MiTracking: An Enhanced Tool for Data Driven Decision Making

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Gill Capper
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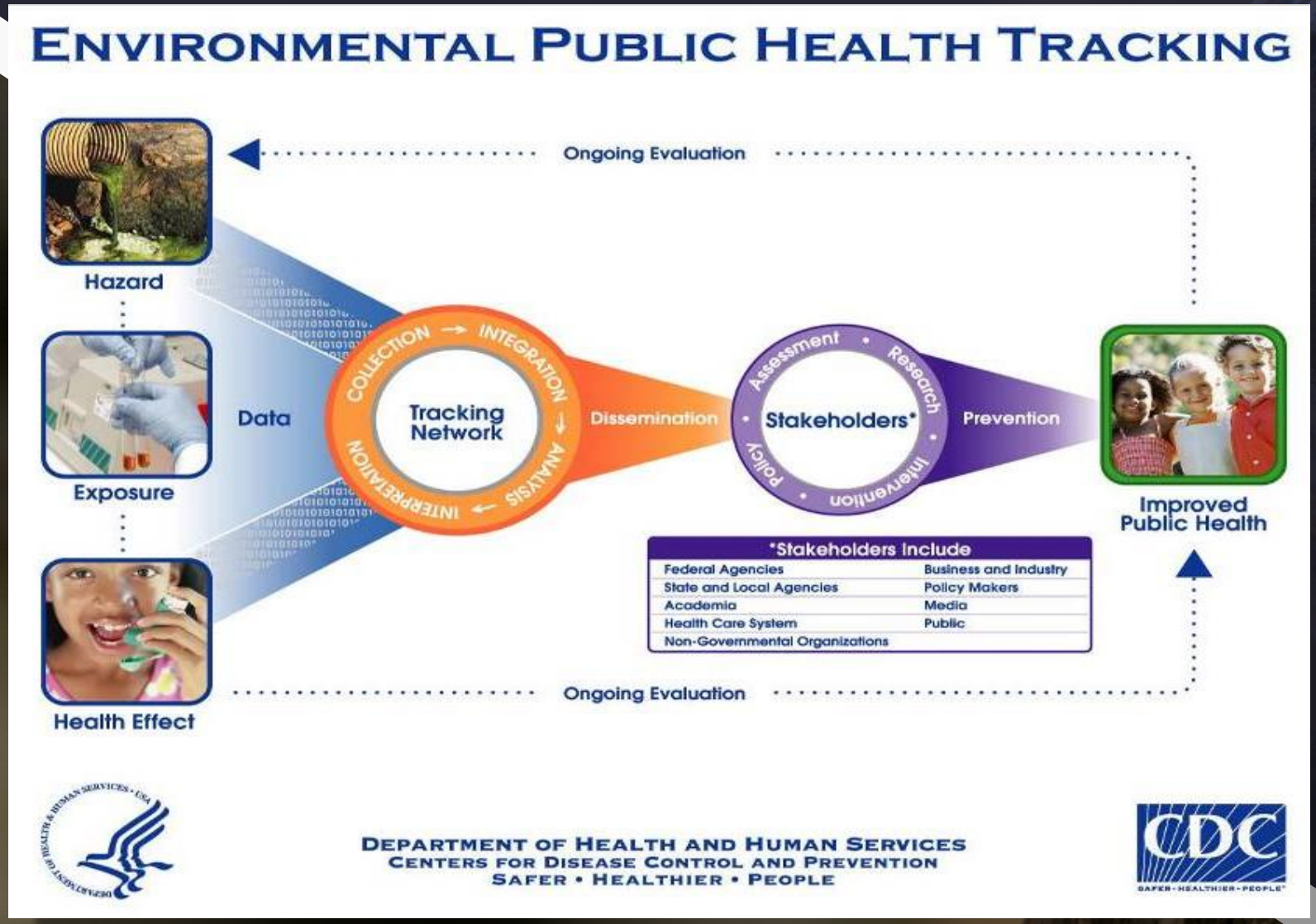
MiTracking

MDHHS
Michigan Department of Health & Human Services

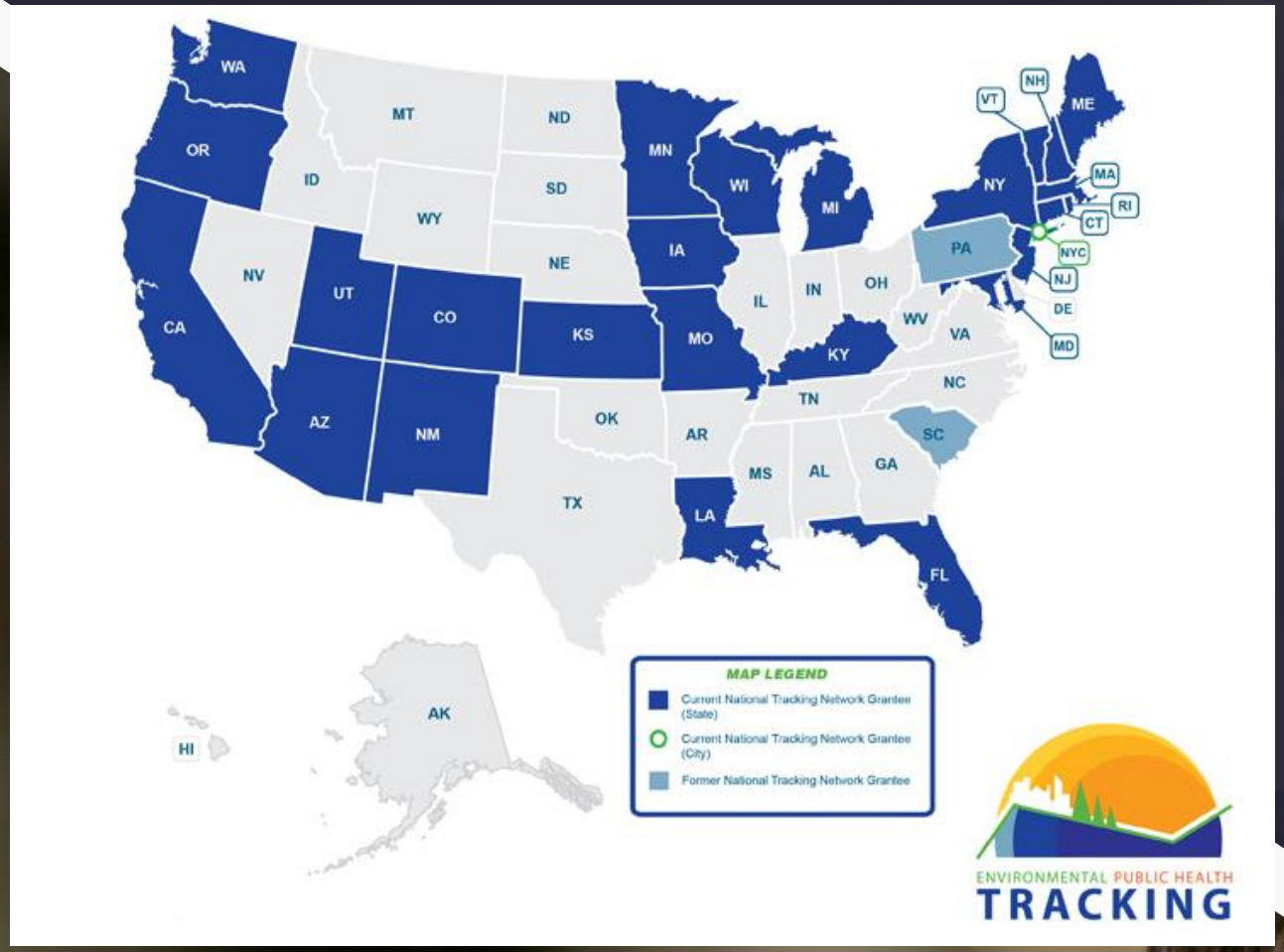
Quick Overview

- What is Tracking?
- National Tracking Program
- MiTracking data portal
- Demonstration

What is Tracking?

