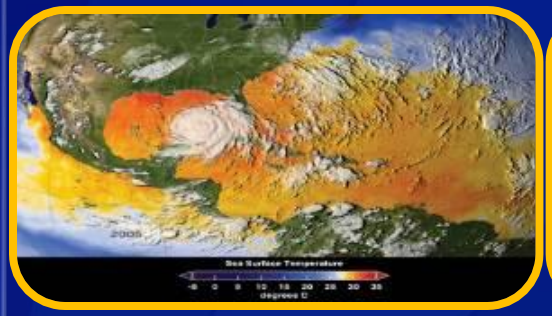
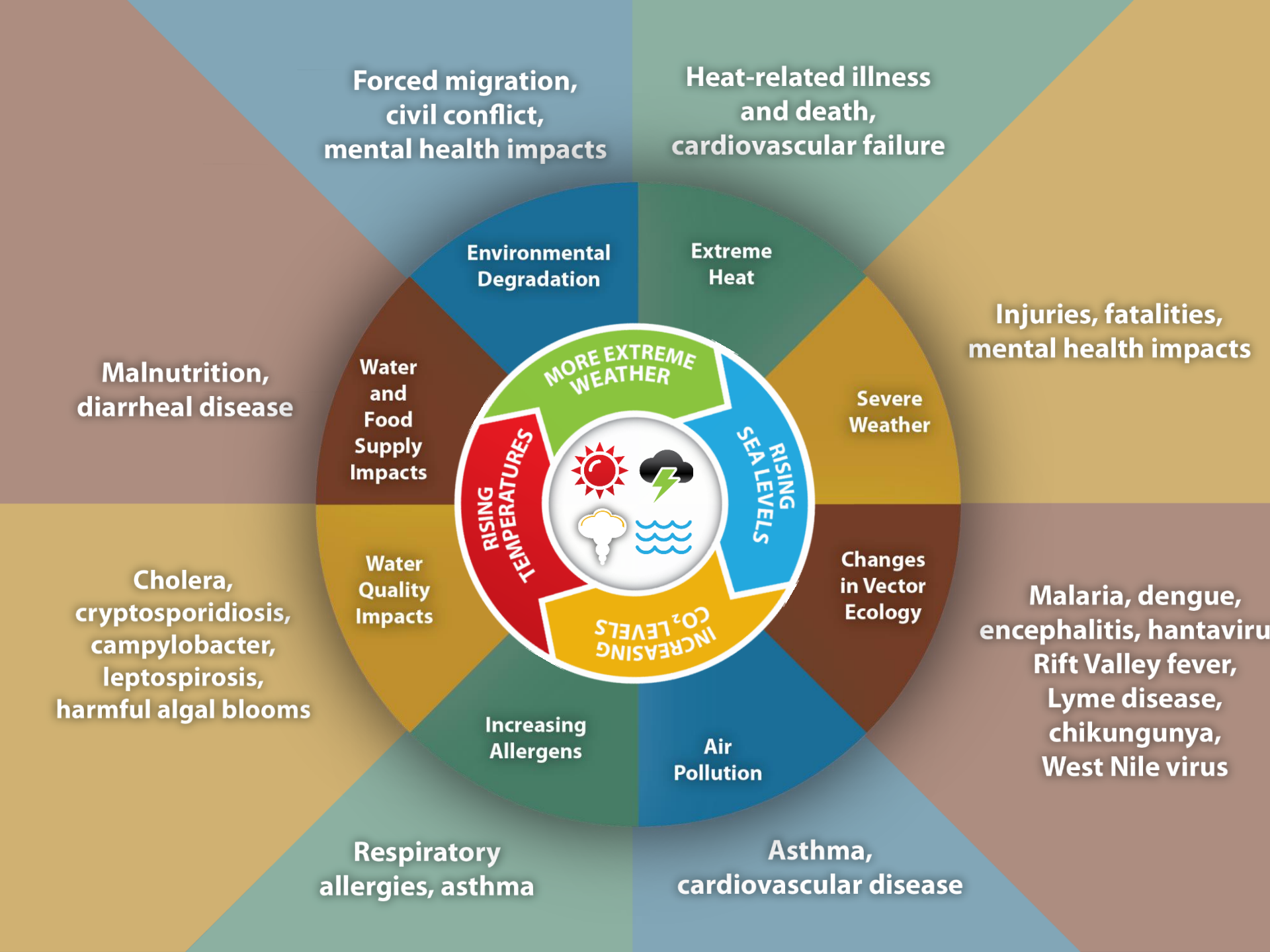


