

Question: Is The Interval of Interest 12 Years or 12 Months?

**PREPARING FOR CLIMATE CHANGE IN
NEW JERSEY: PREPARING OUR
RESIDENTS**

Public Health Preparedness: Climate (Change) and Public Health

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Learning Center (PERLC)**



Allergies



Infectious Disease



Asthma



Drinking Water Impairment



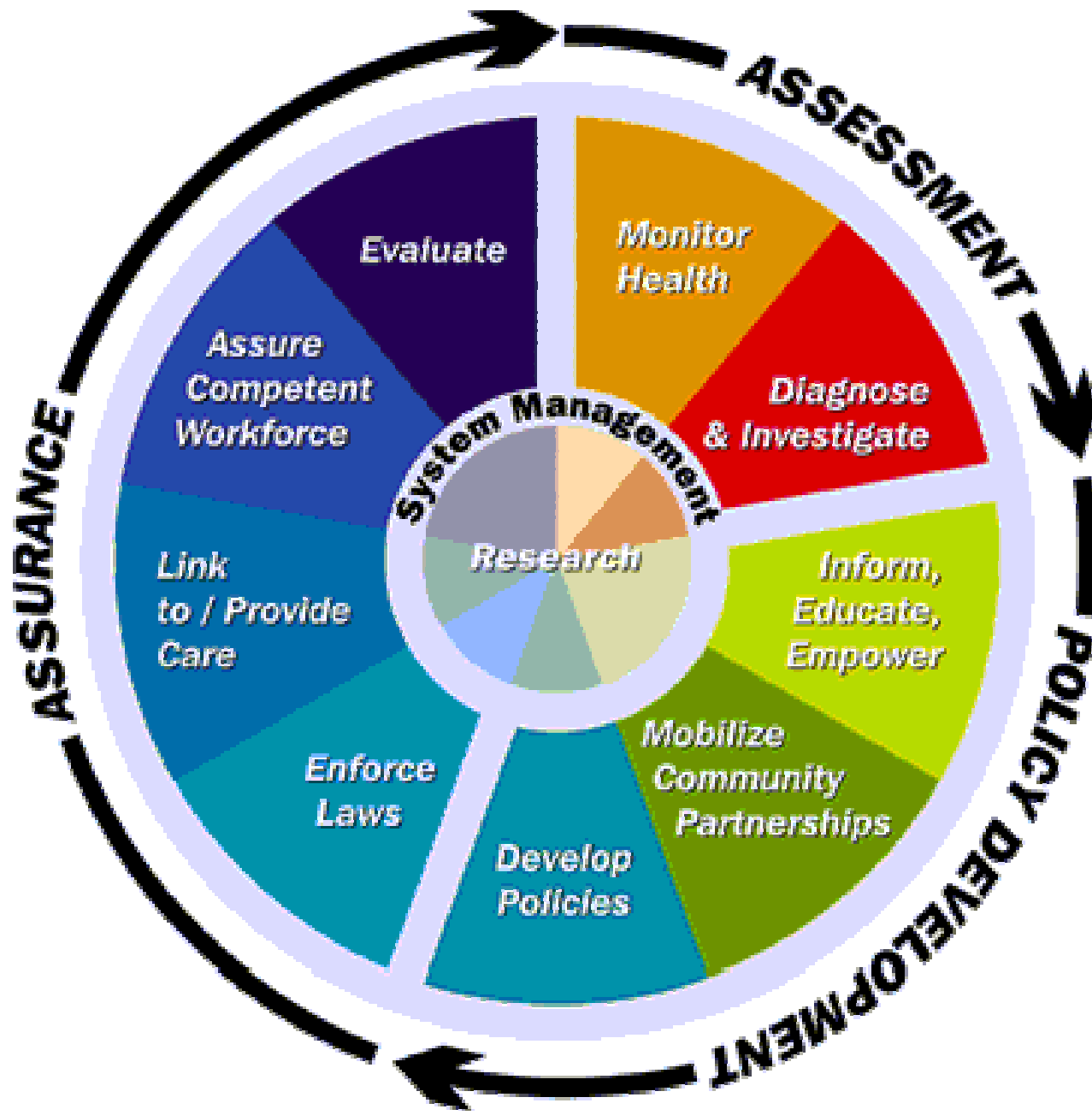
Red Tides



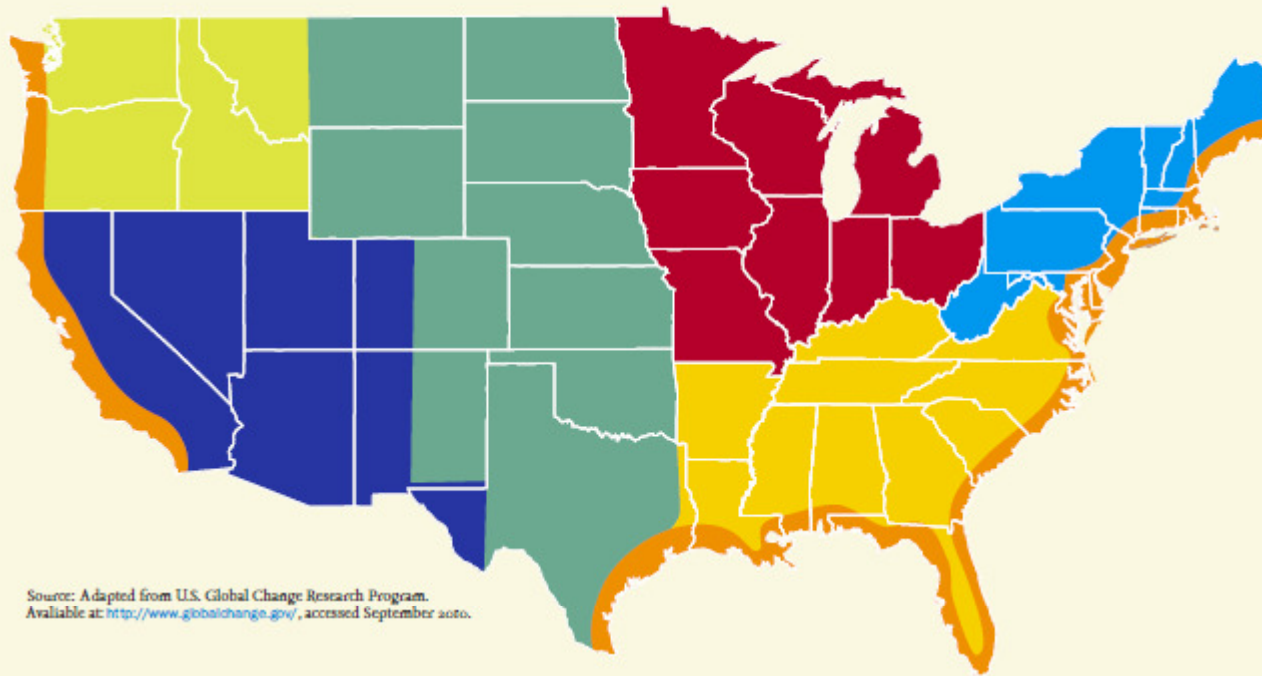
Extreme Weather



Heat Stress



Regional Differences Due to Climate Change



Source: Adapted from U.S. Global Change Research Program.
Available at: <http://www.globalchange.gov/>, accessed September 2010.

NORTHEAST

- Extreme heat and declining air quality are likely to pose increasing problems for human health, especially in urban areas.
- Agricultural production, including dairy, fruit and maple syrup, is likely to be adversely affected as growing and harvesting conditions deteriorate.
- Severe flooding from a rise in sea level and heavy downpours is likely to occur more frequently.
- The projected reduction in snow cover will have adverse effects on winter recreation and related industries.
- The center of lobster fisheries is projected to continue its northward drift and the cod fishery on Georges Bank in the upper Northeast will likely diminish.

MIDWEST

- During the summer, public health and quality of life, especially in cities, will see the negative effects of heat waves, reduced air quality and increased insect- and water-borne diseases. In the winter, warming will likely produce mixed results.
- The probable increase in winter and spring precipitation, heavy downpours and greater evaporation in summer will lead to extremes of both flooding and water deficits.
- While a longer growing season offers the potential for increased crop yields, increases in heat waves, floods, droughts, insects and weeds will present special challenges to the management of crops, livestock and forests.