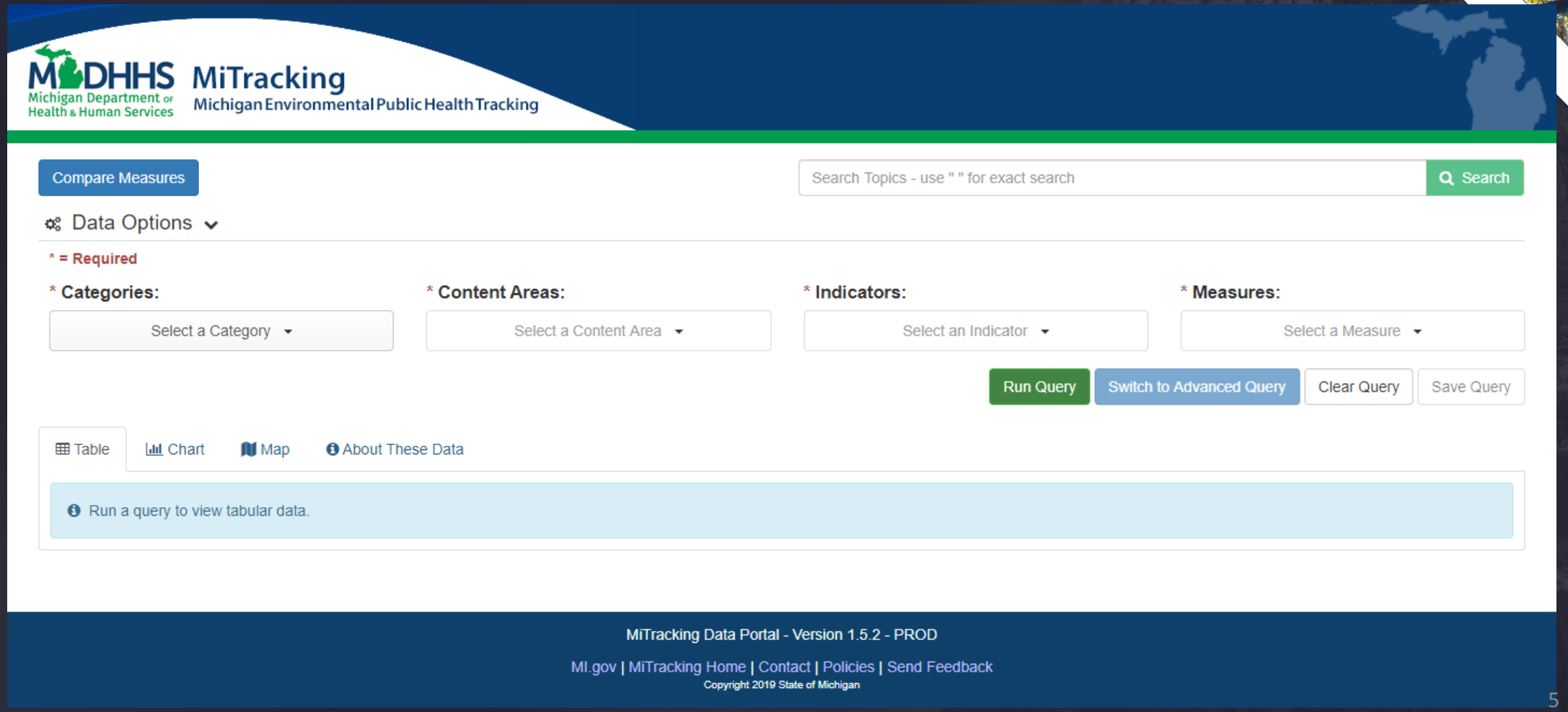


National Tracking Program



MiTracking Data Portal

Contracted with Kunz, Leigh, and Associates



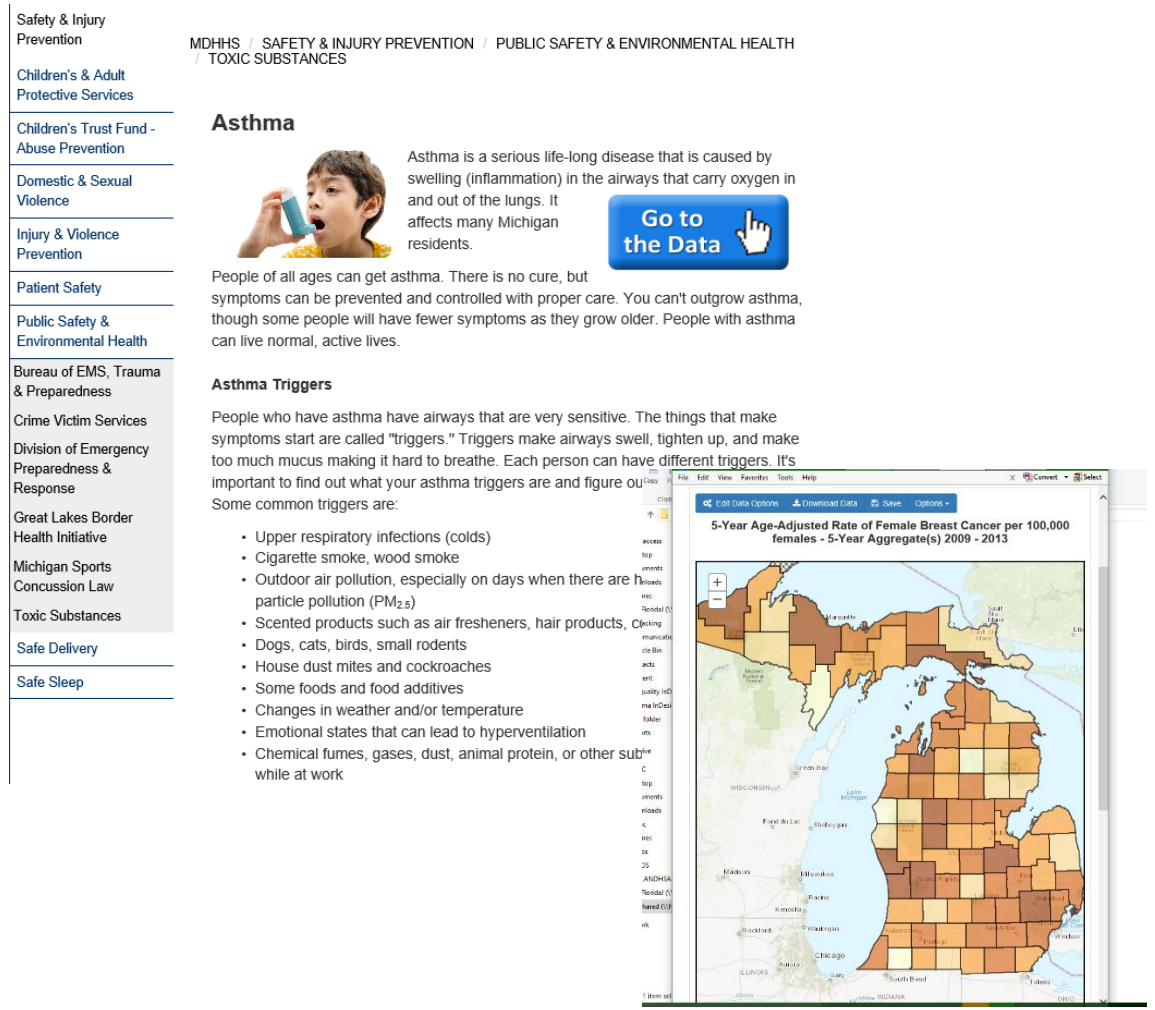
Data on the Portal

- Age of Housing
- Air Quality
- Asthma
- Birth Defects
- Cancer
- Carbon Monoxide Poisoning
- COPD
- Demographics
- Drinking Water
- Heat Illness
- Heart Attack
- Lead Exposure
- Reproductive and Birth Outcomes
- Ticks
- Work-Related Deaths & Worker's Compensation (paid wage loss claims)

Up Next:

- Drug Poisoning (Overdose) Deaths
- Climate Change
- Socioeconomics
- Lyme Disease

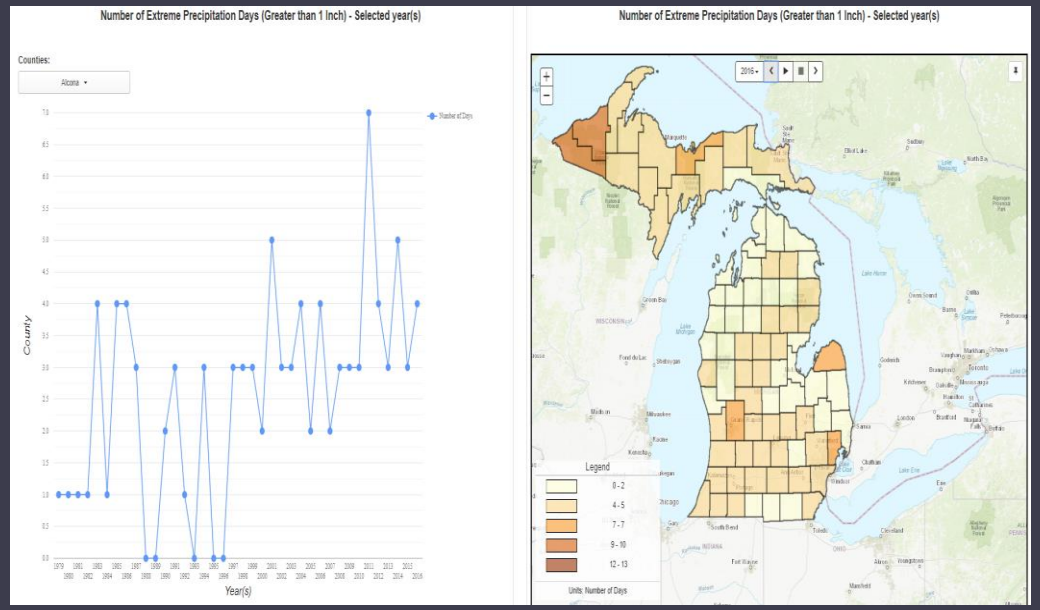
Portal Demonstration



Collaborations

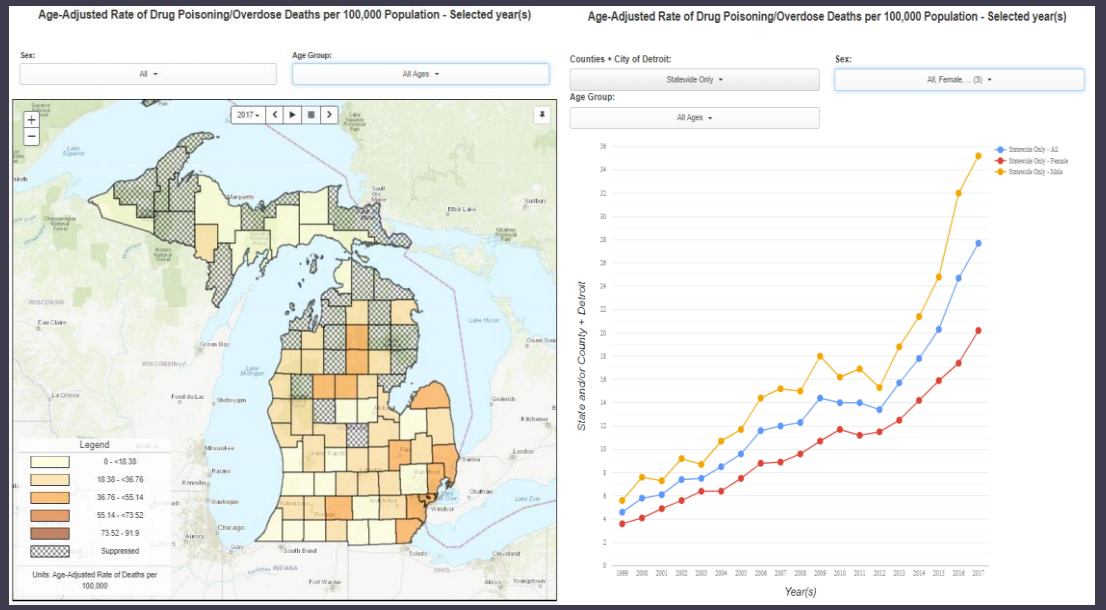
Climate and Health

- Heat & Precipitation



Drug Poisoning Surveillance

- Mortality



Climate and Health

Gill Capper

Quick Overview

- Climate change basics
- Climate change in Michigan
- Overview of climate effects on human health
- CDC’s Climate and Health Program and MICHAP
- Climate data on the MiTracking portal