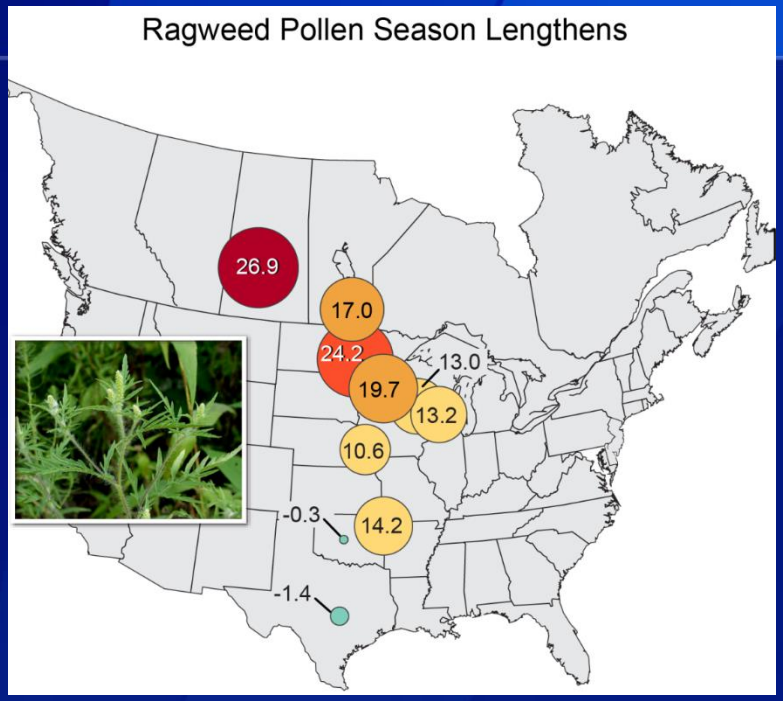

National Indian Health Board Webinar

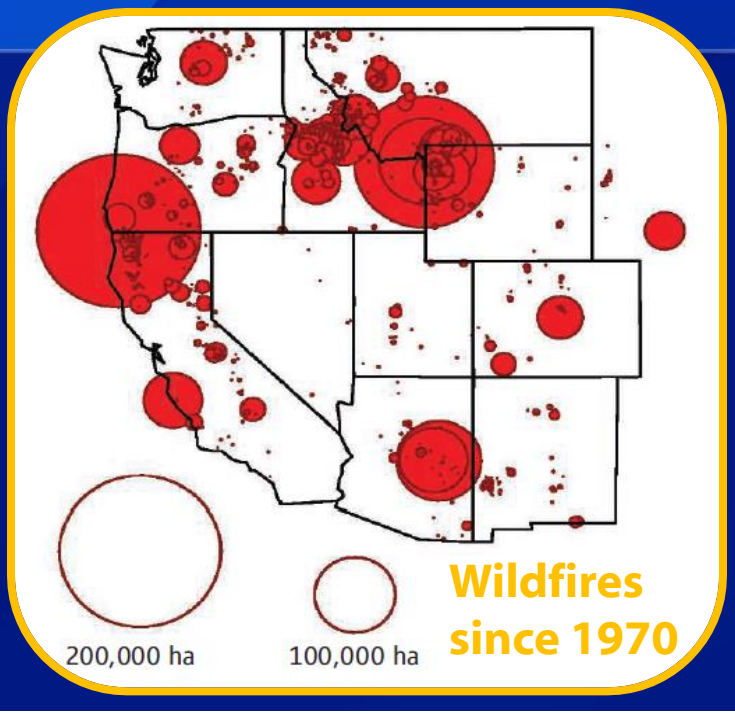
Paul Schramm

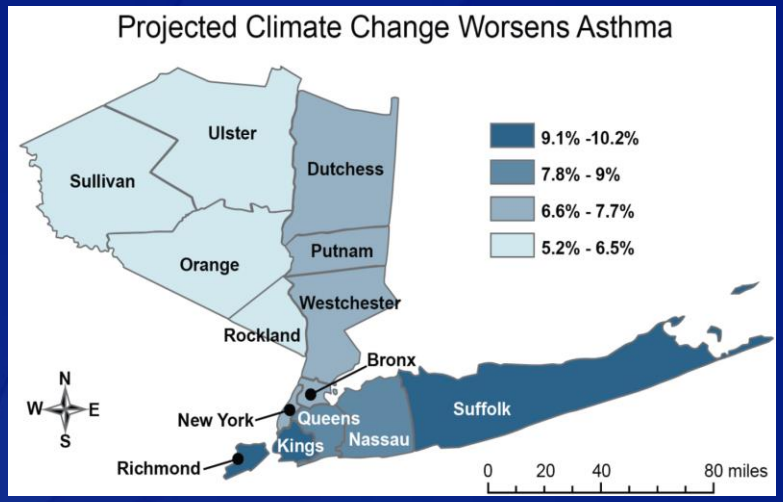
Climate and Health Program
Centers for Disease Control and Prevention

