

EXTREME HEAT IN MICHIGAN

Heat is a significant threat to public health in the United States. According to the National Oceanic and Atmospheric Administration (NOAA), heat has claimed more lives on average over the past ten years than any other severe weather event. This death toll is expected to increase with climate change. For example, the US Global Change Research Program's projections for Chicago, suggest that the average number of deaths due to heat waves would more than double by 2050 under a lower greenhouse gas emissions scenario and quadruple under a higher greenhouse gas emissions scenario.

The magnitude of deaths and illnesses from extreme heat events is often underreported and little understood by the general public. Extreme heat events do not typically make the news headlines compared to other extreme weather events, such as tornadoes and floods, and they do not leave a lasting trail of

infrastructural damage that continuously reminds people of their impact. Therefore, extreme heat events have been called the "silent killers."

Michigan's heat wave in early July led to many people being medically affected by the heat. During the 10 hottest days of the heat wave, heat-related emergency department (ED) visits increased 89 percent from the previous 10-day period, with 734 ED visits compared to 389. The hottest day, July 7, set record temperatures of more than 100 degrees in many parts of Michigan with more than 115 heat-related ED visits at 87 facilities. Throughout the United States, heat was cited as a factor in at least 30 deaths during this heat wave, mostly among the elderly.

Everyone is susceptible to illnesses due to extreme heat; however, certain characteristics can increase a person's risk. Demographic characteristics, social and behavioral factors, and geography/location may affect the ability of an individual to maintain normal body temperature and

stay hydrated. Certain populations may have more than one characteristic/risk factor that could put them at increased risk. The table below lists characteristics that increase the risk of experiencing illness and death from extreme heat.

Identification of populations that are more vulnerable to extreme heat events is useful for targeting limited resources to people who need additional aid during an extreme heat event and an important strategy for preventing negative health outcomes from extreme heat.

The Michigan Department of Community Health's - Climate & Health Adaptation Program (MIHCAP) has partnered with academic experts, community planners, nonprofits and local health departments to address heat-related risks in Michigan. This includes outreach and educational activities targeting vulnerable populations, as well as monitoring for increases in heat-related illnesses and deaths.

Mounting evidence shows that the Earth's climate is changing. The United Nations Intergovernmental Panel on Climate Change (IPCC) concludes that "warming of the climate system is unequivocal, as is now evident from observations of increases in global average sea level."

Characteristics that Increase the Risk of Heat-Related Illness

Demographic characteristics

- Age - Older adults: persons 65 years old or older
- Children: children ages five years and younger (including infants)
- Economic constraints: persons living at or below poverty line
- Persons with pre-existing diseases or mental health conditions
- Persons on certain medications

Social/Behaviors factors

- Social isolation: persons living alone, especially the elderly
- Prolonged exposure to the sun
- Use of alcohol

Geographic/location factors

- Living in urban areas
- Lack of air conditioners
- Living in top floor apartments
- Living in nursing homes/bedridden

Climate Change is detrimental for people.

"Climate change is one of the most serious public health threats facing our nation. Yet few Americans are aware of the very real consequences of climate change on the health of our communities, our families and our children."

-Georges Benjamin, MD,
Executive Director
American Public
Health Association

CLIMATE CHANGE IN THE GREAT LAKES REGION

Climate change is already having an effect in the Great Lakes region. Michigan is now on the threshold of a period when these changes will happen more rapidly and visibly in the years and decades to come. Here in the Great Lakes region, the following signs are being recorded:

- Average temperatures, especially in winter and at nighttime, are rising.
- Extreme rainfall events (24-hour and 7-day) are becoming more frequent.
- Winters have become shorter.
- Data show that ice cover duration on the Great Lakes and smaller lakes is becoming shorter.
- Snowfall amounts are likely to decrease due to the lack of ice cover and warmer atmosphere.
- There are a number of signs that spring is coming earlier:
 - trees are leafing out earlier,
 - spring flowers are blooming earlier,
 - spring flowers are blooming earlier,
- Cherry trees in northwest lower peninsula are blooming about three weeks early, making them susceptible to frost, freeze, and loss of crops.

Check out the Great Lakes Integrated Sciences & Assessments ([GLISA](#))¹ to learn more about how climate change impacts Michigan.

CLIMATE CHANGE & DISASTER

The MDCH-Bureau of Disease Control, Prevention, and Epidemiology in partnership with the Office of Public Health Preparedness is developing a Natural Disasters (ND) annex to incorporate into the MDCH Emergency Operations Plan (EOP).