SOUTHEAST

- Projected increases in air and water temperatures will cause heat-related stress for people, animals and plants.
- Diminishing water resources will very likely affect the southeastern economy as well as its natural systems.
- Rising sea levels and the predicted increase in hurricane intensity and associated storm surge may rank as the most serious consequence of southeastern climate change.
- Ecological thresholds are likely to be crossed throughout the region, causing major disruptions to ecosystems and to the benefits they provide.
- Increasing heat stress, water scarcity, severe weather events and higher-cost or unobtainable insurance for at-risk properties will affect quality of life.

Six Aspects That Connect Climate Change to Health Outcomes - Worldwide

- Changing Patterns of Disease and Mortality
- Food
- Water and Sanitation
- Shelter & Human Settlements
- Extreme Events
- Population & Migration

Managing the health effects of climate change. Lancet 2009;373:1693-1733

11 Categories of Health Consequences of Climate Change

- Asthma, Respiratory Allergies, and Airway Diseases
- Cancer
- Cardiovascular DZ & Stroke
- Foodborne Diseases & Nutrition
- Heat Related M&M
- Human Developmental Effects
- Mental Health & Stress-Related Disorders
- Neurological Diseases & Disorders
- Vectorborne and Zoonotic Diseases
- Waterborne Diseases
- Weather-Related M&M

Crosscutting Issues & Key Challenges in Forming A Policy Response

Crosscutting Issues NIEHS

- Susceptible, Vulnerable, and Displaced Populations
- Public Health & Health Care Infrastructure
- Capacities & Skills Needed
- Communication & Education to Increase CC Health Effects

Key Challenges (Lancet)

- Informational
- Poverty & Equity-Related
- Technological
- Sociopolitical
- Institutional

From Both 'Structural' and Individual Perspectives

**WHAT ARE THE DIRECT AND INDIRECT
EFFECTS OF CLIMATE CHANGE ON
HEALTH**

11 Categories of Health Consequences of Climate Change

- **Asthma, Respiratory Allergies, and Airway Diseases**
- Cancer
- **Cardiovascular DZ & Stroke**
- Foodborne Diseases & Nutrition
- **Heat Related M&M**
- Human Developmental Effects
- Mental Health & Stress-Related Disorders
- Neurological Diseases & Disorders
- Vectorborne and Zoonotic Diseases
- Waterborne Diseases
- **Weather-Related M&M**

Potential Health Effects of Climate Change

Climate Change:

- Temperature rise
- Sea level rise
- Hydrologic extremes



HEAT

SEVERE WEATHER

AIR POLLUTION

ALLERGIES

VECTOR-BORNE
DISEASES

WATER-BORNE DISEASES

WATER AND FOOD
SUPPLY

MENTAL HEALTH

ENVIRONMENTAL
REFUGEES

➔ Heat stress, cardiovascular failure

➔ Injuries, fatalities

➔ Asthma, cardiovascular disease

➔ Respiratory allergies, poison ivy

➔ Malaria, dengue, encephalitis

➔ Cholera, cryptosporidiosis, campylobacter, leptospirosis

➔ Malnutrition, diarrhea

➔ Anxiety, depression, post-traumatic stress disorder

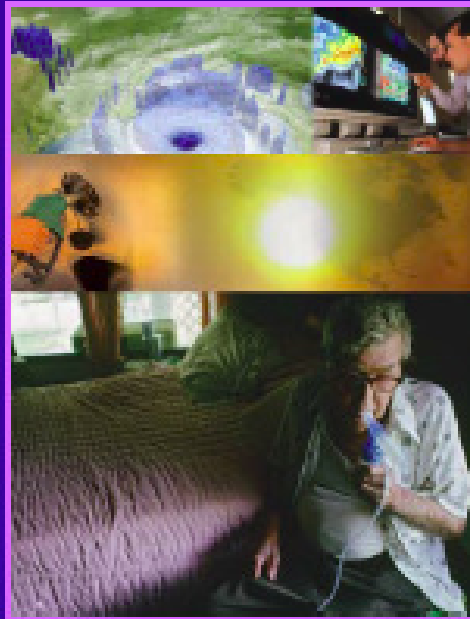
➔ Population displacement, civil conflict