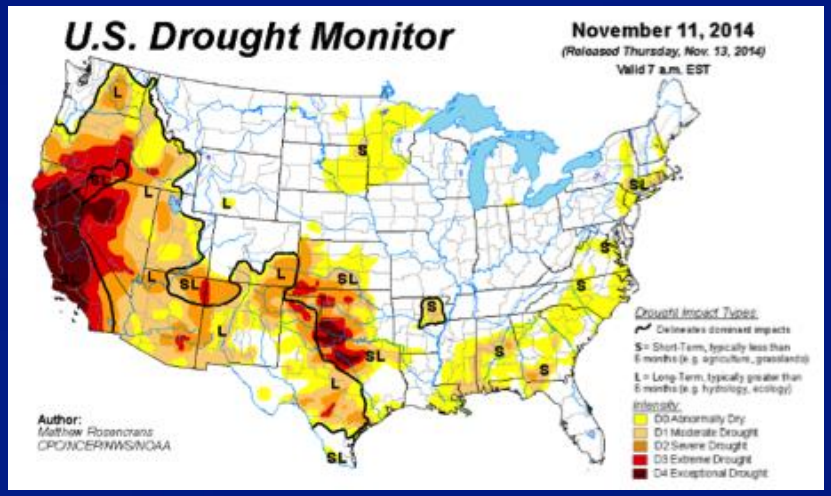
National Center for Environmental Health
Division of Environmental Hazards and Health Effects


Forced migration, civil conflict, mental health impacts
Heat-related illness and death, cardiovascular failure
Injuries, fatalities, mental health impacts
Malnutrition, diarrheal disease
Cholera, cryptosporidiosis, campylobacter, leptospirosis, harmful algal blooms
Malaria, dengue, encephalitis, hantaviru Rift Valley fever, Lyme disease, chikungunya, West Nile virus
Respiratory allergies, asthma
Asthma, cardiovascular disease
Environmental Degradation
Extreme Heat
Severe Weather
Changes in Vector Ecology
Air Pollution
Increasing Allergens
Water Quality Impacts
Water and Food Supply Impacts
MORE EXTREME WEATHER
RISING SEA LEVELS
INCREASING CO2 LEVELS
RISING TEMPERATURES





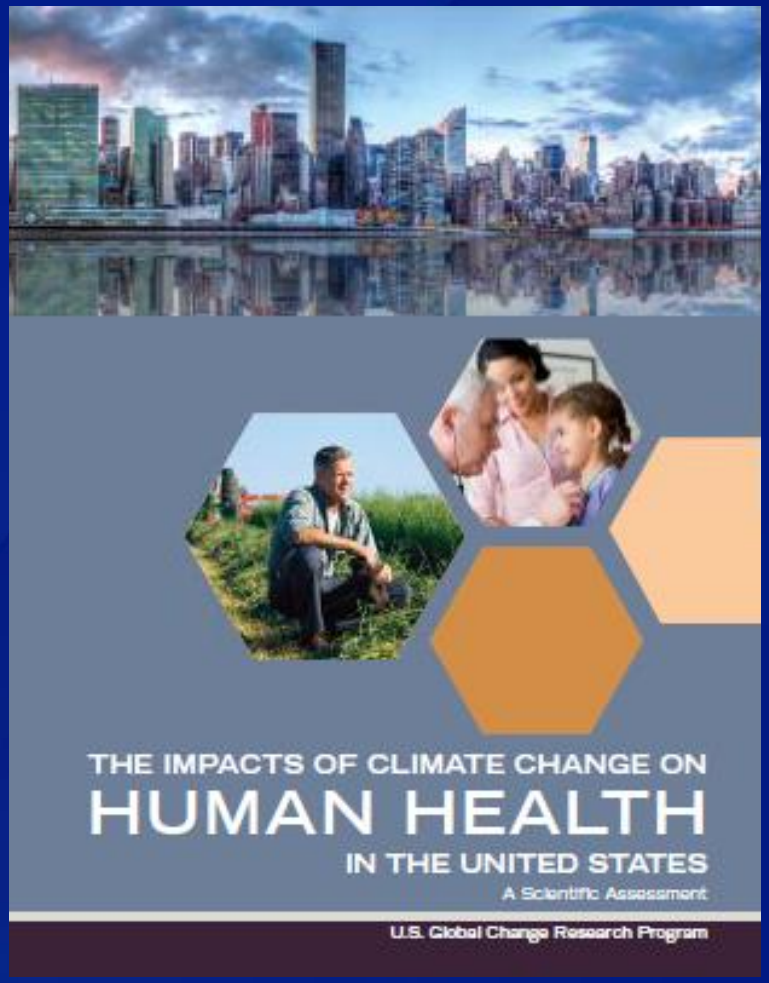




Pollen, wildfires, urban air pollution, water quality and quantity….

Luber et al, National Climate Assessment, Health Chapter, 2014

2016 Human Health Assessment



http://health2016.globalchange.gov/

What is CDC doing to prepare for health effects of climate change?