The ND Annex will include plans for response to severe weather events such as extreme heat, floods, tornadoes, thunderstorms, and wildfires that will increase with climate change.

The Annex will describe the responsibilities of MDCH in a public health emergency

involving natural disasters and provide essential information to support the public health response.

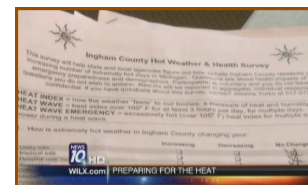
The Annex can serve as a model for local health department's EOPs. It is expected to be finalized by December 2012.

MICHIGAN HOT WEATHER SURVEY REPORTS

During the summer of 2011, MICHAP worked with the Ingham County Health Department (ICHD) and the Washtenaw County Public Health Department (WCPHD) to develop and pilot heat vulnerability assessment surveys. These surveys were used to evaluate the potential effects of heat events on vulnerable populations in Washtenaw and Ingham Counties.

The results of these assessments are being incorporated in adaptation planning and emergency preparedness activities in these two communities.

Select the links here to review each report and survey. For more information contact Dominic Smith at (517) 335-8139 or at smithd82@michigan.gov.



• [Ingham County Hot Weather Health Report, Data Analysis, & Survey²](#)

• [Washtenaw Hot Weather & Health Report & Survey³](#)

HEALTH IMPACT ASSESSMENT (HIA) GRANT AWARDS

A Centers for Disease Control & Prevention (CDC) priority is the development of public health capacity to bring health into policy and planning by utilizing tools such as HIA. To this end, MICHAP's capacity building initiatives have included 1) HIA training for local health departments and city, county, and urban planners; 2) providing technical assistance during the HIA process; and 3) funding support to several local health departments (LHDs) for climate change and sustainability related HIAs.

MICHAP is currently funding 2 HIA projects:

1) Ingham County Health Department (ICHD) is conducting an HIA of key motorized transportation elements of the City of East Lansing's draft Climate Sustainability Plan and Non-Motorized Transportation Plan. The East Lansing HIA will help city and health department decision makers evaluate options for climate sustainability improvement projects and make recommendations to improve both personal health and

environmental benefits.

2) The City of Grand Rapids Planning Department, along with Kent County Health Department is using HIA to contribute to the evaluation of three development scenarios of the Michigan Street Corridor. This HIA will address issues to alleviate traffic congestion, accommodate additional land development, ensure access to housing and needed services for disadvantaged populations, and improve the physical health and wellbeing of the community.

Congratulations to Ingham County Health Department and Grand Rapids for their efforts to build capacity in Michigan for HIA.

