

# Healthcare in a Changing Climate: Understanding the Impacts on Virginians

## *Public Health Impacts of Climate Change*

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# Disclosure Statement

I do not have any relevant financial interests or relationships with any commercial company or the manufacturers of any commercial products(s)/service(s) that may be discussed as part of the presentation.

# Americans increasingly see climate change as a crisis, poll shows



Lily Schatz, 5, of Ponte Vedra Beach, Fla., and her father, Jason Schatz, join a gathering in Lafayette Square near the White House on June 1, 2017 to protest the U.S. withdrawal from the Paris climate accord. (Salwan Georges/The Washington Post)

By **Brady Dennis**, **Steven Mufson** and **Scott Clement**

September 13

*Washington Post*  
September 13, 2019

# Governor Northam Executive Orders

**Executive Order 22** - Establishes the Governor's Conservation Cabinet

**Executive Order 24** - Instructs State Agencies to help increase statewide resilience to natural hazards and extreme weather events

**Executive Order 29** - Establishes the Virginia Council on Environmental Justice

# Climate Change as a Public Health Concern

- Virginians recognizing public health impacts of climate change as an emerging priority for the Commonwealth.
  - Virginians expressed their concern to the State Health Commissioner, Dr. Norman Oliver, during his 2018 Fall listening tour across Virginia.
- To identify public health threats and mitigation tactics, VDH formed the Climate Change Committee (C-3) in January of 2019.
  - Offices of Environmental Health Services, Drinking Water, Family Health Services, Health Equity, Emergency Preparedness, Epidemiology
  - Local Health Departments
  - VDH Government and Regulatory Affairs.

# VDH Climate Change Committee (C-3) Charge

- Identify health related impacts of climate change in Virginia
- Identify vulnerable populations
- Outline relevant data, programs, and research in collaboration with internal and external partners
- Develop recommendations for identification and mitigation of climate change impact

# Public Health Impacts of Climate Change under advisement by VDH

- **Air Temperature/Quality**
  - Heat Stress/Heat Exhaustion
  - Exacerbation of Chronic Diseases (Cardiovascular, Pulmonary Diseases)
  - Vector Migration (Mosquitoes/Ticks)
- **Water Temperature/Quality**
  - Impact on shellfish, food consumption
  - Increased risk of waterborne infections (i.e. vibrio)
  - Harmful Algal Blooms
- **Sea Level Rise**
  - Exposure to contaminated water from sewer and/or well displacement.
  - Displacement of populations, including vulnerable populations
- **Extreme Weather Events**
  - Increased risk of injury and death from flooding, hurricanes, tornadoes, fires, etc.
  - Mental Health Stress, exacerbation of underlying disorders

# Partnerships Are Essential in Addressing Climate Change

- Stakeholder Call with various representatives from local and state institutions, public and private institutions, academia (March 2019)
- Presentation to the Health Commissioner's Public Health Advisory Council (March 2019)
- VDH Public Health Impact of Climate Change Summit (June 2019)



