



Climate Change, Extreme Heat, and Health

The M-LEEd Center's Community Engagement Core (CEC) increases awareness and understanding of environmental health research.

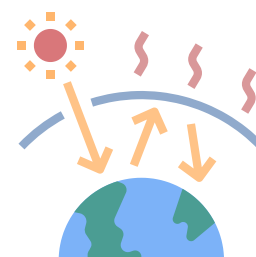
Stakeholder Advocacy Board members include:

- Community Health and Social Services
- Detroit Department of Public Health
- Detroit Hispanic Development Corporation
- Detroiters Working for Environmental Justice
- Eastside Community Network
- Ecology Center
- Henry Ford Health System
- Michigan Environmental Justice Coalition
- We the People of Detroit

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Why is Climate Change Important to Public Health?

Climate change is altering weather and climate patterns. These changes could affect human health in direct and indirect ways, sometimes severely.^{3 5} The American Public Health Association and World Health Organization call climate change one of the most serious public health threats facing us today.^{1 2}

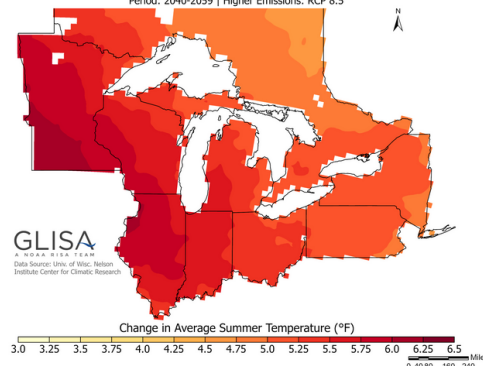


How are Climate Change & Extreme Heat Impacting Michigan?

Temperatures are rising. Heat waves are becoming more frequent. Detroit could experience as many as 65 days per summer with high temperatures above 90° toward the end of the century, a substantial increase over our current average of 13 days per summer.^{3 5} In southeast Michigan there are many 'urban heat islands' – areas with significantly warmer temperatures due to buildings and hard surfaces.

A recent study found that a combined heatwave and major blackout could result in more than 1,400 deaths in Detroit. Climate change is increasing the risk for more frequent and prolonged heatwaves, which put more strain on an already aging electrical grid. Leaving Detroit residents without power for days during a heatwave could expose thousands of residents to an increased risk of heat exhaustion and heat stroke.⁴

Projected Change in Average Summer Temperature by Mid-Century
Period: 2040-2059 | Higher Emissions: RCP 8.5



HEAT INDEX CLASS	EXPOSURE RISK
NO RISK (< 27°C)	NONE
CAUTION (27 - 32°C)	FATIGUE
EXTREME CAUTION (32 - 41°C)	HEAT EXHAUSTION POSSIBLE, HEAT STROKE POSSIBLE
DANGER (41 - 54°C)	HEAT EXHAUSTION LIKELY, HEAT STROKE POSSIBLE
EXTREME DANGER (> 54°C)	HEAT STROKE LIKELY

Stone et al. (2021). Compound Climate and Infrastructure Events: How Electrical Grid Failure Alters Heat Wave Risk. Environmental Science & Technology 2021 55 (10), 6957-6964



What Heat-Related Health Effects Can We Expect for Detroit?

Detroit is extremely vulnerable to climate change and already experiences more health challenges compared to other areas of the state.^{5 11} Recent research confirms that Detroit residents with existing health conditions and those lacking air conditioning are at greater risk of experiencing heat exhaustion.⁸ Health conditions that increase vulnerability to heat include:

- **Cardiovascular Disease (CVD):** The body regulates its temperature expanding and constricting blood vessels to adjust blood flow. CVD affects the heart and blood vessels, making it difficult to respond to extreme heat.¹⁰
- **Renal Disease:** Kidneys filter blood and control blood pressure, necessary for regulating body temperature. As a result, those with renal disease are more vulnerable to the effects of extreme heat.¹⁰
- **Asthma:** Asthma affects both children and adults, making it difficult to breathe.⁹ Asthma is made worse with increasing temperatures. In Detroit, the current prevalence of asthma among adults is 16.2, and rates of asthma hospitalization are over four times higher than those of Michigan as a whole.⁷



What Does this Mean for Me and My Community?

Here are some steps you can take to protect your community:

- Be aware of local extreme weather warnings and share information about cooling centers.
- Learn about climate change and support local efforts such as Eastside Community Network's climate equity efforts, the Detroit City Council Green Task Force, and the City of Detroit Sustainability Action Agenda recommendations.
- Work with local, state and federal decision makers to reduce climate change.
- Work with local and state decision makers to reduce “heat islands”.
- Identify local programs and resources for improving the energy efficiency of your home to reduce energy usage and keep your home cooler in the summer.

Here are some steps you can take when the weather gets hot to protect your health:

- Stay hydrated. Drink water. Avoid sugary & alcoholic beverages.
- Stay indoors and in an air-conditioned place. If your home does not have air conditioning, go to a community center, public library, or local cooling center.
- Limit your outdoor activity to morning and evening hours, if possible
- Watch the local news to find out where there are cooling centers in your area.
- Wear lightweight, light-colored, loose-fitting clothing.
- Check on senior or disabled neighbors, especially those who live alone.

Please see http://mleead.umich.edu/Coec_Fact_Sheets.php for the citations included in this factsheet.

The University of Michigan Lifestage Environmental Exposures and Disease Center (M-LEEd) Community Engagement Core (CEC) promotes collaboration among UM environmental health researchers and communities to advance knowledge of environmental health issues that affect community members in Detroit and Southeast Michigan.

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