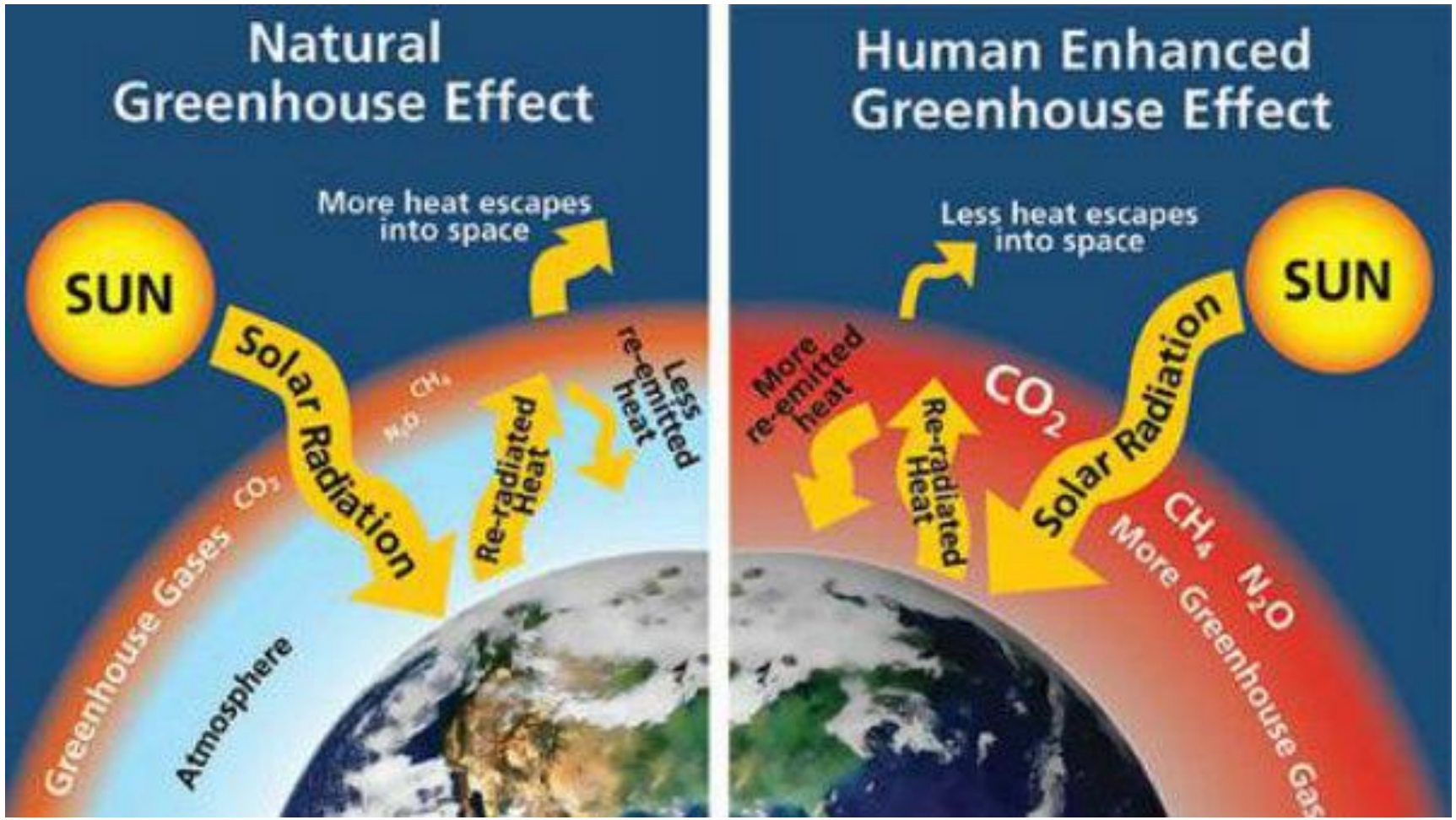
Weather, climate, or climate change?

- ***Weather*** **- Short-term** conditions at a location (temperature, wind, rain, etc.)

- ***Climate*** **- Long-term average of weather** for an extended period of time **at a certain location**

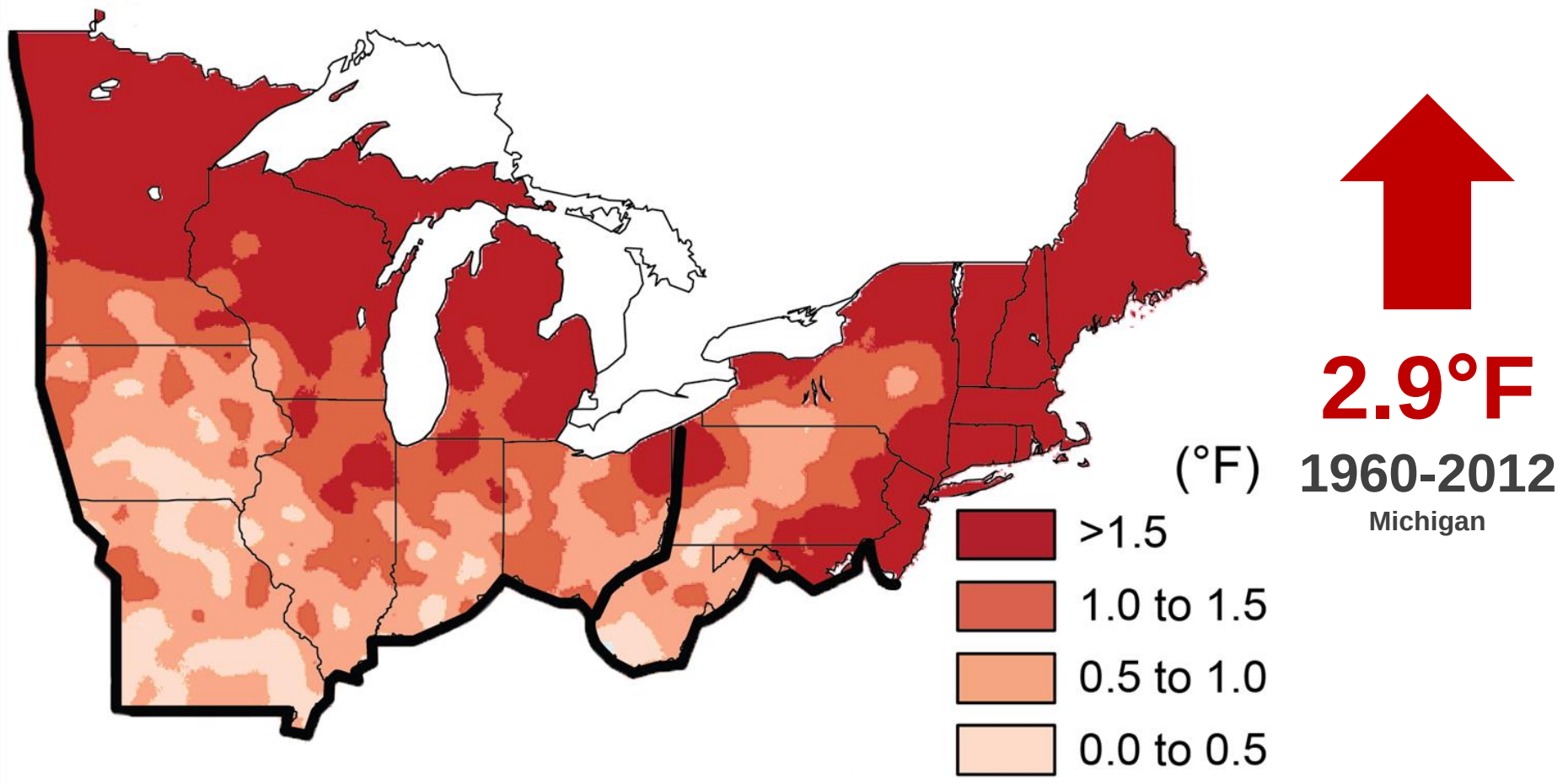
- ***Climate change*** **- Long-term continuous increase or decrease** to average weather conditions or range of weather.

Source: NASA. 2005. What's the difference between weather and climate? https://www.nasa.gov/mission_pages/noaa-n/climate/climate_weather.html



Source: U.S. Global Change Research Program. https://www.globalchange.gov/browse/multimedia/human-influence-greenhouse-effect

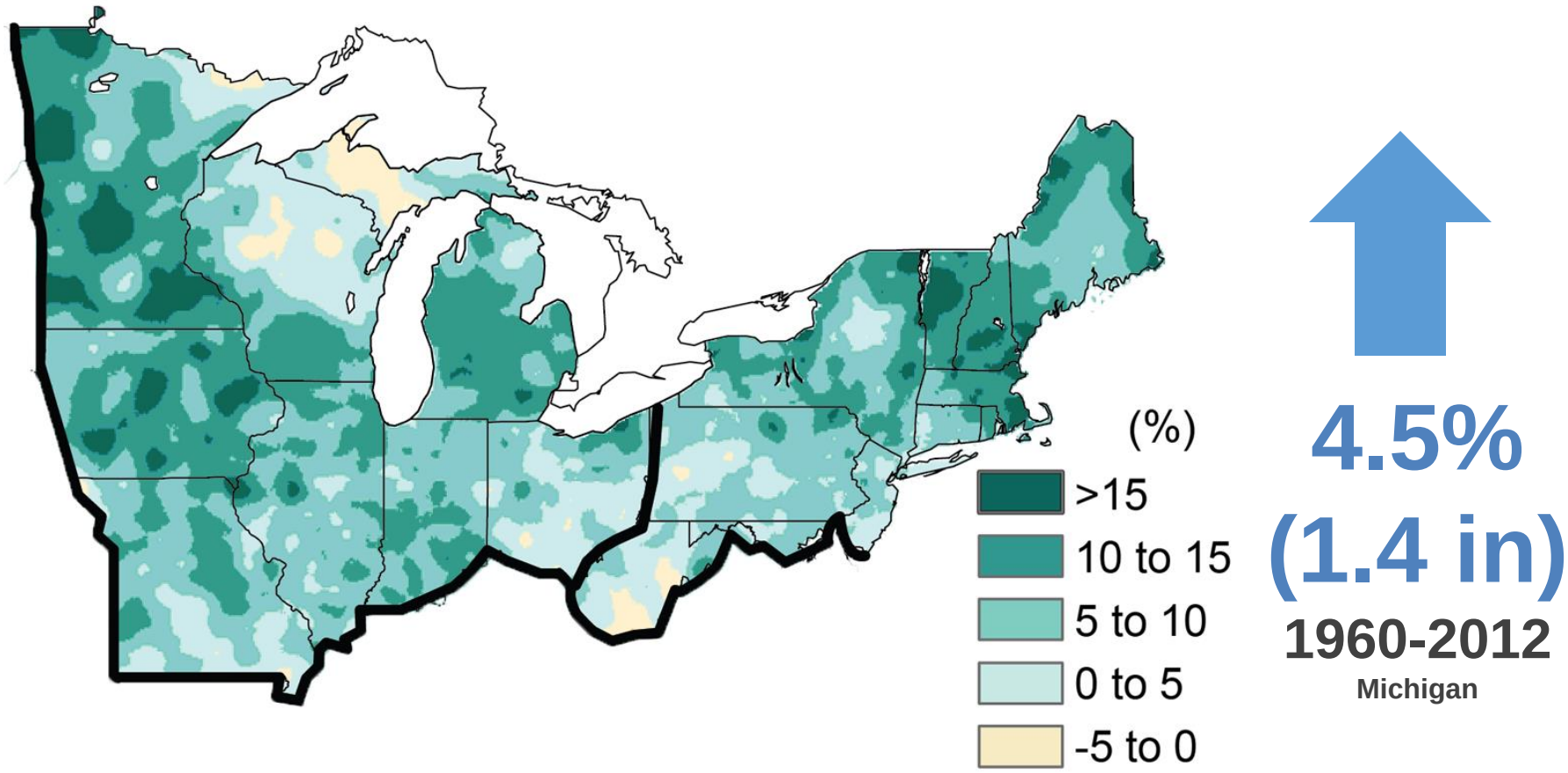
Observed Temperature Change



Michigan has warmed faster than the global and national rates.