# VDH Climate Change Summit Attendees

**National Agencies:** NASA, NOAA, USDA

**State Agencies:** SHHR/VDH SNR/VDEQ, VDEM

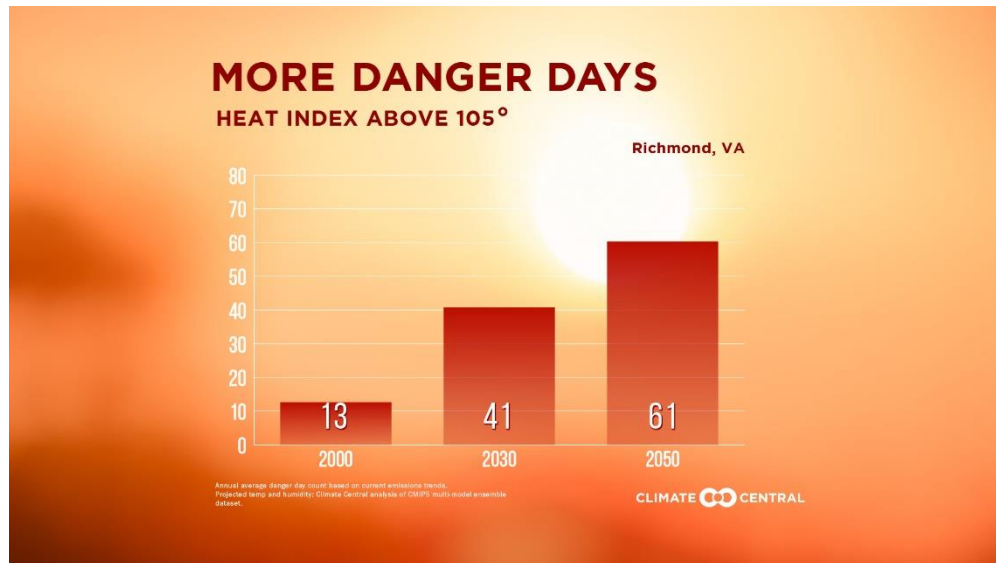
**Academic Institutions:** VT, UVA, VCU, ODU, EVMS, George Mason, Longwood U, Liberty U, VIMS

**Local Govt/Health Depts:** City of Norfolk, Virginia Beach, Eastern Shore, Chesapeake, Richmond, Henrico, Crater, Fairfax

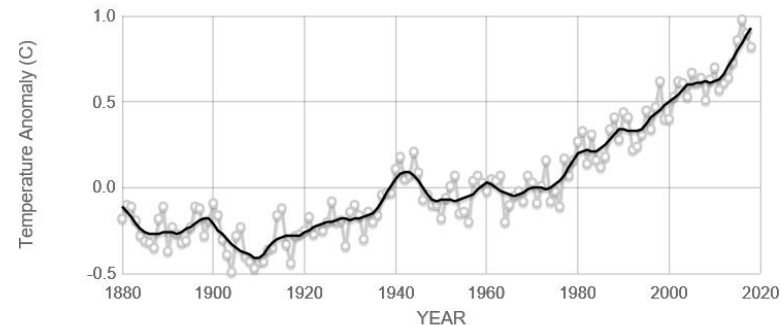
**Other Supporting Organizations:** Virginia Clinicians for Climate Action, Faith Alliance for Climate Solutions, Sierra Club, Science Museum of Virginia

# Increasing Global Temperatures

## *Developing a Heat Response Plan*



SOURCE: <https://statesatrisk.org/virginia/all>



Source: climate.nasa.gov

# Health Impacts of Increasing Temperatures

Extreme high air temperatures contribute directly to deaths from cardiovascular and respiratory disease, including heat exhaustion and heat stroke.

More than 600 deaths per year in the United States are due to extreme heat according to the Centers for Disease Control.

Extreme heat causes many people to visit the emergency room or be admitted to the hospital.

