Climate Change & Health in Connecticut

CIRCA Webinar
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A Public Health Response to a Changing Climate
Projected Climate Change Physical Impacts

- UCONN/CIRCA Report: Under a high greenhouse gas emissions scenario (RCP 8.5), the following impacts are projected for mid-century (2040–69), compared with 1970–99:
  - 5 °F increase in annual average temperature
  - 8.5% increase in annual precipitation, due primarily to increases in winter and spring
  - Greater flood risk due to the increase in heavy rainfall events
  - Extreme summer droughts occurring 3 times as often
- CIRCA recommends planning for 20 inches (0.5 meters) of sea level rise by 2050, with continued sea level rise to occur after 2050
- Atlantic hurricanes are expected to become more intense, with greater amounts of precipitation
**Communities of Color**

Some communities of color living in risk-prone areas face cumulative exposure to multiple pollutants.

Adaptation plans that consider these communities and improve access to healthcare help address social inequities.

**Children**

Children have higher risk of heat stroke and illness than adults.

**Older Adults**

Older adults are vulnerable to extreme events that cause power outages or require evacuation.

Checking on elderly neighbors and proper emergency communication can save lives.

**Low Income Communities**

Low income families are at risk of physical and mental illnesses during flooding and in crowded shelter conditions.
TEMPERATURE
Annual Average Temperature

What does this mean for health?
- Heat-related illness
- Suitable conditions for larger and more active tick and mosquito populations
- Longer season for ragweed pollen
- Amplified ozone pollution (smog)

Average annual temperature increased by over 3 °F in Connecticut from 1895 to 2019.

Data source: NOAA National Centers for Environmental Information. Climate at a Glance: Statewide Time Series. 2020; available online at https://www.ncdc.noaa.gov/cag/
Heat-Related Illness

From 2007 to 2016, there were on average **422 emergency department visits** and **45 hospitalizations** per year for heat stress in Connecticut.

Vulnerable populations:
- Elderly
- Young children
- People with pre-existing medical conditions (especially respiratory or cardiovascular disease, and mental illness)
- People with limited social or financial resources, and/ or social isolation (particularly those experiencing homelessness)
- Outdoor workers
- Athletes


EXTREME EVENTS
Weather Disasters

From 2010 to 2019, nine federal disaster declarations for weather events were issued for Connecticut, compared to only 13 in the previous 56 years (1954-2009).

What does this mean for health?

- Direct dangers from drowning
- Disruption to critical infrastructure & loss of access to medical care
- Mental health impacts from trauma
- Structural inequality in impacts across communities

Seven of Connecticut’s 16 Superfund sites are vulnerable to climate change impacts, including flooding, hurricane storm surge, and sea level rise.

INFECTIONOUS DISEASES
Mosquito Abundance

• During 2001–2019, of 28 mosquito species found in Connecticut to carry viruses that cause human disease, 10 show trends of increasing abundance and 3 show trends of decreasing abundance.

• Each of the mosquito species we tracked has been found in Connecticut to carry one or more of the following viruses that infect humans:
  • Cache Valley (CV)
  • Eastern equine encephalitis (EEE)
  • Jamestown Canyon (JC)
  • Trivittatus (TVT)
  • West Nile Virus (WNV)

Data source: Connecticut Agricultural Experiment Station. Mosquito and arbovirus surveillance network data. New Haven, CT; n.d.
Tick-borne Illnesses

Lone Star Ticks
- Expanding into CT
- Transmit tularemia, ehrlichiosis, Heartland virus disease, southern tick-associated rash illness, red meat allergy, and likely, Bourbon virus disease

Total confirmed and probable Lyme disease cases in Connecticut, 2008–2018. The number of reported cases has declined significantly in Connecticut.

Confirmed foodborne Vibrio infections per 100,000 population in Connecticut, 1996–2018. The annual incidence of confirmed cases of foodborne Vibrio infections has significantly increased.


AIR QUALITY
Ground-level Ozone

Number of ground-level ozone exceedance days per year by EPA Air Quality Index (AQI) alert levels, 2000–2019, by Connecticut county. An exceedance day occurs when the daily maximum 8-hour ozone average is 71 parts per billion or higher. AQI alert levels displayed are as follows: unhealthy for sensitive groups (71–85 ppb) (orange), unhealthy (86–105 ppb) (red), very unhealthy (106–200 ppb) (purple). Due to no data/insufficient data, Litchfield County figure excludes 1990 and 2001, and Windham County figure excludes 1990–1993.

Since 2007, the percent of measured days with “high” or “very high” outdoor mold concentrations has increased.

Allergen concentration levels, percent of measured days by National Allergy Bureau (NAB) Scale category, Waterbury, CT monitoring station, 2007–2019, April–September. No data available for 2008. NAB Scale categories are as following: grey = absent; green = low; yellow = moderate; orange = high, red = very high.

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