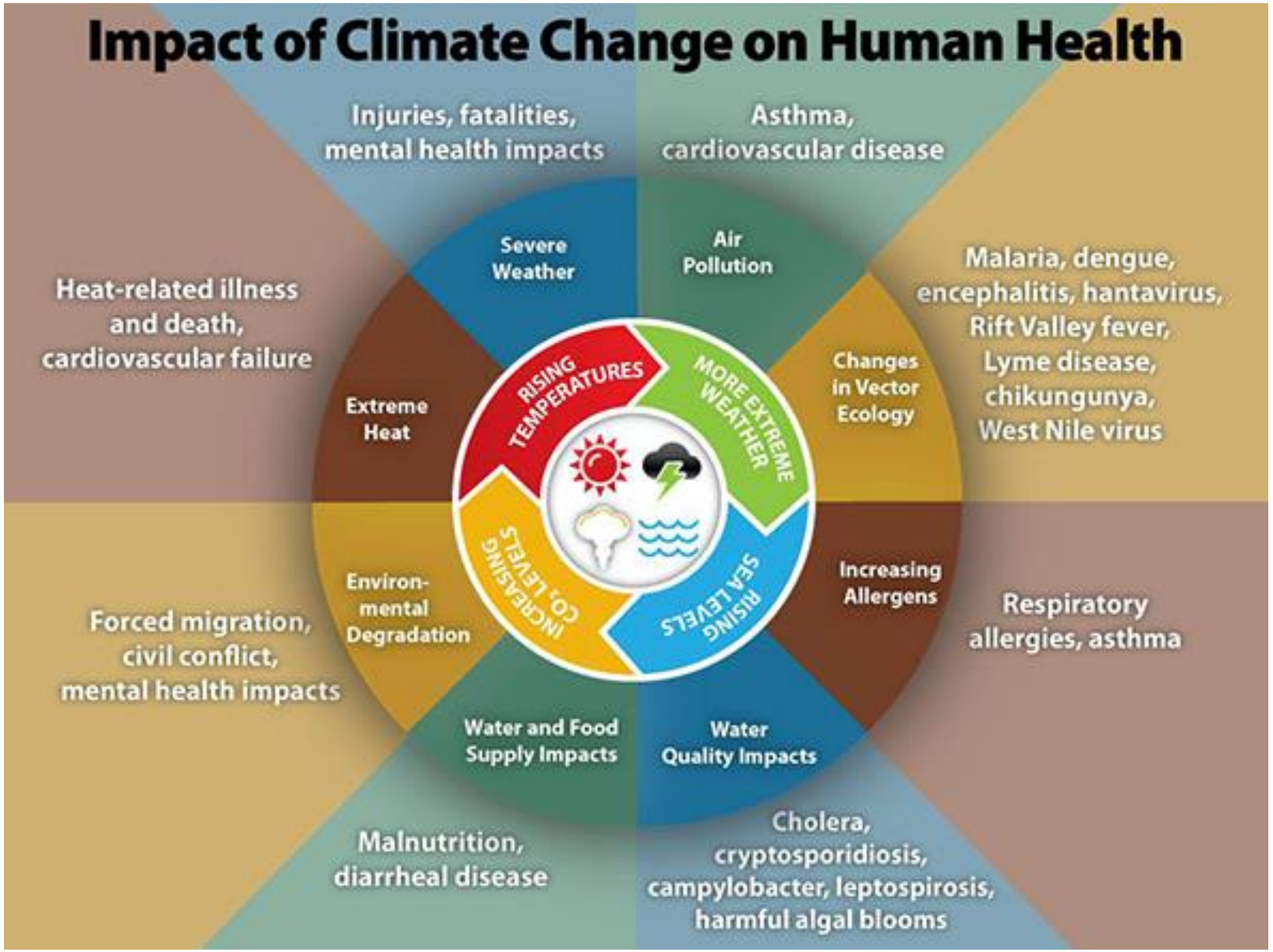
Source: Third National Climate Assessment, GLISA Analysis of nClimDiv climate divisional data.

Observed Precipitation Change



Precipitation is variable. Northwestern UP has seen declines while Michigan has seen an overall increase.

Source: Third National Climate Assessment, Weighted averages of nClimDiv divisional data from 8 U.S. Great Lakes States.



Source: CDC. 2019. Climate Effects on Health. https://www.cdc.gov/climateandhealth/effects/default.htm

AFFECTING HEALTH DIRECTLY

EXTREME HEAT

Higher heat, increased humidity, longer and more frequent heat waves can lead to:

heatstroke and heat exhaustion

More Vulnerable: Outdoor workers, student athletes, people in cities, people without air conditioning, people with chronic diseases, pregnant women, older adults, and young children.

AFFECTING HEALTH DIRECTLY

EXTREME WEATHER

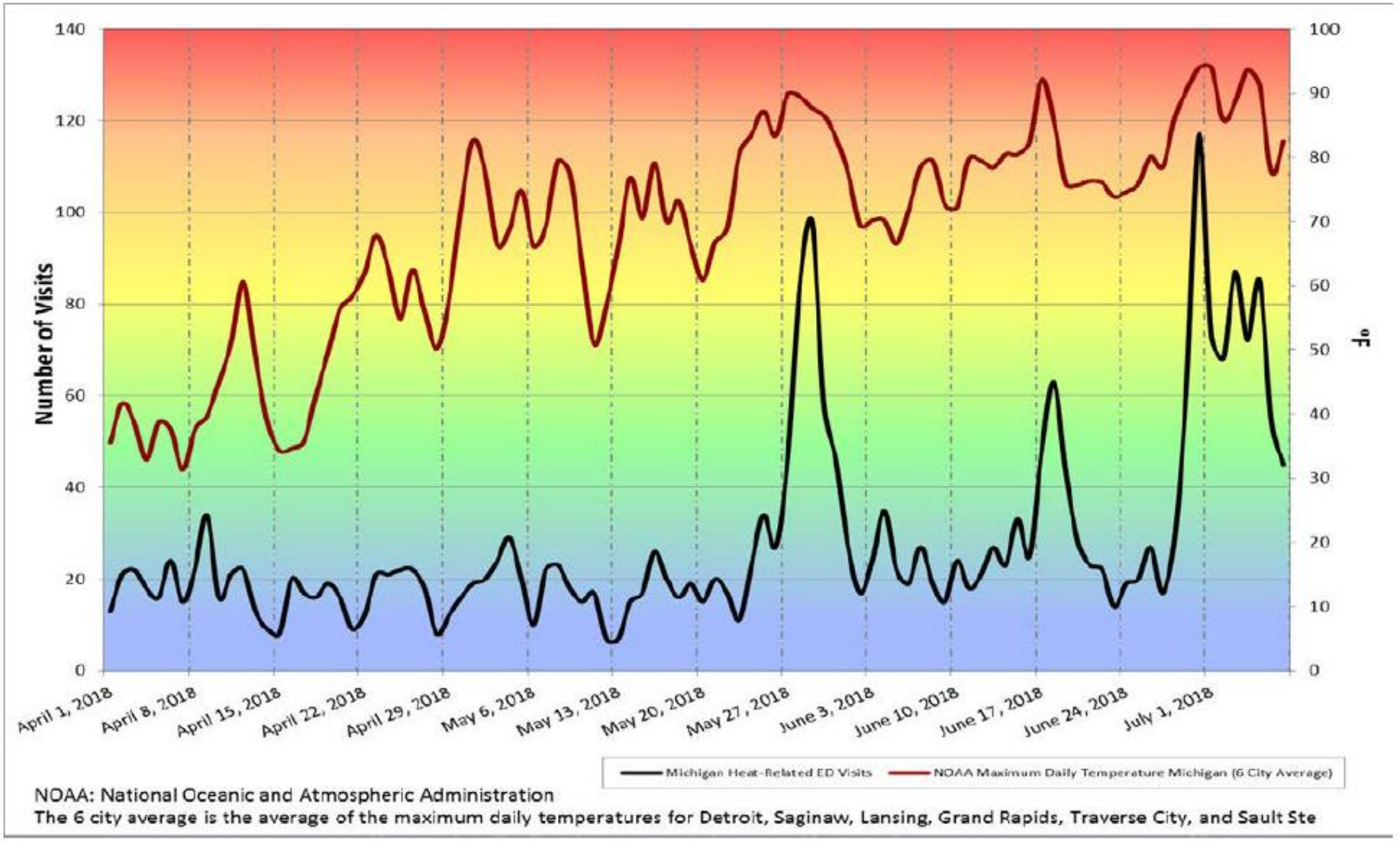
Increased frequency and severity of heavy downpours, floods, droughts, and major storms can lead to:

injury, illness, displacement, and death

More Vulnerable: People who lack access to evacuation routes, people with disabilities such as those who can't use stairs when elevators are out of service, older adults, young children, and those living in poverty.

Source: CDC, NCEH. Communicating the health effects of climate change: A toolkit for public health outreach

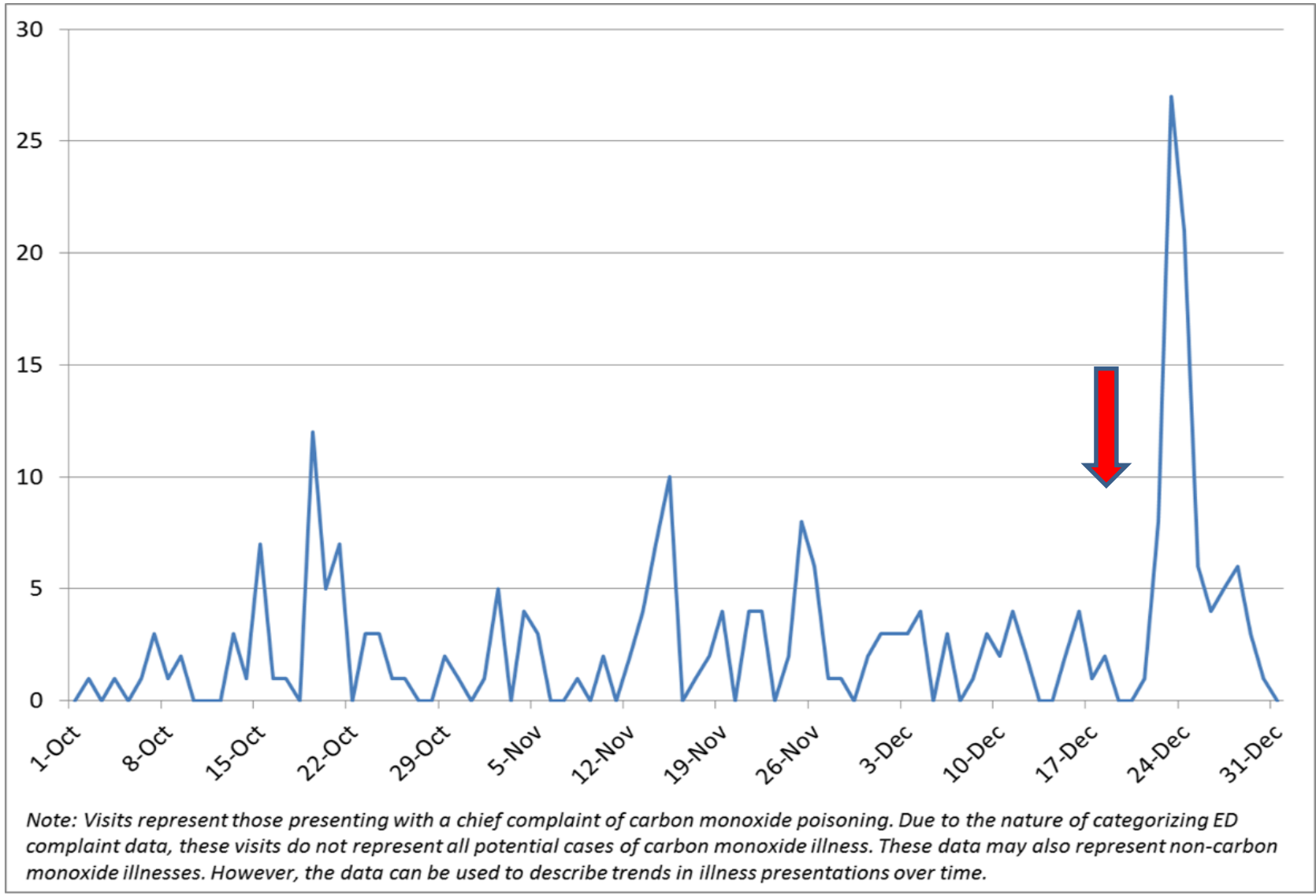
Statewide heat-related ED visits and National Oceanic and Atmospheric Administration (NOAA) maximum daily temperature averages for 6 select cities (April 1- July 7)