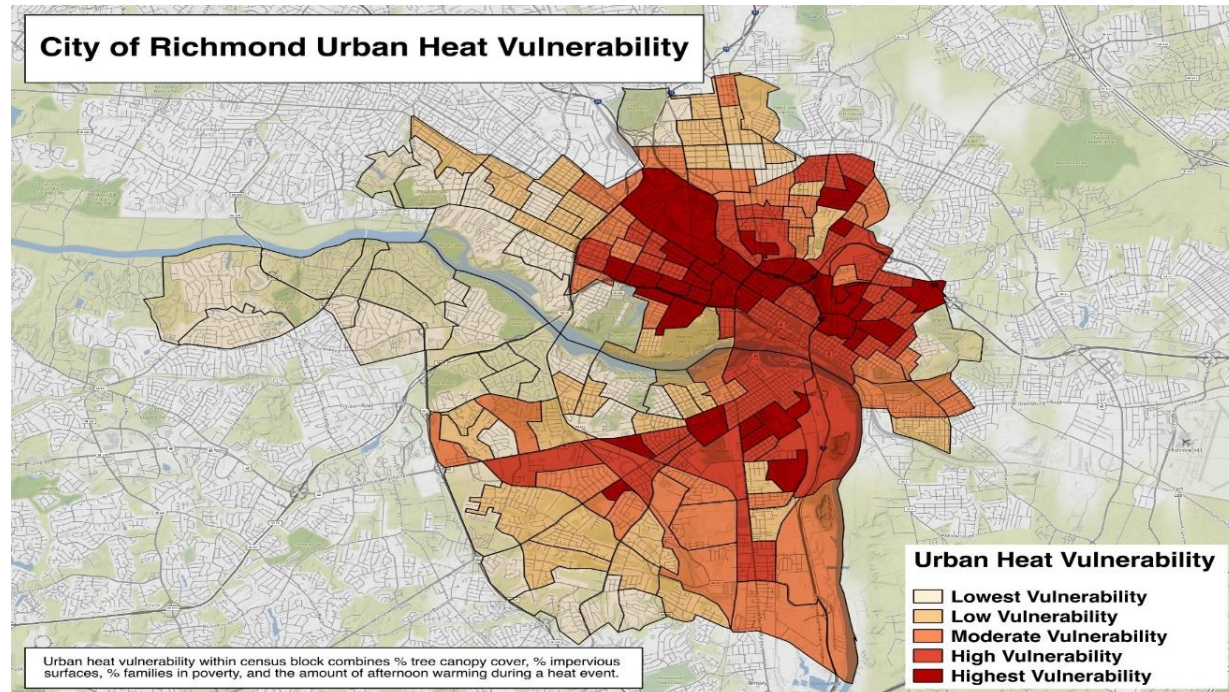
As temperatures rise and extreme heat events increase in frequency, we can expect to see more heat-related illnesses and mortality.

Source: National Institute of Environmental Health Sciences, 2017;  
USGCRP, 2016 EPA\_HEAT-ILLNESS-2016.pdf

# Disproportionate Health Impacts on Select Areas and Populations

High concentrations of buildings and asphalt in urban areas cause urban heat island effect, generation and absorbing heat, making the urban center several degrees warmer than surrounding areas.

Susceptible populations are also disproportionately impacted.



SOURCE: VDH ESSENCE (UCC/ED DATA), RICHMOND AMBULANCE AUTHORITY (AMBULANCE RESPONSES), AND NOAA (TEMPERATURE DATA), COMPILED BY JEREMY HOFFMAN AT SCIENCE MUSEUM OF VIRGINIA

# Economic Impact of Heat Related Health Events

- From 2002 through 2009, the health related costs of heat waves in the United States was \$5.3 billion.
- In 2016, health related costs in the United States were \$3.3 trillion.
- By the year 2028, it is predicted that heat waves and other climate change effects will add \$360 billion per year in heat impact costs. Much of this is due to health costs.

SOURCE: NATURAL RESOURCES DEFENSE COUNCIL ECONOMIC BURDEN OF HOSPITALIZATIONS FOR HEAT-RELATED ILLNESSES IN THE UNITED STATES, INT J ENVIRON RES PUBLIC HEALTH, 2016 SEP.  
[HTTPS://WWW.NCBI.NIM.NIH.GOV/PMC/ARTICLES/PMC5036727/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5036727/)

# Health Impacts of Excessive Heat

- According to the Red Cross, in recent years, excessive heat has caused more deaths than all other weather events, including floods.
- For every 10 degree Fahrenheit increase above mean ambient temperature some states have seen:
  - 393% increase in hospitalization for heat exposure
  - 3% increase in ischemic stroke hospitalizations
  - 15% increase in acute renal failure hospitalizations
- On an individual/family level impacts include:
  - Illness of a family member, loss of income, medical bills
  - Worsening of certain medical conditions (i.e. asthma)

SOURCES: ECONOMIC BURDEN OF HOSPITALIZATIONS FOR HEAT-RELATED ILLNESSES IN THE UNITED STATES, INT J ENVIRON RES PUBLIC HEALTH, 2016 SEP.