Adapted from J. Patz

Dimensions of Climate Vulnerability

■ Community Level

- Location
- Infrastructure
- Housing
- Environmental Threats
- Public Health Resources



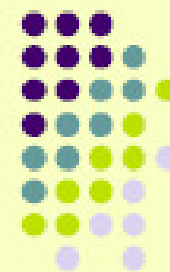
■ Individual Level

- Age
- Occupation
- Race/Ethnicity
- SES
- Health Status
- Access to Health Care

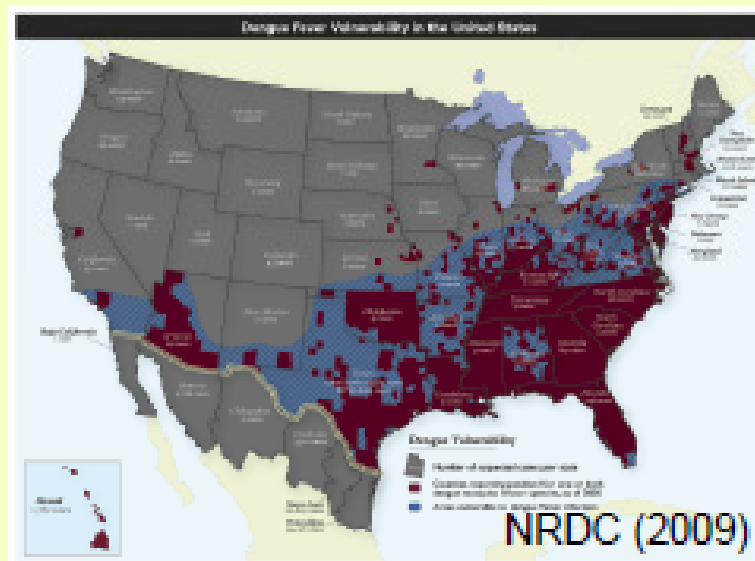
Community Intervention

PUBLIC HEALTH INTERVENTIONS

Key Elements of Adaptation



- **Identifying Vulnerabilities**
 - Physical Environment
 - Demographic
- **Tracking**
 - Disease
 - Environmental Conditions
- **Climate-Smart Design**
 - Communities
 - Buildings
- **Public Education**
 - Personal preparedness steps



10 Essential Services of Public Health

	Service	Climate Change Example
1	Monitor health status to identify and solve community health problems	Tracking of diseases and trends related to climate change
2	Diagnose and investigate health problems and health hazards in the community	Investigation of infectious water-, food-, and vector-borne disease outbreaks
3	Inform, educate, and empower people	Informing the public and policymakers about health impacts of climate change

10 Essential Services of Public Health

	Service	Climate Change Example
4	Mobilize community partnerships and action to identify and solve health problems	Public health partnerships with industry, other professional groups, faith community, and others, to craft and implement solutions
5	Develop policies and plans that support individual and community health efforts	Municipal heat-wave preparedness plans
6	Enforce laws and regulations that protect health and ensure safety	(Little role for public health)

Sources: Public Health Functions Steering Committee, 1994; Frumkin H, Hess J, Lubet G, Mallay J, McGeehin M. Climate Change: The Public Health Response. *Am J Public Health* 2008; 98: 435-45.

10 Essential Services of Public Health

	Service	Climate Change Example
7	Link people to needed personal health services and ensure the provision of health care when otherwise unavailable	Health care service provision following disasters
8	Ensure competent public and personal health care workforce	Training of health care providers on health aspects of climate change
9	Evaluate effectiveness, accessibility, and quality of personal and population-based health services	Program assessment of preparedness efforts such as heat-wave plans
10	Research for new insights and innovative solutions to health problems	Research on health effects of climate change, including innovative techniques such as modeling, and research on optimal adaptation strategies

Sources: Public Health Functions Steering Committee, 1994; Frumkin H, Hess J, Lubet G, Mallay J, McGeehin M. Climate Change: The Public Health Response. *Am J Public Health* 2008; 98: 435-45.

