

Public Health and Climate Change in Michigan

MICHIGAN CLIMATE & HEALTH ADAPTATION PROGRAM
DIVISION OF ENVIRONMENTAL HEALTH, MDHHS



Learning Objectives

- Identify the priority climate change-related human health impacts in Michigan.
- Understand the intersection of climate change and health equity.
- Know why local public health is a key player in climate change adaptation.
- Connect climate change to your work.

Climate Change in the Great Lakes Region

GLISA

A NOAA RISA TEAM

Average
Temperature



2.5°F

1951-2021

Michigan 1951-2021
2.6°F

Frost-free
Season



16 Days

1951-2021

Total
Precipitation



16%

1951-2021

Michigan 1951-2021
15%

Heavy Precipitation
Events



37%

1991-2020 v. 1951-1980



The Daily Mining Gazette

Houghton, 2018

“Father’s Day Flood” – up to 7” of rain in 9 hours, 1,000-year flood event



Midland, 2020

4-7" of rain in 48 hours, 500-year flood event



Detroit Free Press

Southeast MI, 2021

7" of rain in 4 hours, 100-year flood event



Detroit Free Press

2023

3-5" of rain in 6 hours



Detroit News

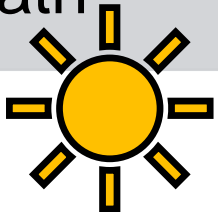
Detroit, 2023

Wildfire smoke from Canada impacts air quality

How is Climate Change Affecting Health?

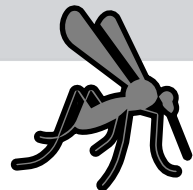
Heat Harm

- Strains the heart and lungs
- Worsens air quality
- Can cause death



Spread of Disease

- Insects, ticks and rodents to survive longer and expand range



Threats to Water Quality

- Increased flooding stresses infrastructure
- Harmful algal blooms from warm water, runoff



Disruptions to Well-Being

- Natural disasters can cause short and long-term impacts on mental health



MICHAP Priority Climate-Related Health Impacts

- Respiratory conditions (e.g., asthma)
- Heat illness
- Waterborne diseases
- Vector-borne diseases
- Physical and mental health impacts

What health impacts do you see?



Getty Images

Midland, 2020

4-7" of rain in 48 hours, 500-year flood event

Health Equity & Climate Change

- **Root causes** of climate change and health inequities are often the same.
- Climate change impacts are **not equally or fairly distributed** across people or communities.
- **Risk multiplier**: climate change exacerbates existing health and social inequities.
- Climate change actions also address and improve health inequities.