Data analysis by Fatema Mamou, Region 6 Epidemiologist

CO poisoning-related ED events, by date

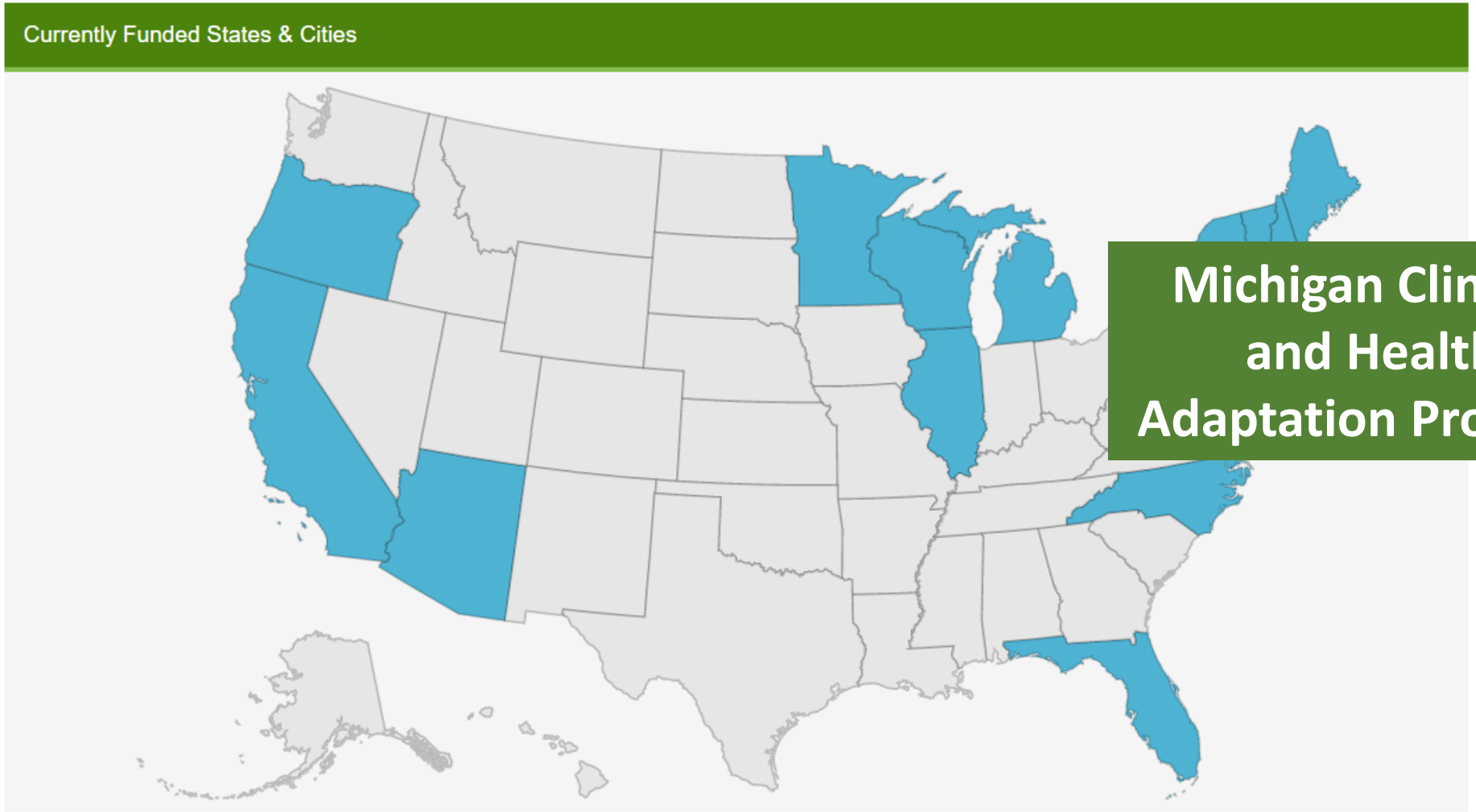
- Dec 22, 2013 storm caused 400,000 to lose power
- 81 visits from 44 households to EDs for CO-related complaint
- 360% increase over expected
- Most likely exposed via gas generators



Note: Visits represent those presenting with a chief complaint of carbon monoxide poisoning. Due to the nature of categorizing ED complaint data, these visits do not represent all potential cases of carbon monoxide illness. These data may also represent non-carbon monoxide illnesses. However, the data can be used to describe trends in illness presentations over time.

Data analysis by Fatema Mamou, Region 6 Epidemiologist

Climate-Ready States & Cities Initiative Grantees



Michigan Climate and Health Adaptation Program

Source: CDC . 2019. Climate-Ready States & Cities Initiative Grantees. https://www.cdc.gov/climateandhealth/crsci_grantees.htm

What climate data will be available on the MiTracking portal?

- **Extreme heat**
  - Number of Extreme Heat Days (daily heat index above 90°F).
  - Number of Extreme Heat Events (2 or more extreme heat days in a row).
  - Monthly average temperatures in degrees Fahrenheit.

- **Extreme precipitation**
  - Number of extreme precipitation days with an absolute threshold of 1 inch or above.

Drug Poisoning Surveillance

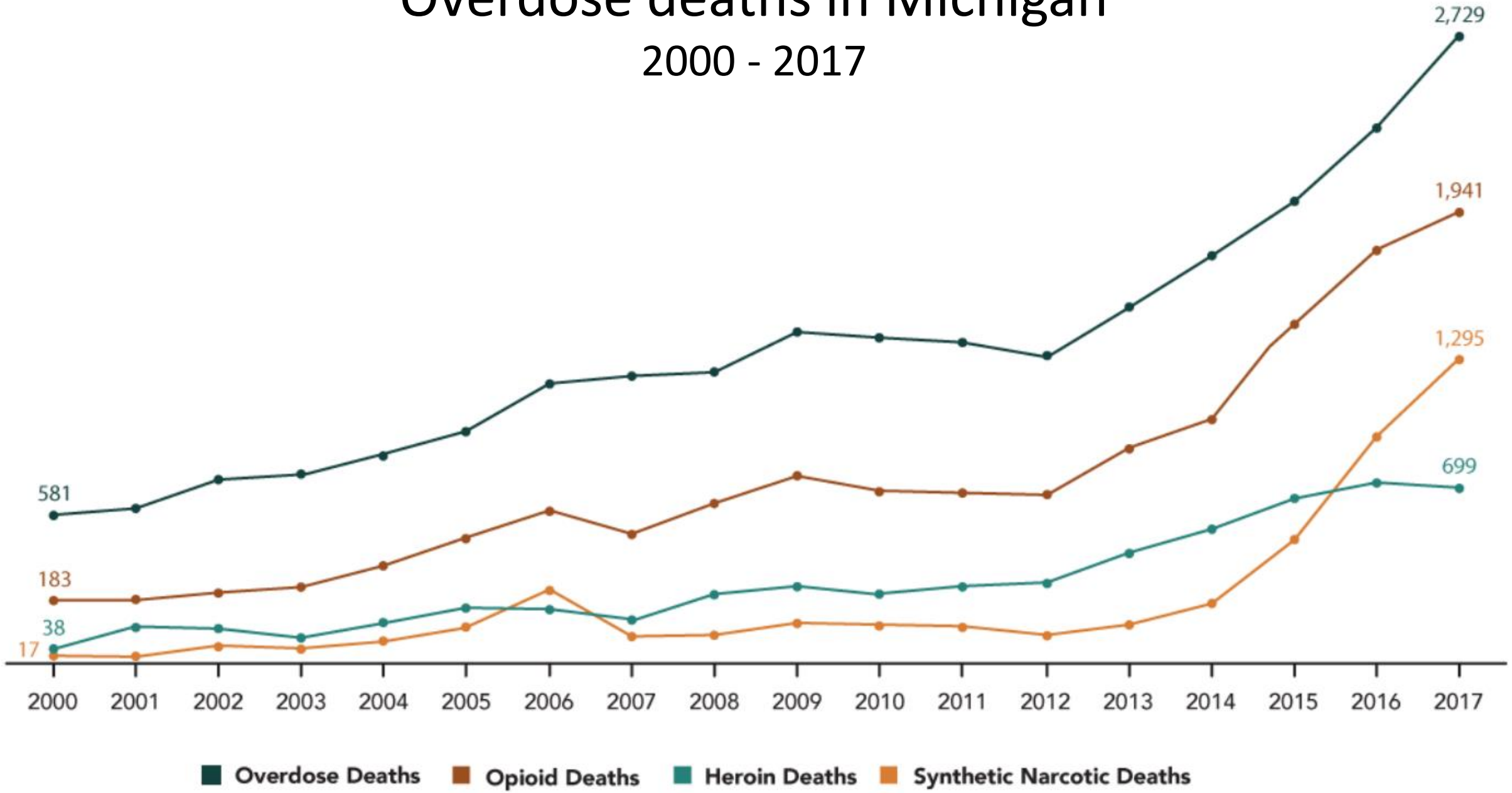
Rita Seith

Substance use disorder is a medical condition in which a person's use of alcohol or another substance (drug) leads to issues with one's health, or issues at work, school, or home.

http://c-coda.org/prevention/risk__protective_factors
https://medlineplus.gov/ency/article/001522.htm

Overdose deaths in Michigan

2000 - 2017



Symptoms of recent use: Opioids

According to Mayo Clinic

- Reduced sense of pain
- Agitation, drowsiness or sedation
- Slurred speech
- Problems with attention and memory
- Constricted pupils
- Lack of awareness or inattention to surrounding people and things
- Problems with coordination
- Depression
- Confusion
- Constipation
- Runny nose or nose sores (if snorting drugs)
- Needle marks (if injecting drugs)

https://www.mayoclinic.org/diseases-conditions/drug-addiction/symptoms-causes/syc-20365112

Symptoms: substance use disorder

According to Mayo Clinic

- A feeling one needs to use the drug regularly
- Needing more of a drug to get the same effect
- Having intense urges for the drug that block out other thoughts
- Not meeting obligations or responsibilities
- Doing things to get the drug that one normally wouldn't do

https://www.mayoclinic.org/diseases-conditions/drug-addiction/symptoms-causes/syc-20365112

What will be added?