[HTTPS://WWW.NCBI.NIM.NIH.GOV/PMC/ARTICLES/PMC5036727/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5036727/), <https://www.redcross.org/get-help/how-to-prepare-for%20emergencies/types-of-emergencies/heat-wave-safety.html>

## EMERGENCY DEPARTMENT AND URGENT CARE VISITS FOR HEAT-RELATED ILLNESS IN VIRGINIA

July 16-22, 2019

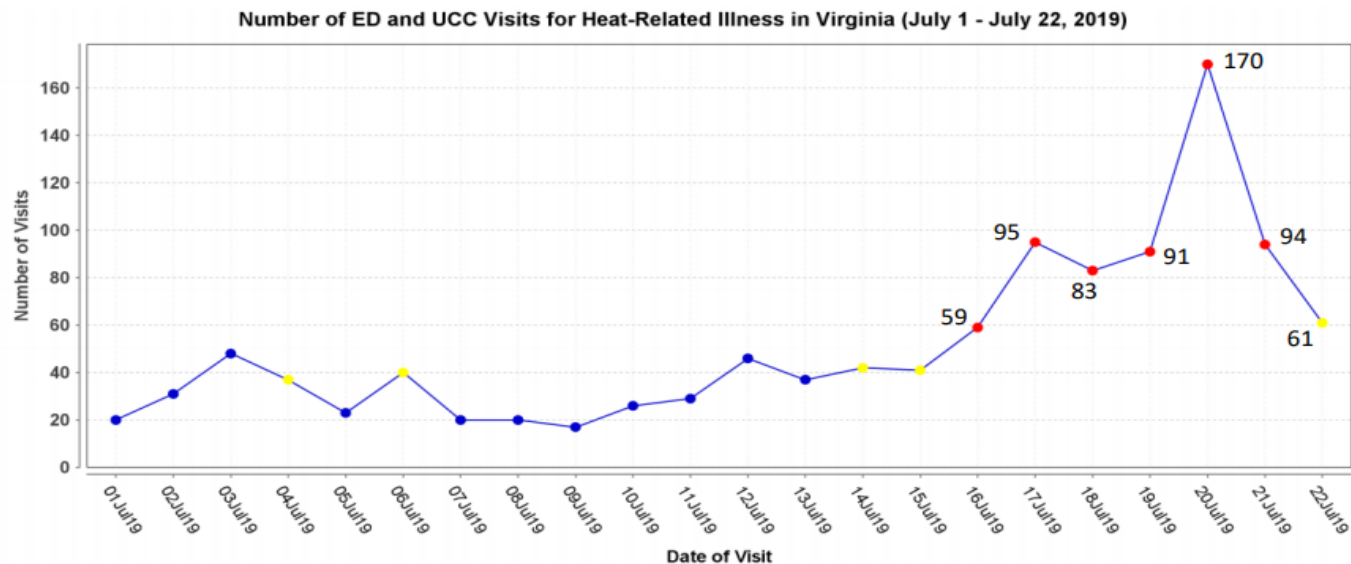
### Background

At the time of this report, the Virginia Department of Health (VDH) received data on visits to 85 acute care hospital emergency departments (EDs), 19 free-standing EDs, and 45 urgent care centers (UCCs) in Virginia for purposes of public health surveillance. This report characterizes ED and UCC visit trends for heat-related illness.

See page 3 for data sources and case definitions used in this report.

### Data Summary

A total of **653 ED and UCC visits for heat-related illness** occurred between July 16-22, with 7% admitted to the hospital and 1 suspected heat-related death. The graph below displays the daily number of heat-related visits in Virginia between July 1 and July 22, 2019.





# Developing a Heat Emergency Response Plan for the Commonwealth

- Develop a specific Annex to the Commonwealth's Emergency Operations Plan (EOP) - (e.g. North Carolina, California)
- Work with State and Local Government Partners to Determine Parameters for Plan Activation and Termination
- Continue to inform heat-related surveillance strategies
- Establish Communication Strategy and Prevention Messages
- Consideration for Opening Cooling Shelters/Hydration Stations
- Establish Necessary Public Health and Community Training
- Help Measure Plan Activation Success and Develop Post Event Plan Revisions



# VDH C-3 Next Steps

- Establish priority areas for the public health impacts of climate change
- Identify existing data sources to assess and evaluate impact
- Identify appropriate subject matter experts and stakeholders to develop mitigation strategies and response plans
- Provide public education on the health impacts of climate change
- Continue to serve as a source for the convening and coordinating of interested stakeholders
- Advise state leadership

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