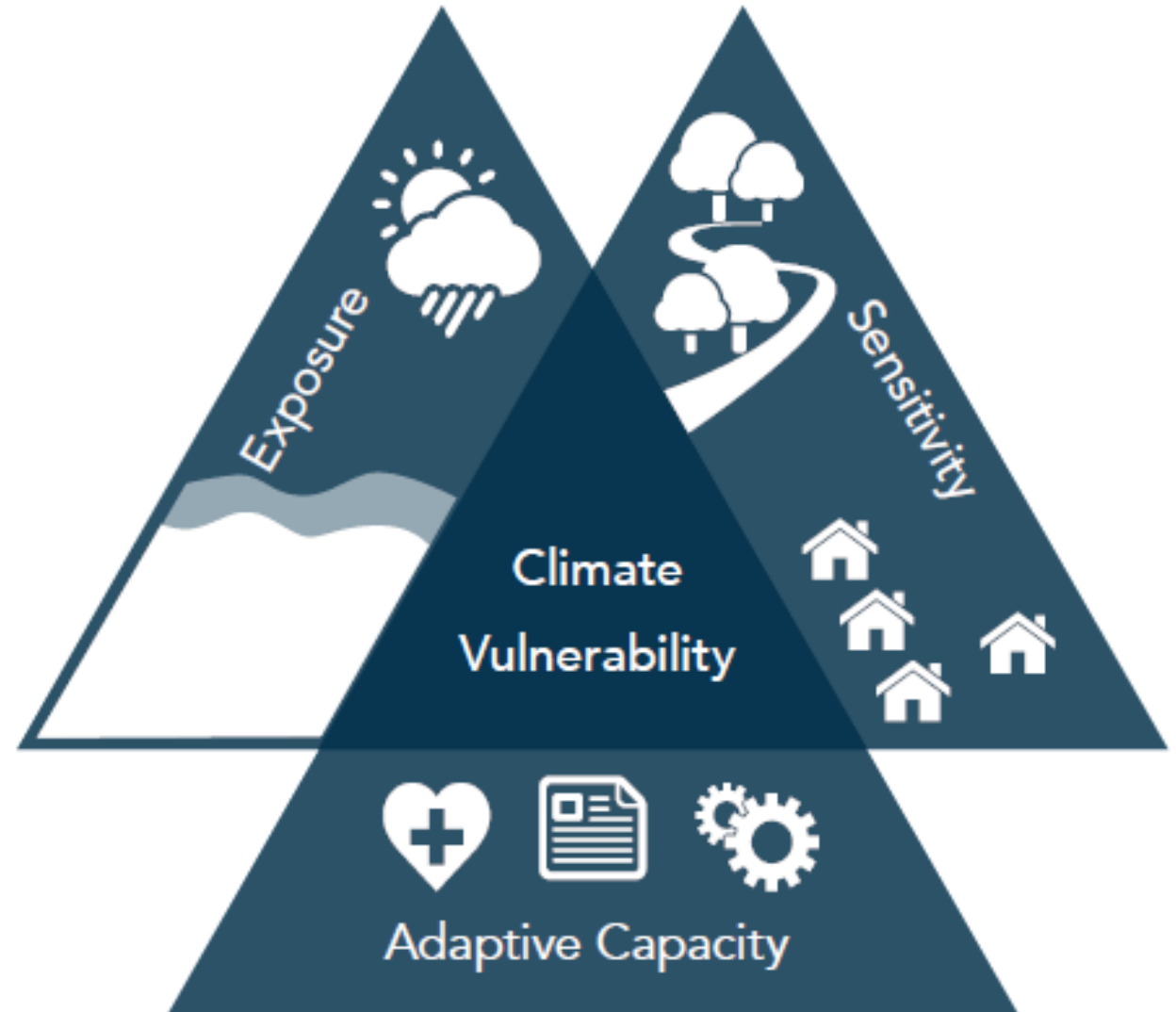


Climate Vulnerability

Exposure a person has to climate hazards, such as heat and floods

Sensitivity is the degree to which someone could be negatively impacted

Adaptative capacity/ resiliency is one's ability to adapt and respond to a climate hazard



1. Turn to your neighbor and discuss the question.

2. Share your thoughts back with the group.

- Have you noticed any differences in your community as a result of climate change?
- How has it affected your everyday life and work that you do?

What Does Michigan Climate & Health Adaptation Program (MICHAP) Do?



Our Work:

- Create health education materials
- Conduct emergency preparedness & response
- Research climate impacts to health
- Subject matter experts