Death certificate data

- Age-adjusted death rates
- Crude rates
- Death counts

What makes for an effective program?

Where?

Information on burden

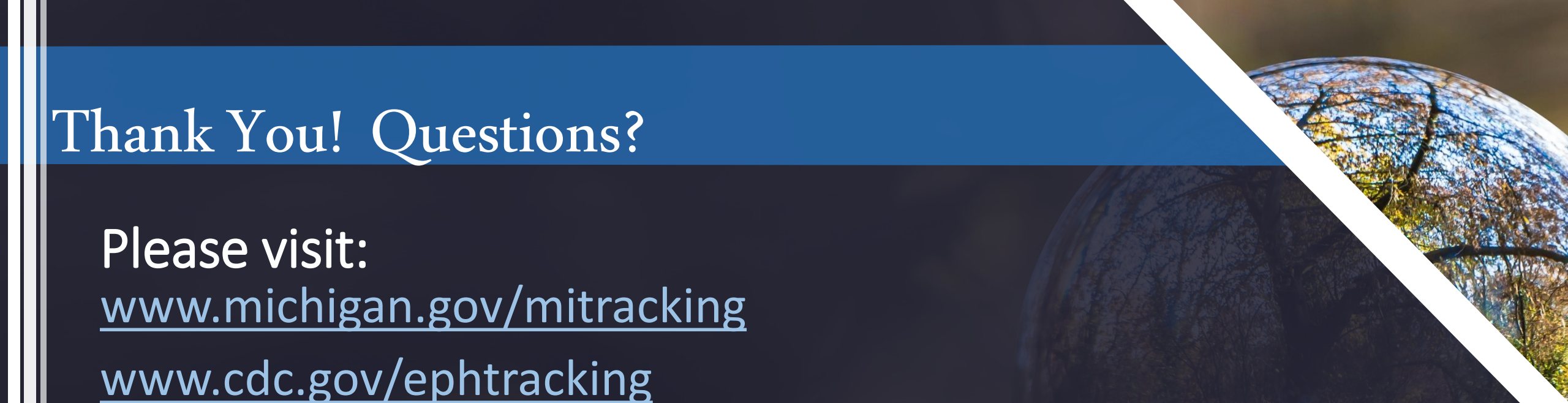
Who?

Information about age and gender
>> Tailored program

Did it work?

Compare to other areas with similar rates.

Thank You! Questions?



Please visit:

www.michigan.gov/mitracking

www.cdc.gov/ephtracking

www.michigan.gov/climateandhealth

www.mi-suddr.com/data

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Appendix: Portal Screenshots

Climate Change

Extreme Heat

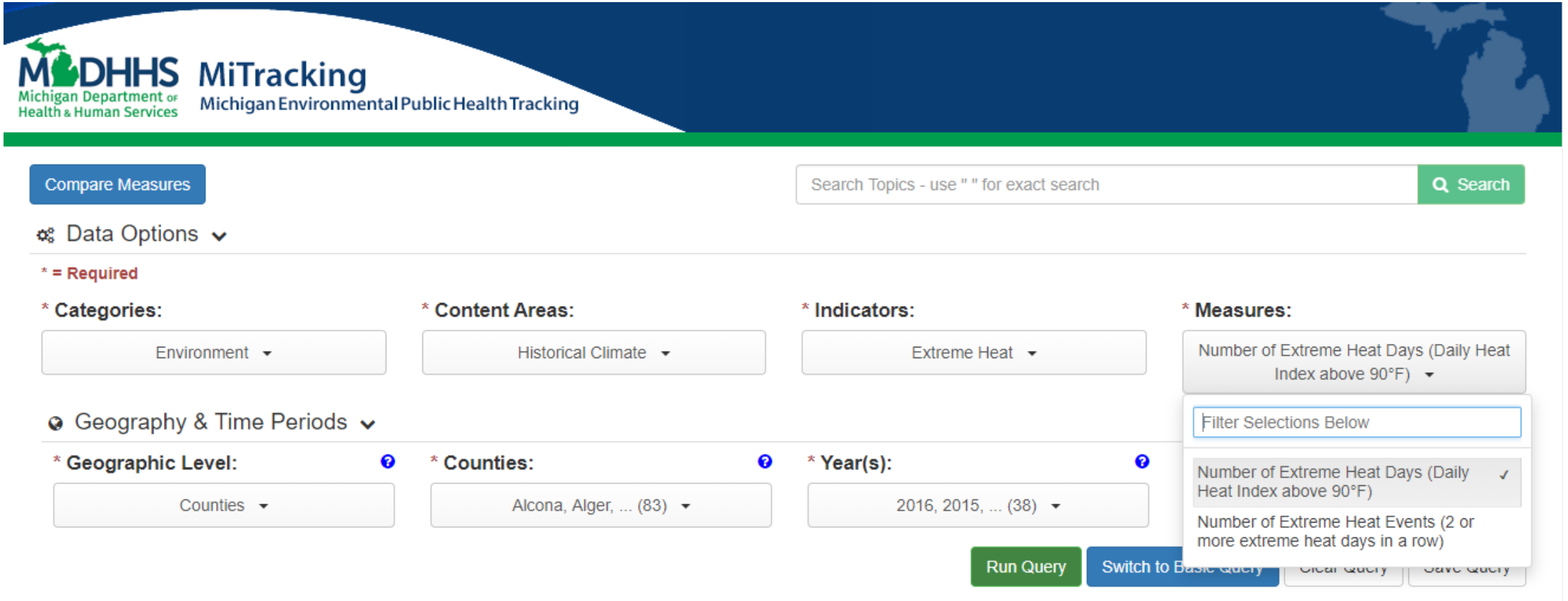


Table | Chart | Map | About These Data

Edit Left Query | Download Data

Number of Extreme Heat Days (Daily Heat Index above 90°F) - Selected year(s)

County	Year(s)	Number of Extreme Heat Days
Wexford	2016	13
Wayne	2016	41
Washtenaw	2016	37
Van Buren	2016	34
Tuscola	2016	27
Shiawassee	2016	36
Schoolcraft	2016	2
Sanilac	2016	22
St. Joesph	2016	44
St. Clair	2016	33
Saginaw	2016	32
Roscommon	2016	11
Ottawa	2016	18
Otsego	2016	7
Oscoda	2016	9
Osceola	2016	18
Ontonagon	2016	3
Ogemaw	2016	15
Oceana	2016	11
Oakland	2016	34
Newaygo	2016	26
Muskegon	2016	17
Montmorency	2016	8
Montcalm	2016	26

Table | Chart | Map | About These Data

Edit Right Query | Download Data | Save | Options

Number of Extreme Heat Days (Daily Heat Index above 90°F) - Selected year(s)

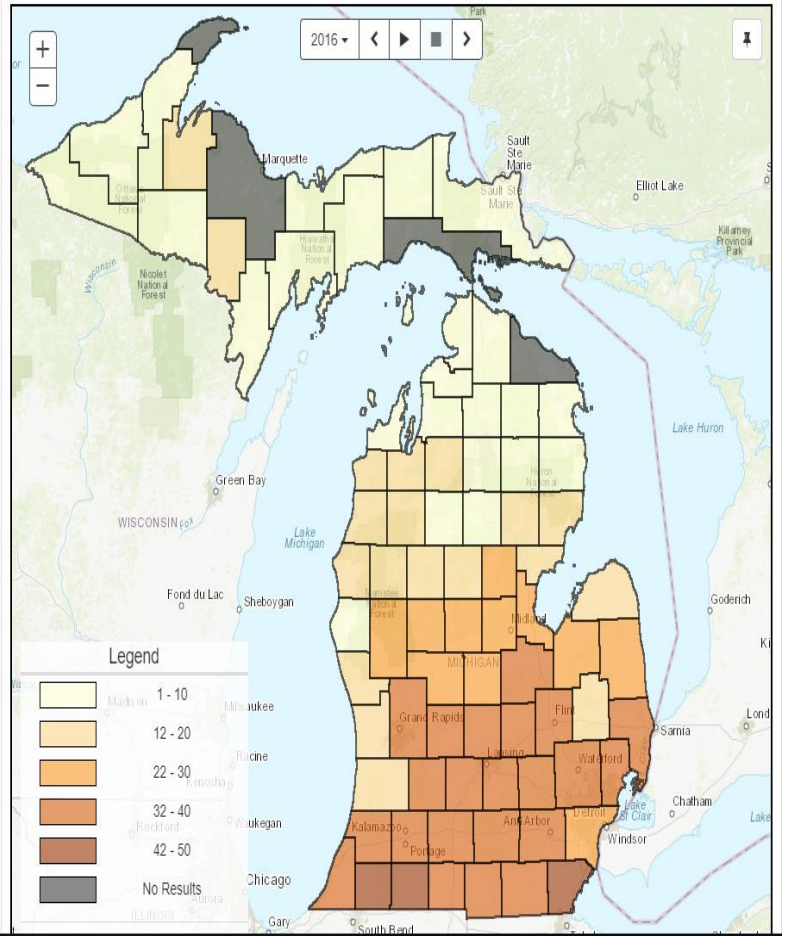


Table | Chart | Map | About These Data

Edit Data Options

Number of Extreme Heat Days (Daily Heat Index above 90°F)

What is Extreme Heat?

Extreme heat refers to summertime temperatures that are much hotter and/or more humid than average, which depends on each location and the time of year.[1] The combination of heat and humidity can make it feel hotter than it is; therefore, the **heat index** measures the actual temperature and relative humidity to capture how hot it really feels. An extreme heat event or heat wave is considered several days or more of unusually high temperatures that can potentially affect human health.[2]

During extreme heat, the human body might not be able to cool itself by sweating, which can lead to heat-related illnesses, such as heat exhaustion or heat stroke. If an individual's body temperature rises faster than it can cool itself down, it can lead to damages in the brain and other vital organs.[1] For more information, please visit the MiTracking Climate Change content page and the Michigan Climate and Health Adaptation Program's Climate and Health Overview.