Learn More About HIA

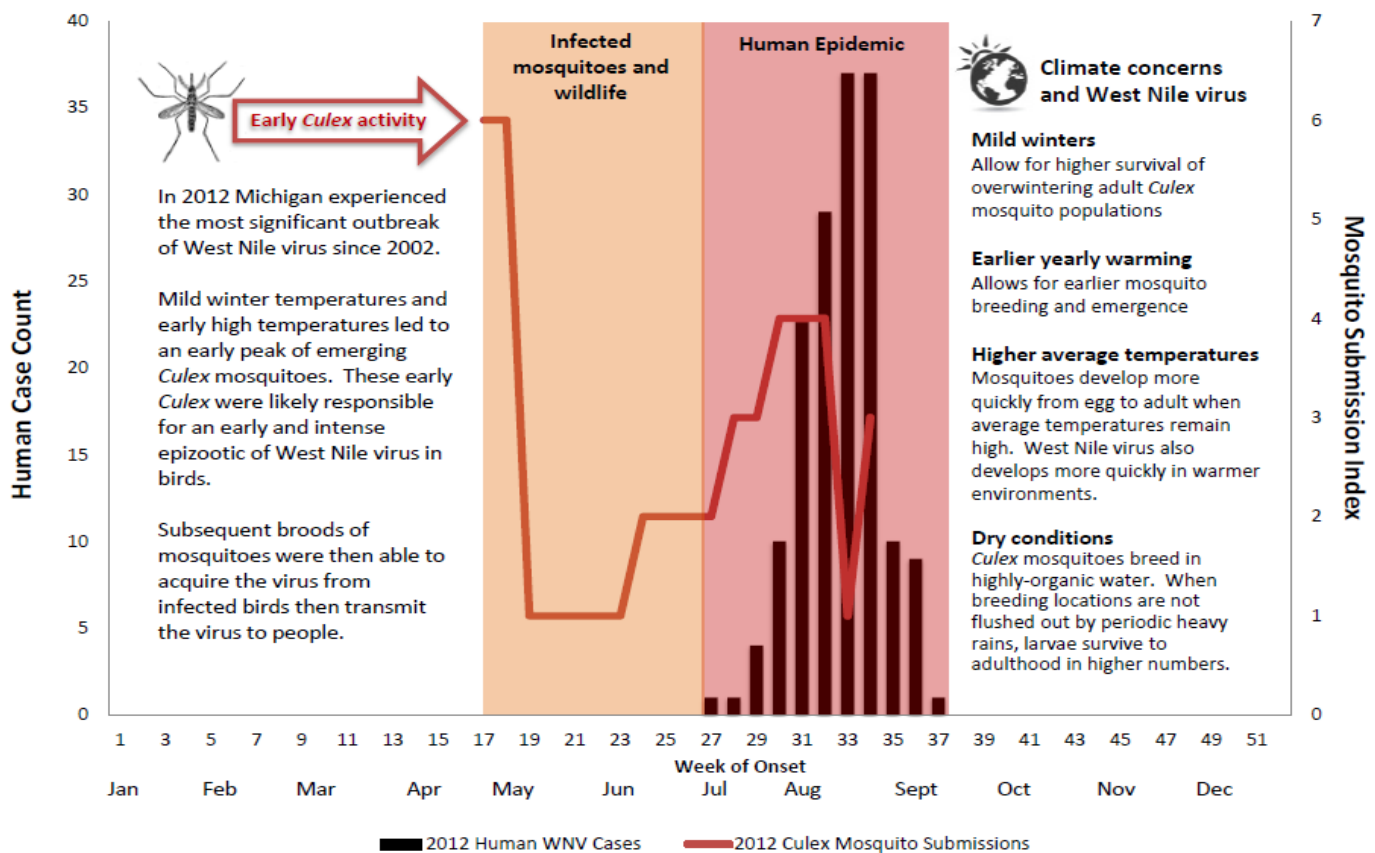
[CDC Healthy Places⁴](#)

[Human Impact Partners⁵](#)

[Health Impact Project⁶](#)

[World Health Organization⁷](#)

HOW DOES CLIMATE CHANGE AFFECT WEST NILE VIRUS (WNV)?



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NEW!! A Michigan-specific climate change indicator report will be available winter 2012. Local health departments, decision makers, and climate scientists can use the report as a resource for climate change projects.

QUICK ACCESS TO URLS

1. [Great Lakes Integrated Sciences & Assessments \(GLISA\)](#)

2. [Ingham County Hot Weather Health Report/Data Analysis/Survey](#)

3. [Washtenaw Hot Weather & Health Survey Report](#)

4. [Centers for Disease Control & Prevention Healthy Places](#)

5. [Human Impact Partners](#)

6. [Health Impact Project](#)

7. [World Health Organization](#)

8. [Climate Change: Mastering the Public Health Role. A Practical Guidebook](#)

WHAT CAN LOCAL HEALTH DEPARTMENTS (LHDs) DO ABOUT CLIMATE CHANGE?

Given the growing number of issues facing LHDs today, the greatest challenge for the public health workforce will be to adapt to risks from climate change while also providing traditional public health services. The following list shows examples of possible adaptation strategies:

- Develop policies and plans that incorporate climate change adaptation especially for vulnerable populations.
- Determine what ZIP codes are most at risk in your jurisdictions.
- Educate colleagues about climate change as an emerging public health issue.
- Consider your agency's existing activities and assess how current efforts could respond to specific challenges of climate change.

- Encourage “green” practices in your home and workplace.
- Raise public awareness of human health effects of climate change.
- Assess your community's ability to deliver services during heat waves and other extreme weather events.
- Develop heat wave alert systems for early warning.
- Monitor the heat index, issue press releases to inform the public of dangers and offer suggestions to avoid heat related illnesses.
- Monitor air quality index, issue press releases when ozone levels exceed health threshold to inform the public to take precautions.
- Monitor pollen and other allergen information, issue press releases to inform the public to take precautions.

- Monitor infectious disease cases and outbreaks through surveillance.
- Encourage recycling and energy conservation programs.
- Encourage wellness programs.
- Incorporate climate events in to preparedness plans.
- Participate in city, county and state climate change preparedness efforts.

* [Climate Change: Mastering the Public Health Role, A Practical Guidebook](#)⁸