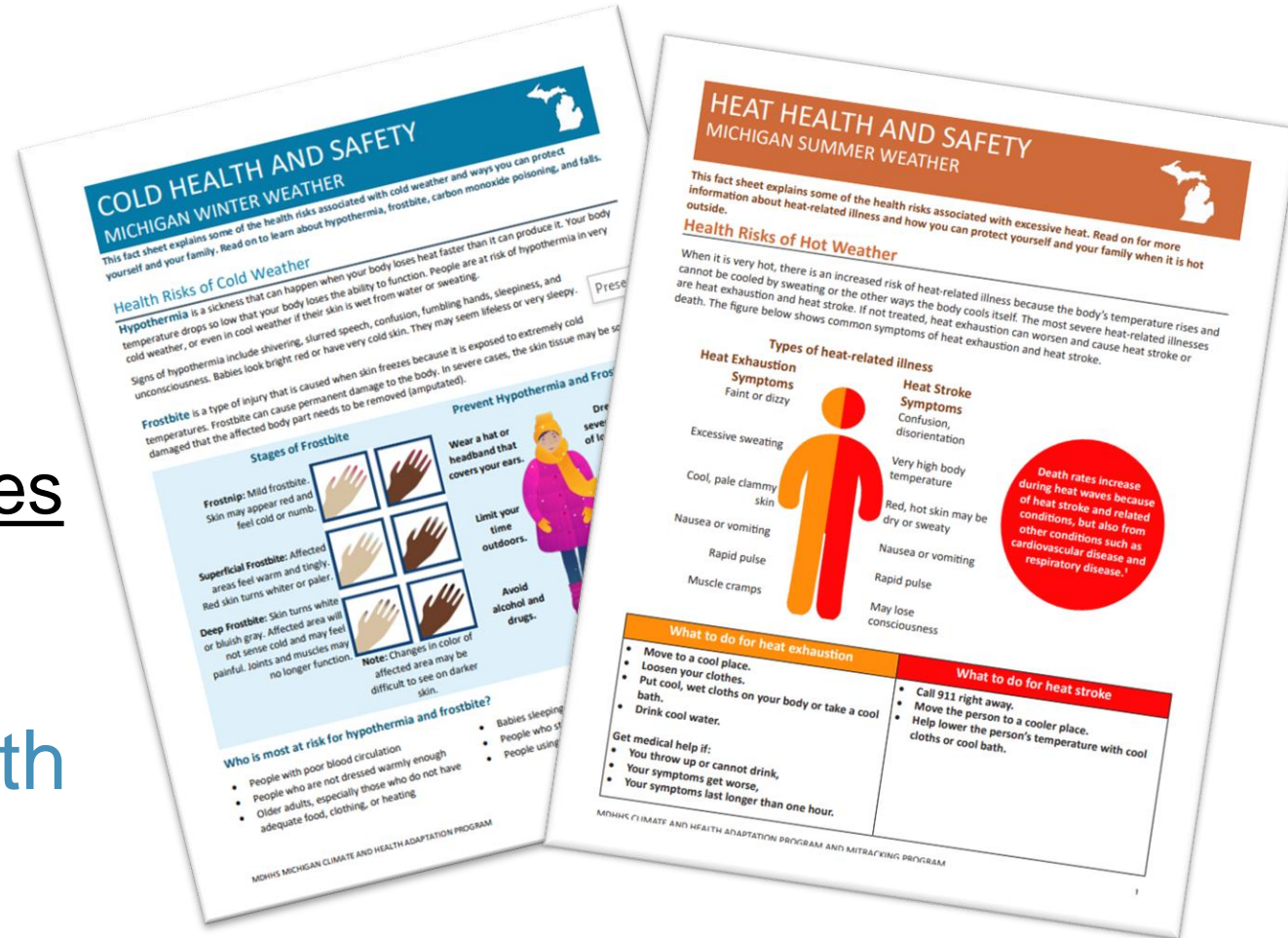
Visit www.Michigan.gov/climateandhealth for more information.