- **CDC helps states and cities prepare for health challenges of climate change by**
  - Providing scientific guidance
  - Developing decision support tools
  - Ensuring public health concerns are considered in climate change adaptation and mitigation strategies
  - Creating partnerships between public health and other sectors

- **CDC's Climate and Health Program – nation's only investment in climate change preparedness for public health sector**

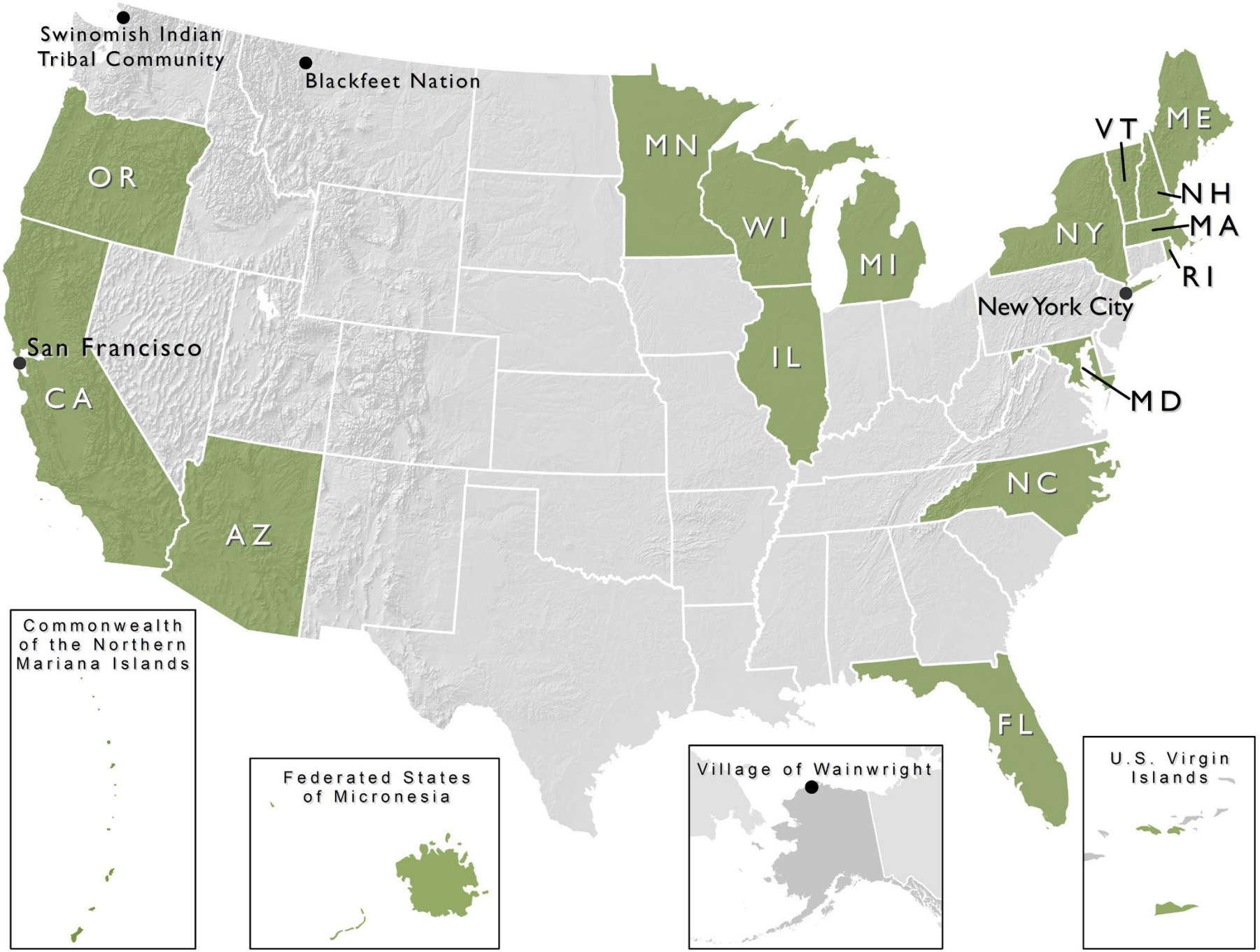
Climate-Ready States and Cities Initiative

- **CDC effort to enhance capacity of state and local health agencies to deal with health challenges associated with climate change**

