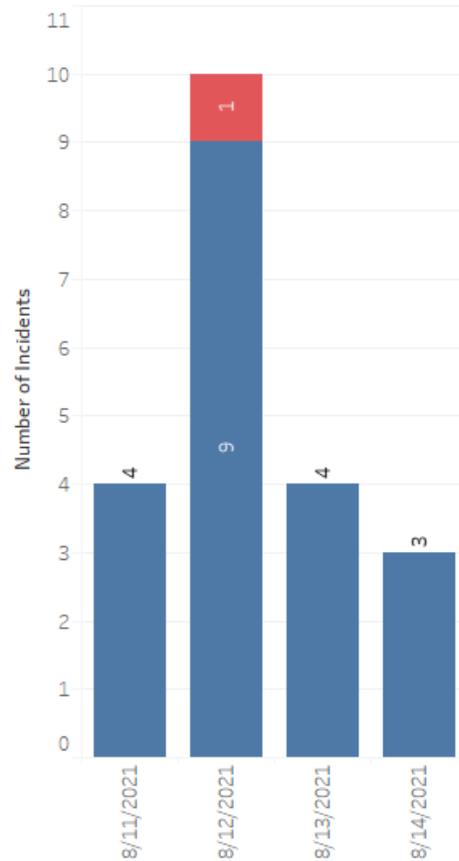
7 Day Forecast - Seattle

7:02 AM · Aug 10, 2021

Source: National Weather Service Seattle

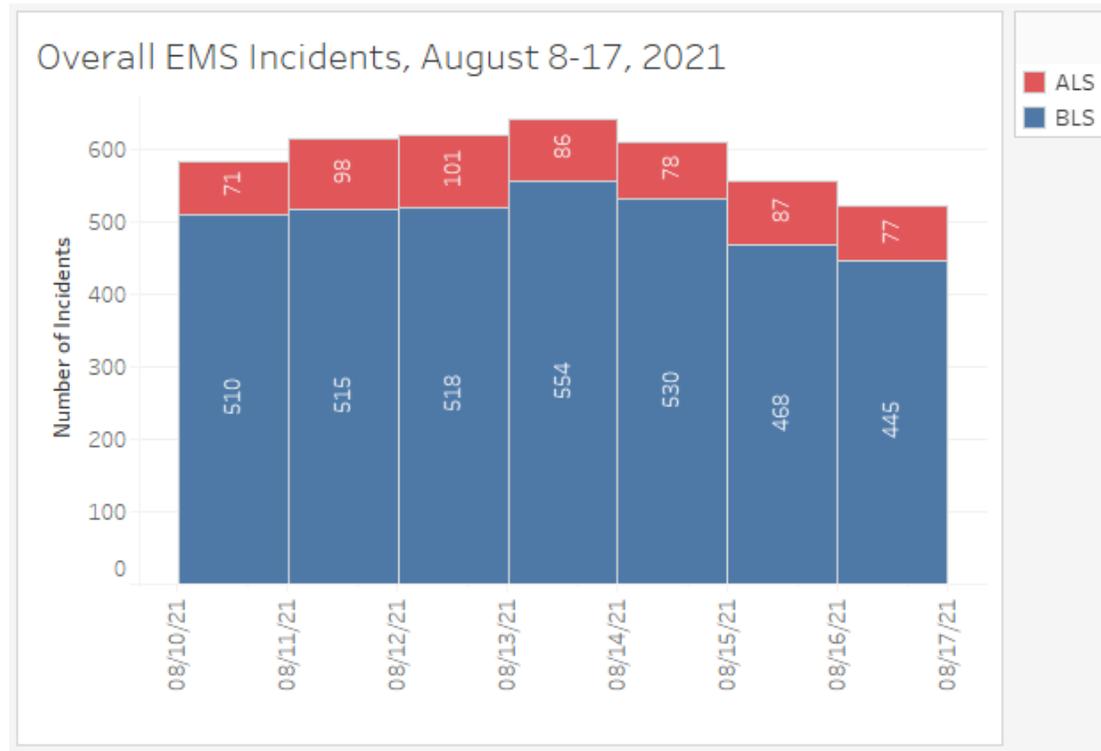
August EMS Data: Heat-related Illness (August)

Heat-related Illness, August 11-14, 2021



- Heat-related illness included patient symptoms of heatstroke, heat exhaustion, and heat syncope.
- August heat event saw modest increase in heat-related illness, though not as much as the June heat dome.

August EMS Data: System



- **Typically 500-600 incidents daily**
- **EMS system saw only a slight increase in overall incidents during August heat event.**

Summary

- 9-1-1 dispatch and EMS responses increased proportionately with extreme heat temperatures.
- System stresses are likely preventable.
- Consider usage of EMS data to inform emergency management or public health heat event planning & mitigation strategies.



Resources

- **EMS Annual Report & Strategic Plan:**
<https://kingcounty.gov/depts/health/emergency-medical-services/reports.aspx>
- **EMS research article about heat:**
<https://ehjournal.biomedcentral.com/articles/10.1186/s12940-016-0109-0>
- **Public Health Emergency Preparedness:**
<https://kingcounty.gov/depts/health/emergency-preparedness.aspx>
- **Health Officer Statement on Extreme Heat:**
<https://publichealthinsider.com/2021/06/27/health-officer-statement-on-extreme-heat-event/>
- **Public Health Blueprint for Addressing Climate Change and Health:**
<https://kingcounty.gov/services/environment/climate/actions-strategies/strategic-climate-action-plan/climate-change-health-blueprint.aspx>
- **COVID:**
<https://kingcounty.gov/depts/health/covid-19/data.aspx>



Thank you

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