MDHHS Division of Environmental Health

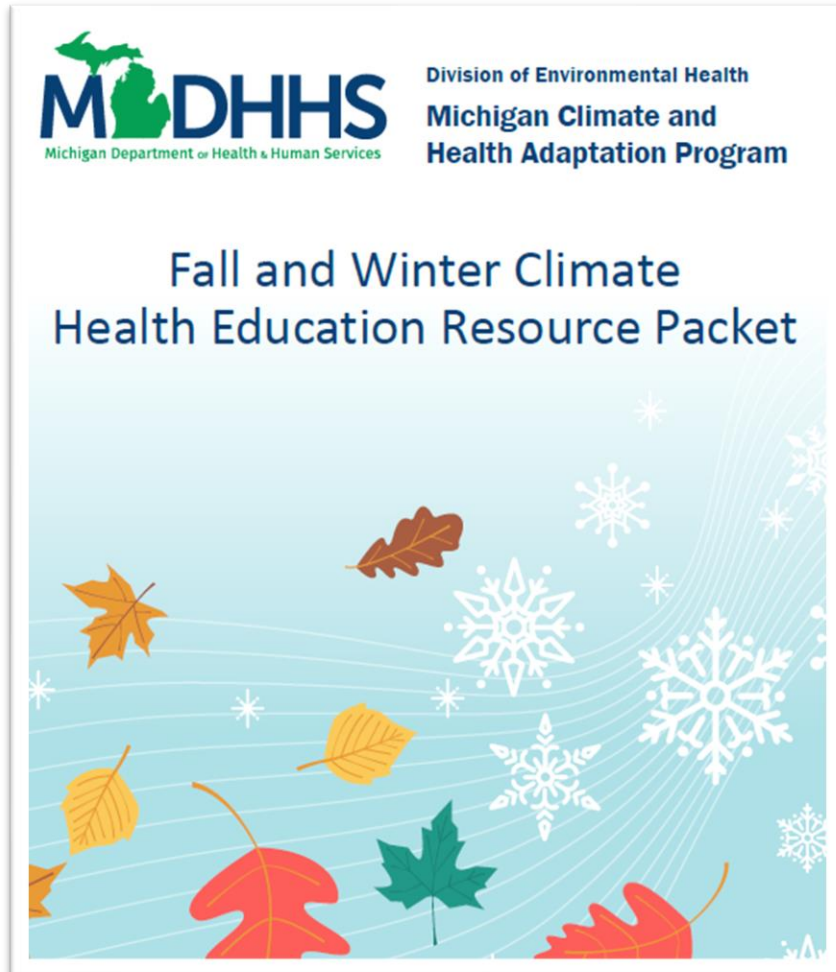
Communication Materials

- Fact sheets
 - Cold Health and Safety (Spanish)
 - Heat Health and Safety (Spanish, Arabic, Bengali)
 - Flood Health and Safety series

Visit
Michigan.gov/climateandhealth



Seasonal Resource Packets



How does the changing climate affect fall and winter health and safety?

Ticks can stay active longer into the fall because of warmer temperatures. In Michigan, the blacklegged tick that transmits Lyme disease is active when outdoor temperatures are above 40°F. ([MDHHS Emerging, Zoonotic, and Infectious Disease](#))

Carbon monoxide (CO) poisoning can occur from exposure to unvented space heaters, malfunctioning furnaces, gas or fuel-burning appliances, or generators when improperly used to heat a home during cold weather or power outages.

Extreme cold temperatures can cause frostbite and hypothermia.

Winter storms create slick conditions, leading to slips and falls and dangerous roads. ([Michigan Prepares](#))

How to prepare:



Know how to prevent tick bites when outdoors.



Install carbon monoxide alarms in your home and check the batteries regularly.



Prepare an [emergency kit](#) for your home and car.



Sign up to receive local emergency alerts or alerts through the [FEMA app](#).



[Weatherize your home](#) to increase indoor thermal comfort.



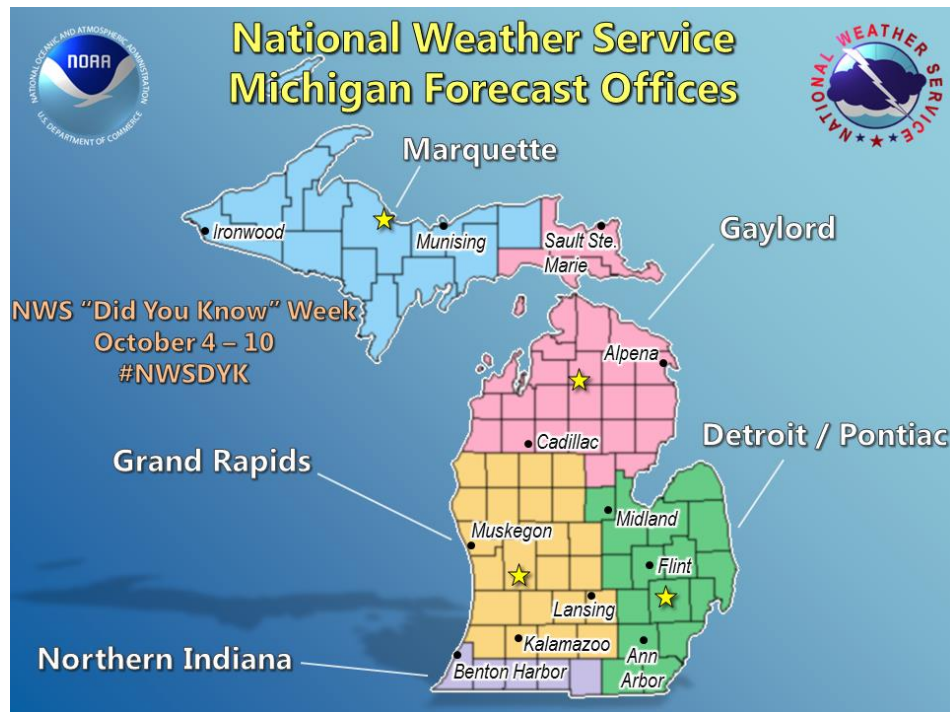
Know where warming centers are located in the event of extreme weather; usually county or city emergency management websites have information on warming center locations.