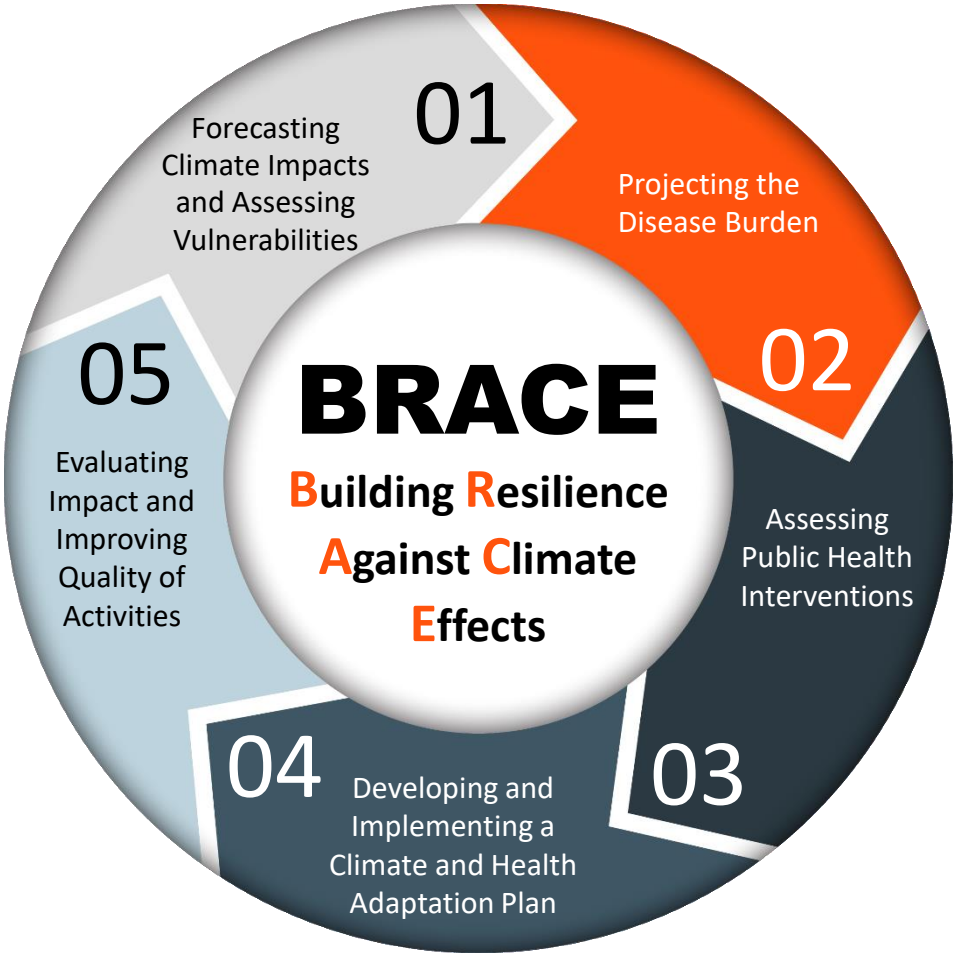
- **CDC accomplishes this by**
  - Funding 18 state and local health departments
  - Providing framework and tools for planning, implementing, and evaluating climate adaptation strategies
    - Tools to identify populations and places vulnerable to climate impacts
    - Materials to help communicate climate and health issues to public health partners (e.g., extreme heat toolkit)

Climate Ready Tribes and Territories Initiative

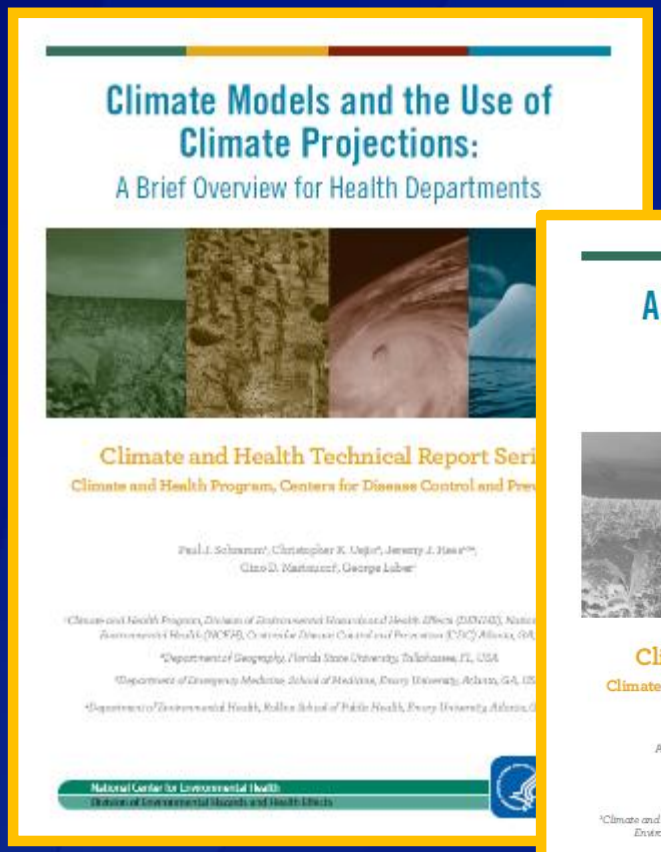
- First year funding awarded in 2016
- Partnership with the National Indian Health Board and the Association of State and Territorial Health Officials
- Supports climate and health adaptation activities in Tribes and territories
- Three tribes and three territories funded