Reports, Trainings, and Webinars

RESOURCES

CLIMATE CHANGE:

Mastering the Public Health Role



A PRACTICAL GUIDEBOOK
APRIL 2011



Climate and Health

[Climate & Health Home](#)

[Climate Change 101](#)

[Extreme Heat Events](#)

[Water Quality & Quantity](#)

[Air Quality](#)

[Vector-Borne Diseases](#)

[Planning Tools & Data](#)

[External Resources](#)

**Environmental Health
Division**

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



[EH Highlights](#)

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Climate and Health

The potential impact of climate change on public health is of rising concern. While there are known, effective public health responses to many of these impacts, the scope, timeline, and complexity of climate change challenges are unprecedented. Critical gaps remain in the resources, programs and expertise in Minnesota’s public health system’s capacity to address the consequences of climate change on public health. Through a grant from the Centers for Disease Control and Prevention (CDC), MDH is beginning to address these gaps and build the state’s capacity to adapt to climate change and its implications on human health.

Topic Areas:

 <p>Climate Change 101 - What is climate change? - Climate change in MN - Training Module</p>	 <p>Extreme Heat Events - Extreme Heat Toolkit - Populations at Risk - Training Module</p>
 <p>Water Quality and Quantity - Changes in precipitation - Training Module & Links</p>	 <p>Air Quality - Air Pollutants - Populations at Risk - Training Module & Links</p>
 <p>Vector-Borne Diseases - Vector-Borne Diseases & Climate Change</p>	 <p>Planning Tools & Data - MDH Strategic Plan - Public health data</p>

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Spotlight

Heat in the Heartland: 60 Years of Warming in the Midwest

Describes warming trends for five major urban areas, including Minneapolis, and five small cities, including Rochester, MN, as well as strategies cities are adopting to protect their residents. (Union of Concerned Scientists)

MDH Extreme Heat Teleconference
September 25, 2012

Questions?

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Recall the 1999 (Andrew), 2011 (Irene), 2012 (Sandy), ...

**QUESTION: IS THE INTERVAL 12
YEARS OR 12 MONTHS?**



Allergies



Infectious Disease



Asthma



Drinking Water Impairment



Red Tides



Extreme Weather



Heat Stress

Questions

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Best Basics

Minnesota Department of Health

- Climate and Health Home -
<http://www.health.state.mn.us/divs/climatechange/index.html>
- <http://www.health.state.mn.us/divs/climatechange/resources.html>

National Efforts – CDC

- Climate and Health Program -
<http://www.cdc.gov/climateandhealth/>
- Building Resilience Against Climate Effects (BRACE) Framework -
<http://www.cdc.gov/climateandhealth/BRACE.htm>
- CDC Climate Ready States -
http://www.cdc.gov/climateandhealth/climate_ready.htm

National Efforts - APHA

- Climate Change Guide Book - http://www.apha-environment.org/pdf/APHA_ClimateChg_guidebook.pdf
- Climate Change Webinar Series Part 1 - <http://www.apha.org/advocacy/reports/webinars/climatewebinars.htm>
- Climate Change Webinar Series Part 2 - <http://www.apha.org/advocacy/reports/webinars/series2.htm>

National Efforts – Other

- NRDC - <http://www.nrdc.org/health/climate/>
- NIEHS – A Human Health Perspective on Climate Change -
http://www.niehs.nih.gov/health/assets/docs_a_e/climaterreport2010.pdf
- EPA - <http://www.epa.gov/climatechange/>

Regional/State Efforts

- NYS DEC – Climate Change Assessment
<http://www.dec.ny.gov/60.html>
- PA - Climate Change Advisory Committee -
http://www.portal.state.pa.us/portal/server.pt/community/climate_change_advisory_committee/10412
- NYC - Climate Adaptation in NYC – NYAS -
<http://onlinelibrary.wiley.com/doi/10.1111/nyas.2010.1196.issue-1/issuetoc>
- NJ - Global Climate Change Site -
<http://www.state.nj.us/nj/green/global/>
- NJ - NJ Climate Adaptation Alliance -
<http://climatechange.rutgers.edu/njadapt.html>