Climate & Health Adaptation Planning



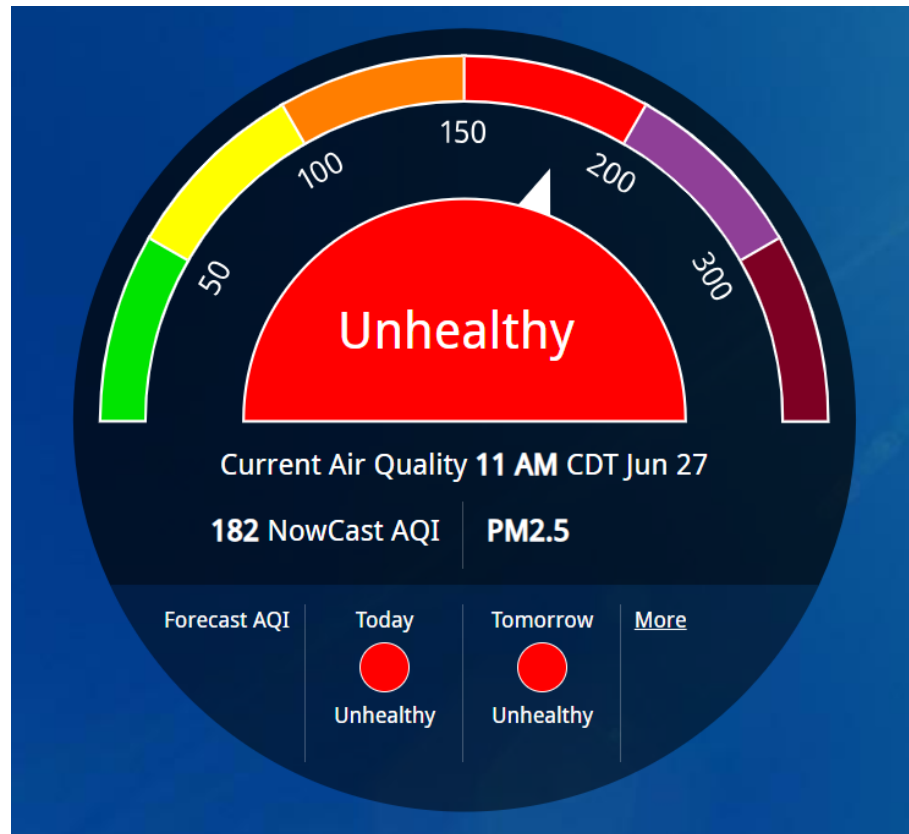
- Health in All Policies
- Outlines process for creating a municipal plan to reduce/prevent health impacts of climate change
- Local health as stakeholder in effort led by local government

Emergency Response & Syndromic Surveillance



- Monitor syndromic surveillance and National Weather Service alerts
- Based on alert:
 1. Message through **Michigan Health Alert Network (MI-HAN)**
 2. Post social media
 3. Issue press releases
- Seasonal reports and data analysis

Wildfire Smoke Events



- Local health on the “front line” of local impacts from climate change
- Wildfire smoke response involved EGLE, MDHHS and LHDs
- Division of Environmental Health created response process and communication materials
 - Coordinated with EGLE for smoke forecasts
 - Convened Agile Workgroup with LHD staff
 - Developed communication materials to help alert public to health impacts of smoke
- Demonstrates the **agility** of public health workforce and **urgent need** for our work

Climate Health Perceptions & Priorities

Table 2 Michigan LHD responses about the impact and prioritization of climate change ($n = 34$)