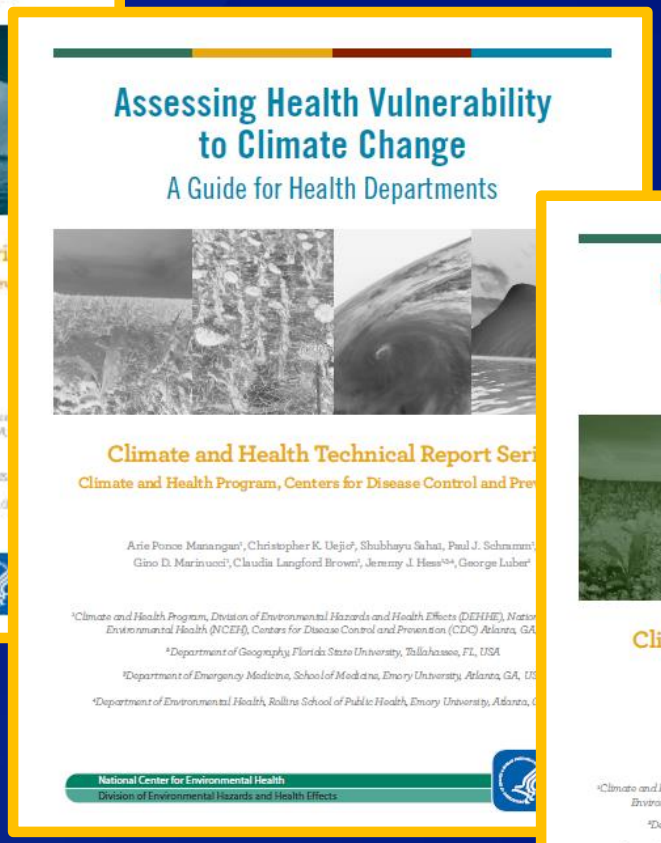

Swinomish Indian Tribal Community
Blackfeet Nation
OR
CA
San Francisco
AZ
MN
WI
MI
IL
NY
VT
ME
NH
MA
RI
New York City
MD
NC
FL
Commonwealth of the Northern Mariana Islands
Federated States of Micronesia
Village of Wainwright
U.S. Virgin Islands

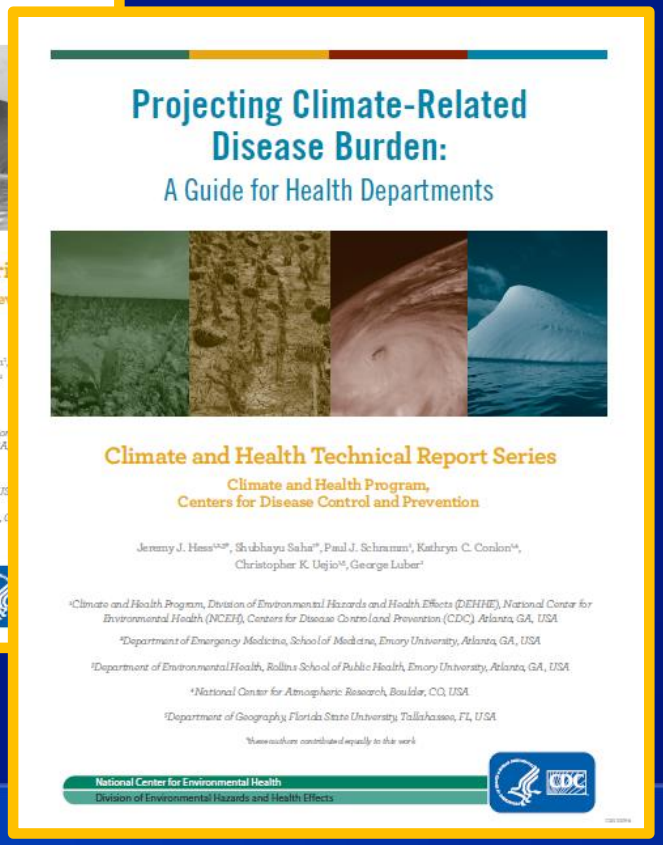
Building Resilience Against Climate Effects