Why was this dataset created?

The dataset was created to better understand spatial and temporal trends of extreme heat in Michigan. Climate change is defined as any major change in the temperature, precipitation, wind, and other weather patterns we can measure that has been occurring for at least 10 years.[2] Temperatures are rising across the planet, and in Michigan heat waves have significantly increased in Southeastern Michigan, and the number of dry, cool days in the summertime has significantly decreased.[3] Being able to use temperature and relative-humidity data will help monitor health effects associated with extreme heat.

How was this dataset created?

The North American Land Data Assimilation System (NLDAS) contains modeled, quality controlled, spatially and temporally continuous meteorological data for Michigan and the United States. The Centers for Disease Control and Prevention (CDC) evaluates and processes raw, grid-level, modeled NLDAS data from National Aeronautics and Space Administration (NASA) to create county-level measures of extreme heat. The CDC provides modeled extreme heat-related data to the Michigan Department of Health and Human Services (MDHHS). This dataset includes the years 1979-the most current year available.

How was this measure calculated?

There are three extreme heat measures on the MiTracking data portal:

1. Number of Extreme Heat Days (daily heat index above 90°F).
2. Number of Extreme Heat Events (2 or more extreme heat days in a row).
3. Monthly average temperatures in degrees Fahrenheit.

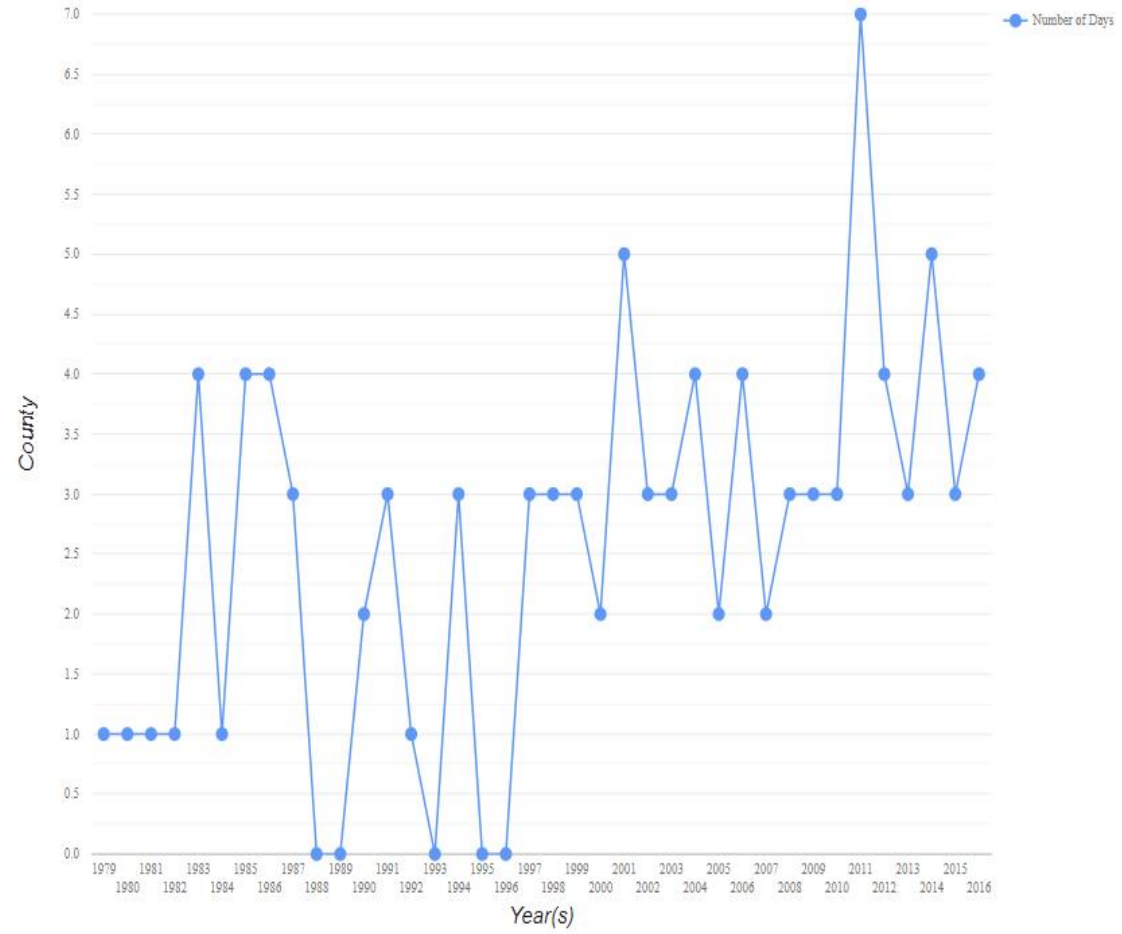
The measures were calculated by using the following steps:

Extreme Precipitation

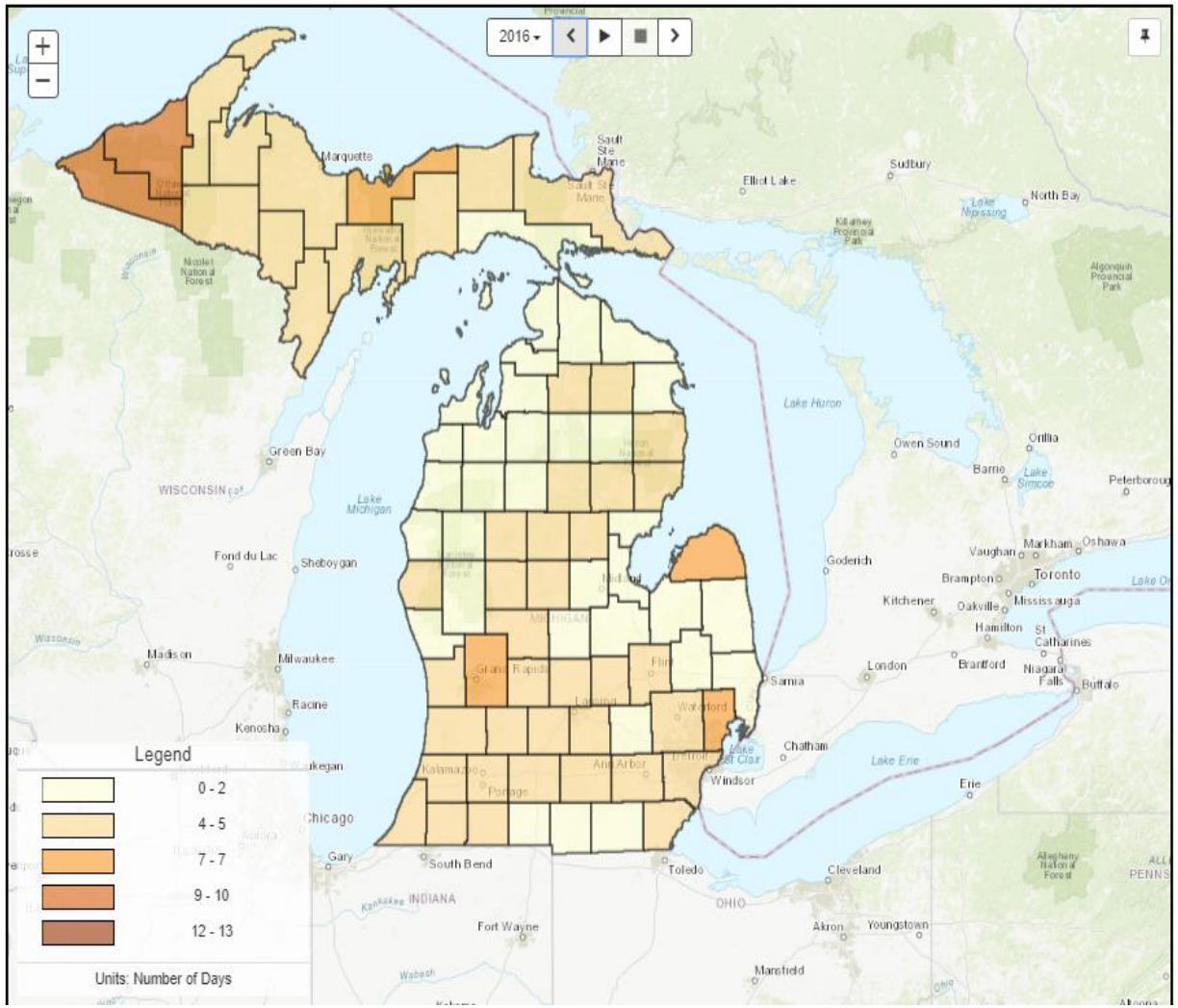
Number of Extreme Precipitation Days (Greater than 1 Inch) - Selected year(s)

Counties:

Alcona

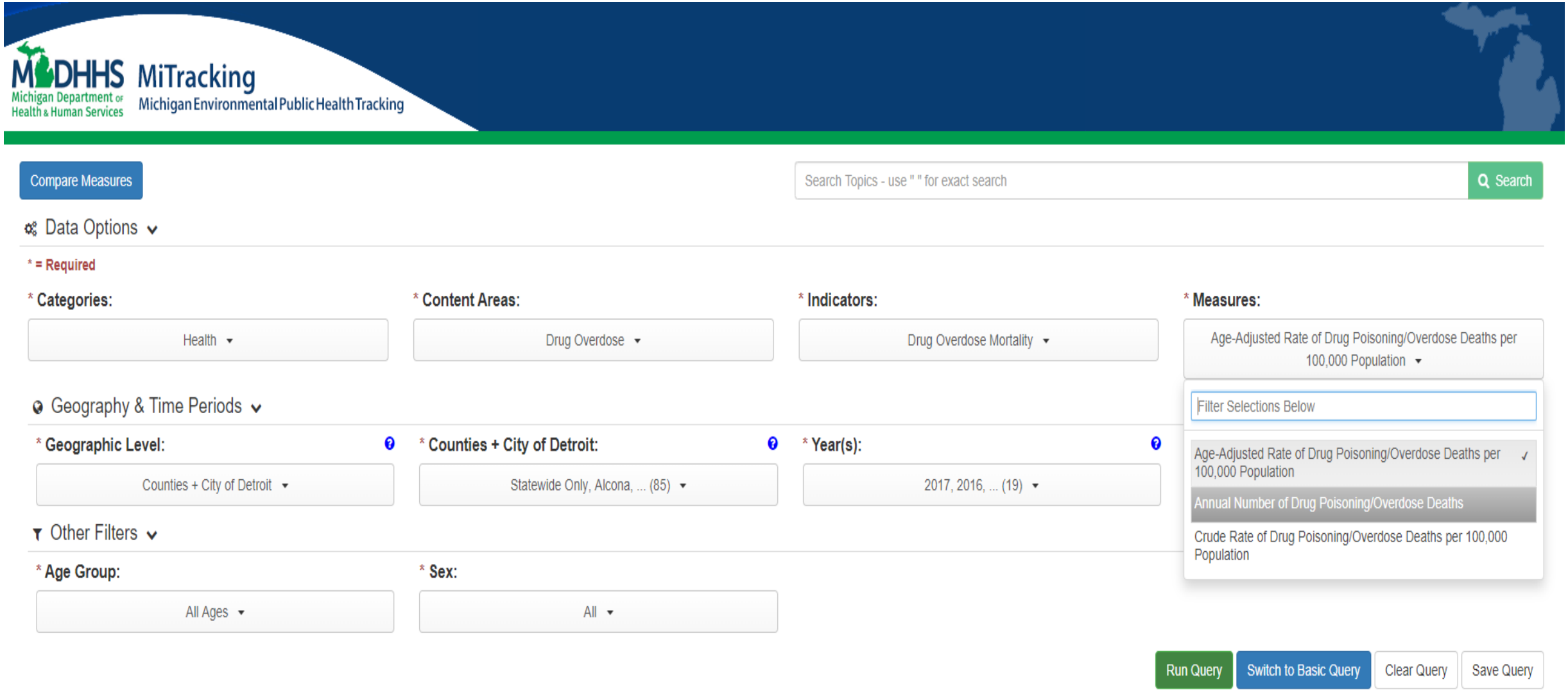


Number of Extreme Precipitation Days (Greater than 1 Inch) - Selected year(s)