	Percent
My jurisdiction has experienced climate change in the past 20 years. (Median: 3, Agree) ^a	
Strongly Agree	15
Agree	47
Disagree or Strongly Disagree ^b	12
Don't Know	26

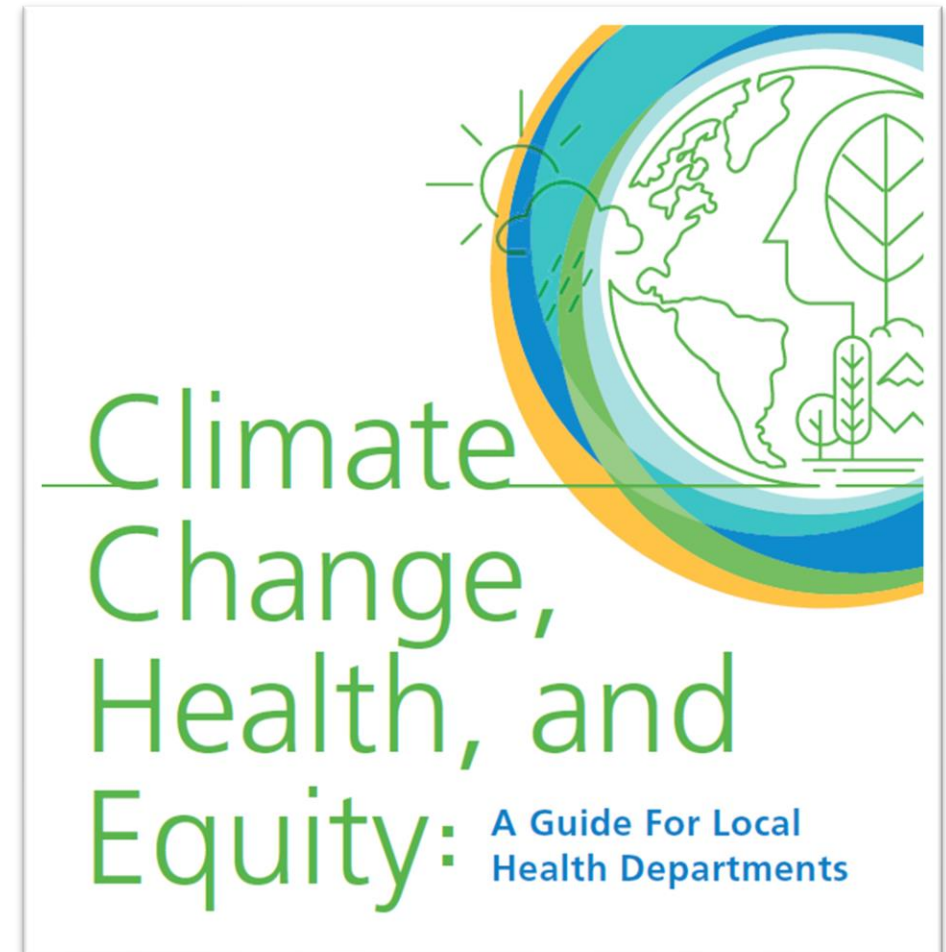
Preparing to deal with the public health effects of climate change is a priority of my health department. (Median: 2, Disagree)^a

Strongly Agree	0
Agree	35
Disagree or Strongly Disagree ^b	56
Don't Know	9

- U of Michigan study, “Assessing perceptions and priorities for health impacts of climate change within local Michigan health departments”, Carter 2021
- **Opportunities** for education and partnership to bolster preparedness
- **Challenge** to address climate impacts to health through LHD traditional roles