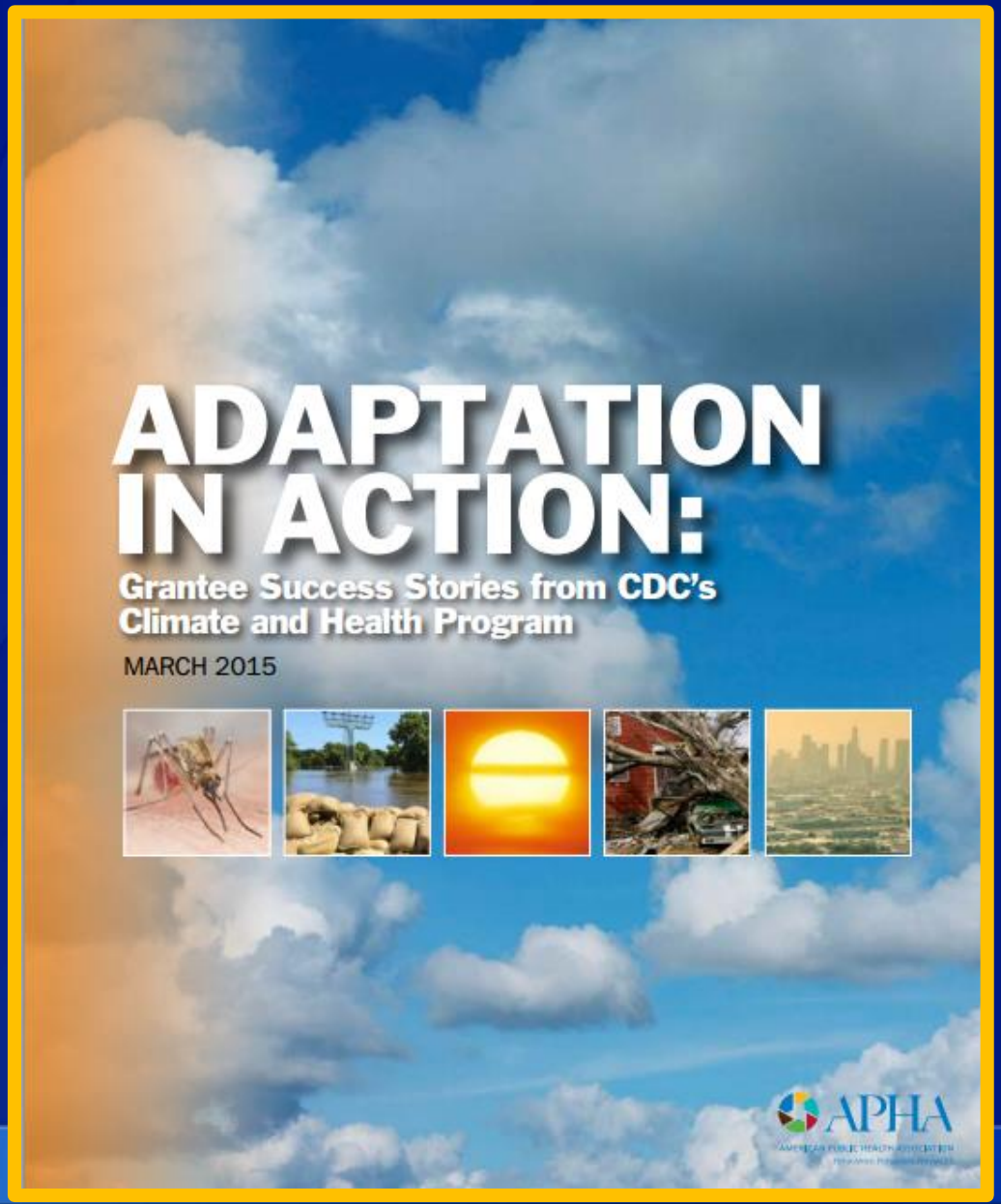
BRACE Technical Guidance







APHA Report: *Adaptation in Action*



cdc.gov/climateandhealth

NEW YORK CITY: Creating Resilient Communities

"The events of the past few years show the serious public health threats New York City's 8.2 million residents already face from extreme weather events like heat waves and coastal storms. With climate change, the severity of these risks will increase. It is imperative that citywide climate adaptation and mitigation measures include health-focused strategies."

Andriana Azarias
ACTING DIRECTOR, CLIMATE AND HEALTH PROGRAM,
NEW YORK CITY DEPARTMENT OF HEALTH AND MENTAL HYGIENE

THE THREAT TO HEALTH:

- Average summer temperatures in New York City
increasing and more heat waves are predicted for
future, which will increase the risk of heat-related
and illness among vulnerable populations.
- Hotter temperatures coupled with poor air quali
lead to increased hospital admissions for cardiov
and respiratory problems.
- Flooding from coastal storms is projected to inc
in frequency and severity and can result in more
outages and home displacements.
- Power outages, from coastal storms or increased
demand on the electrical grid during hot weathe
lead to a variety of health and safety hazards incl
food and drinking water contamination and heat

ADAPTATION IN ACTION:

- The Climate and Health Program has conducted
risk assessments on rising summer temperature
extreme heat and ground-level ozone, and coastal
flooding and power outages to help inform city
climate adaptation planning and improve public
resilience.

(Note to review
still und

ARIZONA: Readying for Extremes

"Arizona is a beautiful place to live, where extreme heat, drought, monsoons and dust storms are the norm. Our program helps residents learn to respect and adapt to these extremes."

Matthew Roach
ENVIRONMENTAL EPIDEMIOLOGIST, EXTREME WEATHER AND PUBLIC HEALTH PROGRAM, ARIZONA DEPARTMENT OF HEALTH SERVICES

THE THREAT TO HEALTH:

- Extreme heat is the nation's No. 1 weather-related cause of death, and Arizona is home to some of the country's hottest communities. From 1992 to 2009, 1,500 heat-related deaths occurred in Arizona. About 500 heat-related inpatient admission visits and 2,000 emergency department visits happen in Arizona every year.
- The rate of death due to heat exposure in Arizona is three to seven times higher than the overall U.S. rate.
- Arizona is experiencing an increase in the number and extent of extreme heat days. In fact, research conducted in the aftermath of an Arizona heat wave found that every 1-degree increase in temperature was associated with a 6 percent increase in mortality risk.