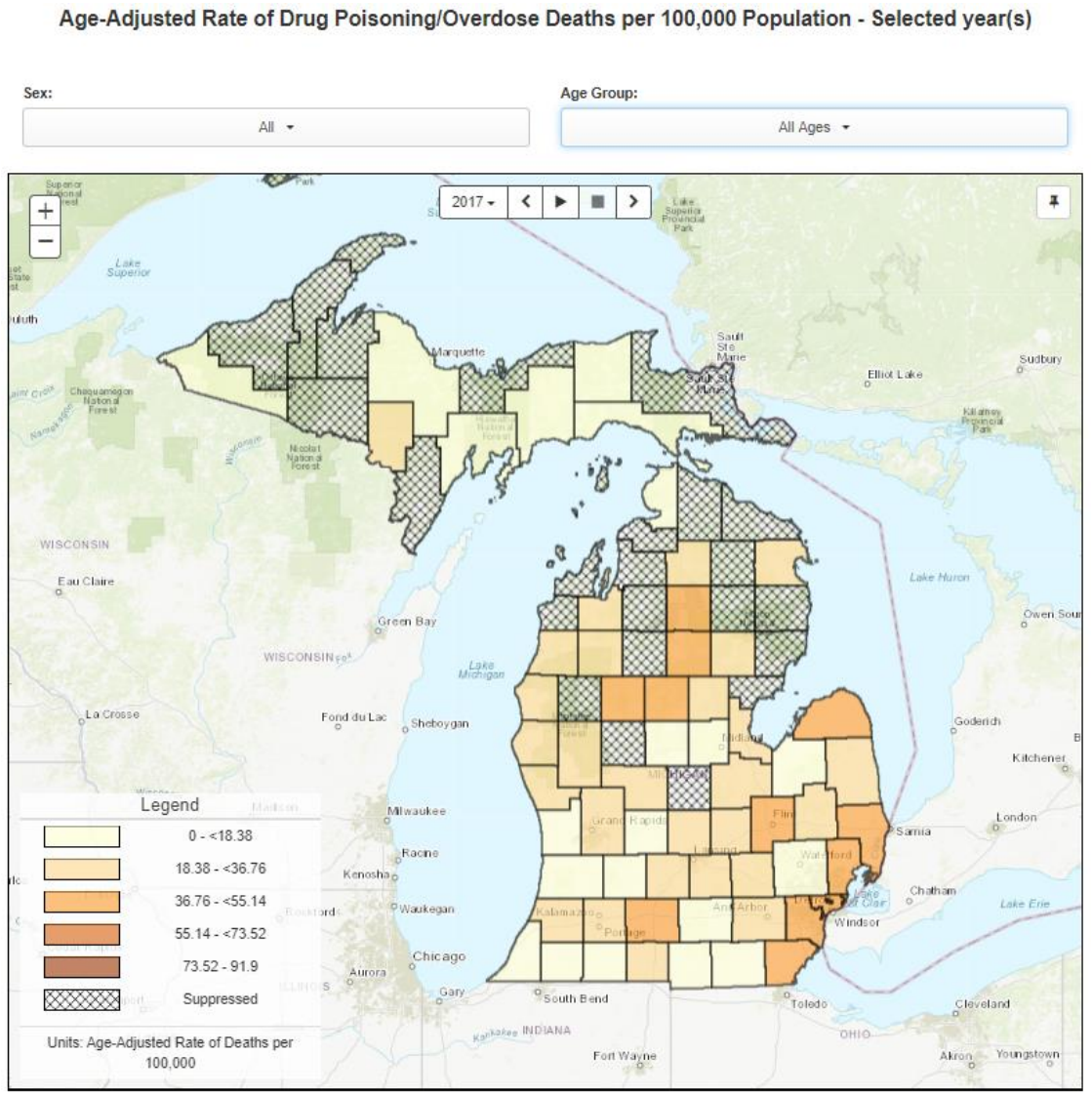


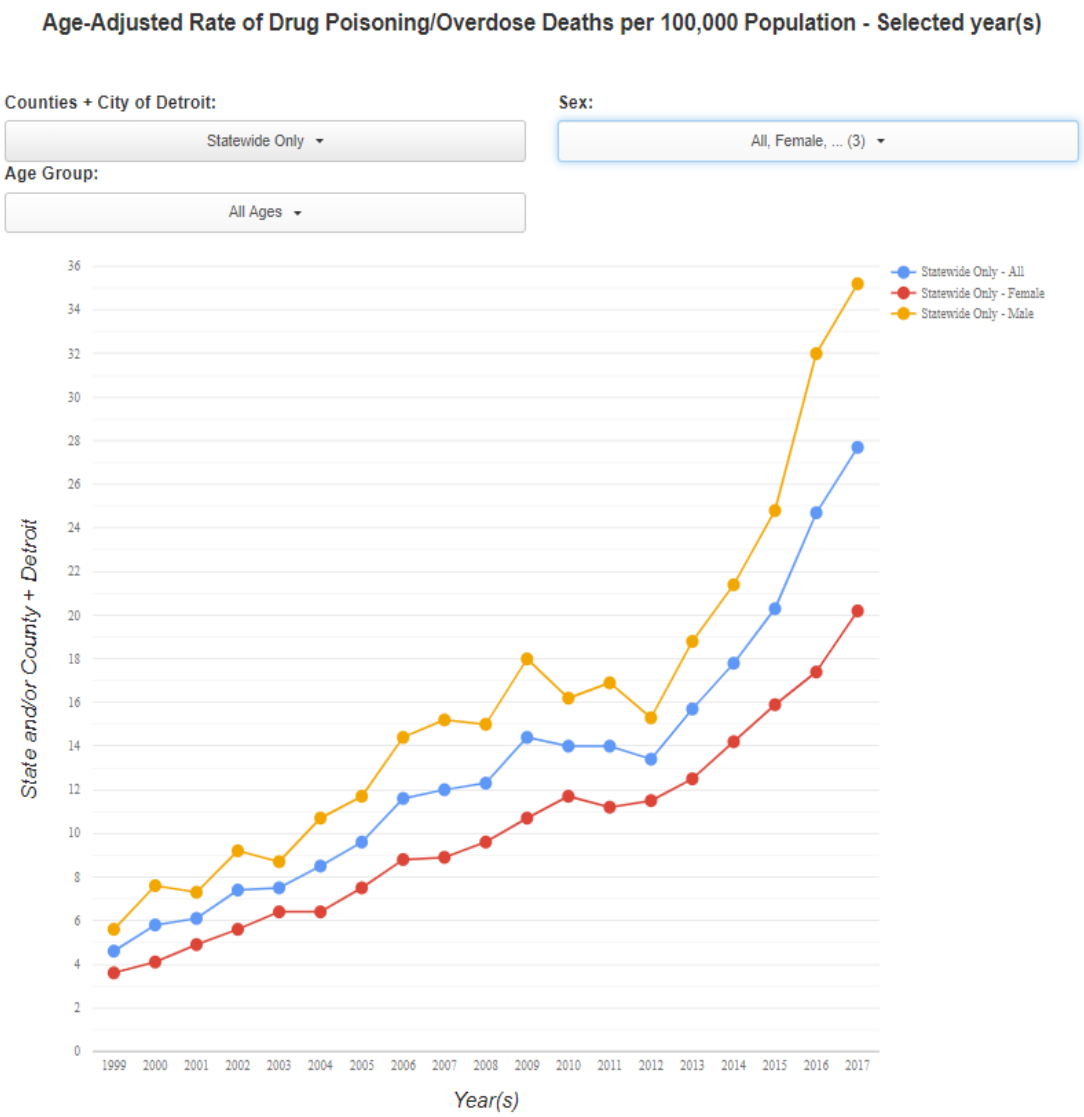
Drug Poisoning/Overdose

Mortality


MDHHS
Michigan Department of Health & Human Services
MiTracking
Michigan Environmental Public Health Tracking
Compare Measures
Search Topics - use " " for exact search
Search
Data Options
* = Required
* Categories:
Health
* Content Areas:
Drug Overdose
* Indicators:
Drug Overdose Mortality
* Measures:
Age-Adjusted Rate of Drug Poisoning/Overdose Deaths per 100,000 Population
Filter Selections Below
Age-Adjusted Rate of Drug Poisoning/Overdose Deaths per 100,000 Population
Annual Number of Drug Poisoning/Overdose Deaths
Crude Rate of Drug Poisoning/Overdose Deaths per 100,000 Population
Geography & Time Periods
* Geographic Level:
Counties + City of Detroit
* Counties + City of Detroit:
Statewide Only, Alcona, ... (85)
* Year(s):
2017, 2016, ... (19)
Other Filters
* Age Group:
All Ages
* Sex:
All
Run Query
Switch to Basic Query
Clear Query
Save Query

Mortality


Age-Adjusted Rate of Drug Poisoning/Overdose Deaths per 100,000 Population - Selected year(s)
Sex:
All
Age Group:
All Ages
2017
Legend
0 - <18.38
18.38 - <36.76
36.76 - <55.14
55.14 - <73.52
73.52 - 91.9
Suppressed
Units: Age-Adjusted Rate of Deaths per 100,000


Age-Adjusted Rate of Drug Poisoning/Overdose Deaths per 100,000 Population - Selected year(s)
Counties + City of Detroit:
Statewide Only
Sex:
All, Female, ... (3)
Age Group:
All Ages
Statewide Only - All
Statewide Only - Female
Statewide Only - Male
State and/or County + Detroit
Year(s)