Local Health & Climate Change

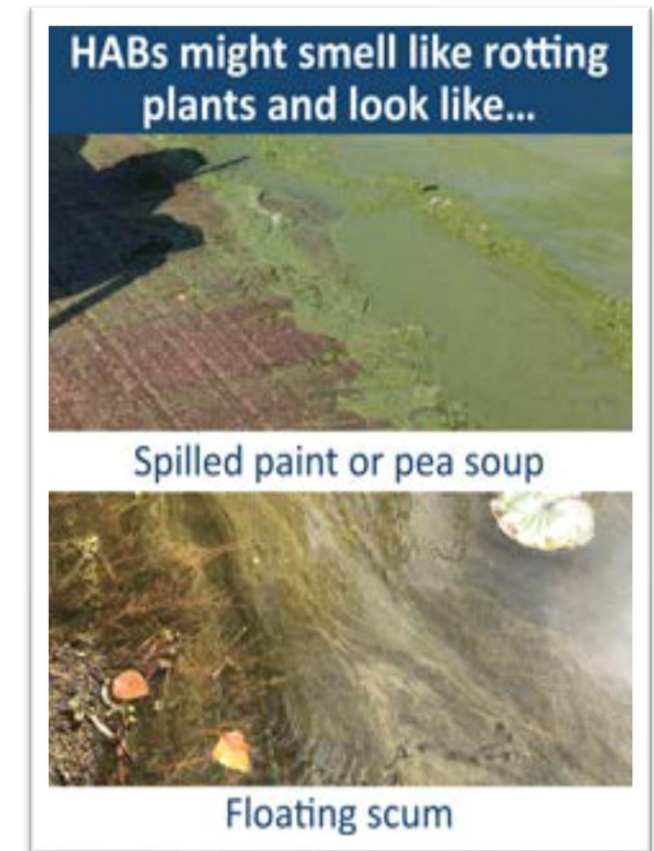
- Local health on the front lines of climate impacts in communities
- Addressing climate impacts to health aligns with 10 Essential PH Services
- Trusted source of information and education
- Already work on health equity and community resilience, add climate health lens



- Assessment and surveillance for climate change and health
- Intersectoral collaboration – health in all policies and local government partnerships
- Community engagement and education

Infectious & Communicable Disease Control & Climate Change

- Vector-borne disease: warmer seasons contributing to geographic spread of mosquitoes and ticks
- Foodborne disease: foodborne pathogens can increase with warmer temperatures and drought
- Waterborne disease: flooding impacts drinking water and septic systems; harmful algal blooms



Maternal, Child, Adolescent & Family Health & Climate Change

- Extreme heat increases risk of preterm birth, low birth weight, and infant mortality
- Poor air quality (ozone or PM 2.5) is associated with increased risk of low birth weight and infant mortality
 - Smoke from wildfires associated with increased risks of premature death, ED visits, hospitalizations
- Children and teens are vulnerable to heat stress
 - Heat illness leading cause of death and disability of teen athletes



Environmental Health & Climate Change

- Food safety: extreme weather can disrupt food chains, increase spoilage (impacts to inspections)
- Vector control
- Water access and quality (HABs, wells)
- Solid waste (CSOs, private septic)
- Emergency response & hazard mitigation: heat and cold action plans, hazardous waste and floods/disaster
- Air Quality



Chronic Disease & Injury Prevention & Climate Change

- People with chronic disease are often most at risk of climate impacts to health
 - Cardiovascular and respiratory diseases put people at higher risk of health impacts from extreme heat and wildfire smoke
- Climate-driven disasters (extreme storms and floods) disrupt people's ability to access healthcare, food, ability to exercise, etc.
- Climate action to reduce greenhouse gas emissions will help reduce some types of chronic disease (e.g., asthma)