ADAPTATION IN ACTION:

- The Arizona Extreme Weather and Public Health Program conducted a department-wide assessment to measure the agency's overall capacity to monitor climate and health effects and to pinpoint gaps. Staff also reached out to local public health departments with the same assessment, which covered topics such as assessments, outreach and education, and policy development. The results will eventually be used to shape an extreme weather action plan.
- The Arizona p
capacity to col
residents as p
2013, health o
preparedness
best practices
from federal,
universities ar
partner with a
Service offices
to issue heat w
response plan
action, public
office to educa
- The Arizona p
communicati
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facilities, scho
social media.
- Public health
targeted at tw
to heat illness
toolkit is plan
The Heat Illn
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heat-related il

To learn more about the Arizona Extrem

MICHIGAN: Responding to Local Needs

"Climate change is a global and national issue, but its impacts are felt at the local level, affecting the health and well-being of people in every community. Public health needs to engage with community partners, emergency response and citizen groups to advocate for the protection of the vulnerable and to promote tools and adaptations that make our community healthy, resilient and desirable places to live and work."

Lorraine Cameron
MANAGER, EPIDEMIOLOGY AND SURVEILLANCE SECTION, DIVISION OF ENVIRONMENTAL HEALTH, MICHIGAN DEPARTMENT OF COMMUNITY HEALTH

THE THREAT TO HEALTH:

- Extreme heat events are associated with increased health care utilization. Between April and August of 2013, Michigan health officials recorded more than 4,500 heat-related emergency room visits.
- During a 2013 heat wave in Michigan, dehydration complaints increased nearly 80 percent, sun-associated complaints (i.e. sun burn, sun poisoning or sunscreen reactions) rose by nearly 127 percent, and heat-associated complaints (i.e. heat exhaustion, heat stroke or heat reaction) went up 900 percent.
- In Detroit alone, climate models predict the city will experience 30 to 50 days per year of 90 degrees or hotter and 25 to 50 days with temperatures above 97 degrees.

ADAPTATION IN ACTION:

- Thanks to CDC support, the Michigan Climate and Health Adaptation Program is improving state and local capacity to conduct climate change-related health impact assessments (HIA). An HIA is a process that helps evaluate the potential health effects of a plan, project or policy before it is built or implemented.[4] Such assessments help public health officials more effectively protect people's health. As of 2013, the program had funded two local assessment projects: one in East Lansing and another in Grand Rapids. In East Lansing, local public health officials assessed and offered recommendations to enhance nonmotorized transportation improvements, which can help reduce the emissions that cause climate change while offering safe opportunities for physical activity and reducing pedestrian and bicyclist injuries. In Grand Rapids, local health officials assessed a major traffic corridor undergoing redevelopment. The recommendations from the assessment are helping city planners to better consider the health impacts of these activities.
- The program is involved in the Detroit Climate Action Collaborative, which works to ensure that the city's climate action plan protects and benefits all residents. Among its many activities, the collaborative is partnering with the Great Lakes Integrated Sciences and Assessments Center to develop Detroit-specific climate projections. The collaborative is also working with the University of Michigan College of Architecture and Urban Planning to assess the characteristics of climate vulnerable neighborhoods.
- The program works with academic and private sectors to translate research into practice. For example, health officials helped pilot a tool called I-HEAT, which involves the spatial mapping of heat and social vulnerabilities. Health officials also helped pilot a dynamic heat model developed by researchers at Michigan State University. The model considers heat-related social and behavioral factors, such as what prevents or motivates residents from going to cooling centers. The I-HEAT tool could be used by local health departments to better identify communities vulnerable to heat exposure.
- To tailor adaptations to community needs, the program funded two local health departments to assess residents' heat readiness. Altogether, more than 3,000 surveys were conducted, and the results are already shaping local response and outreach efforts. For example, in Ingham County, health officials learned that local food banks were an ideal venue to reach vulnerable residents with cooling center information.

To learn more about the Michigan Climate and Health Adaptation Program, visit www.michigan.gov/mdch/0,4612,7-132-54783_54784_55975---,00.html.

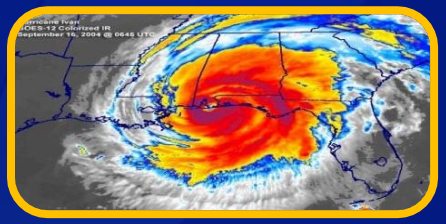
[4] US Centers for Disease Control and Prevention: http://www.cdc.gov/healthyplaces/hia.htm

Summary

- The effects of climate change are already evident in our communities
- Climate change must be framed as a human welfare and public health issue
- Early action, through evidence-based approaches, can help to protect the public's health







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Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348

E-mail: cdcinfo@cdc.gov Web: http://www.cdc.gov

National Center for Environmental Health

Division of Environmental Hazards and Health Effects