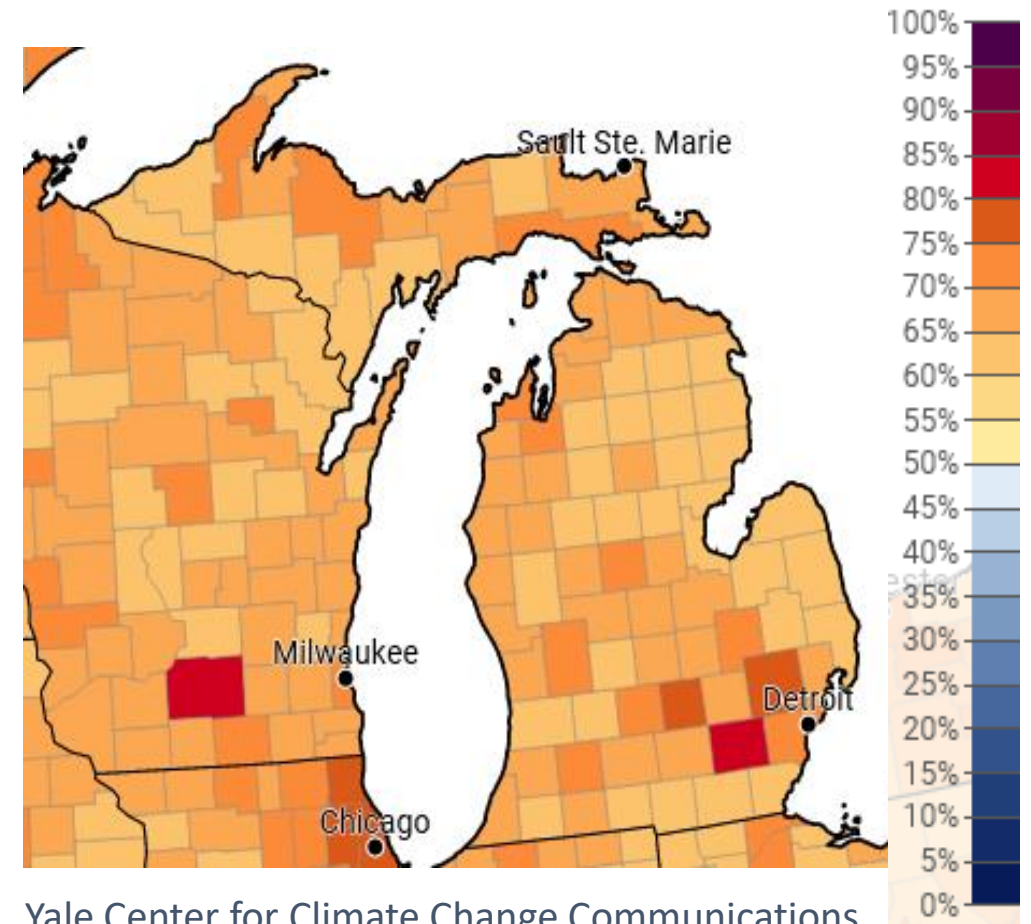
Public Health Preparedness & Emergency Response & Climate Change

- Climate change is increasing frequency and severity of extreme weather events
- Climate change exacerbates existing health, social, and economic inequities (impacting ability to recover from weather events)
- Emergency preparedness staff are positioned to incorporate climate change impacts into emergency preparedness, response, recovery efforts



Talking About Climate Change

- 70% of Michigan adults believe global warming is happening
 - No county has less than 60% that believe global warming is happening
- However, few talk about climate change because they may believe friends and neighbors do not believe in it, think it is too political



Yale Center for Climate Change Communications,
2021

For more climate health information:

- [Michigan.gov/climateandhealth](https://michigan.gov/climateandhealth) (MICHAP)
- [CDC Climate and Health](https://www.cdc.gov/climateandhealth/)
- [Climate Change and Health Equity from APHA](https://www.apha.gov/Climate-Change-and-Health-Equity)

Funding:

- [National Association of County and City Health Officials \(NACCHO\) – Climate Change](https://www.naccho.org/Climate-Change)

Climate data:

- [Great Lakes Climatology Interactive Map \(GLISA\)](https://www.greatlakesclimate.org/)
- [MiTracking](https://mi-tracking.com/) (MDHHS)

Climate & Health Webinar Series



Four-part, virtual “**Climate and Health**” trainings for LHD staff:

- Tuesday, January 23, 10 AM
- Tuesday, January 30, 10 AM
- Tuesday, February 6, 10 AM
- Tuesday, February 13, 10 AM

Look for emails from MALPH and MALEHA for registration in November!

1. Turn to your neighbor and discuss the question.

2. Share your thoughts back with the group.

- How can your LHD start to address the health effects of climate change with your given resources?

1. Turn to your neighbor and discuss the question.

2. Share your thoughts back with the group.

- How can the Climate and Health Adaptation Program and MDHHS Division of Environmental Health support you in addressing the health effects of climate change?

Questions?



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Visit www.Michigan.gov/climateandhealth for more information or to sign up for our newsletter!