MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

Climate and Health

Tools for Local Health Officials to Reduce Health Impacts of Climate Change

BACKGROUND

Recognizing that the effects of climate change will be felt most directly at the local level, the Massachusetts Department of Public Health (MDPH) is working with local health partners to enhance community resilience to climate-related impacts in communities throughout the Commonwealth. With funding from the Centers for Disease Control and Prevention's (CDC) Climate and Health Program, MDPH developed tools and guidance to strengthen local health departments in Massachusetts to better understand climate-related health risks in their community, identify vulnerable residents, and implement a wide range of prevention and intervention strategies to reduce health risks and promote strong, healthy and resilient communities.

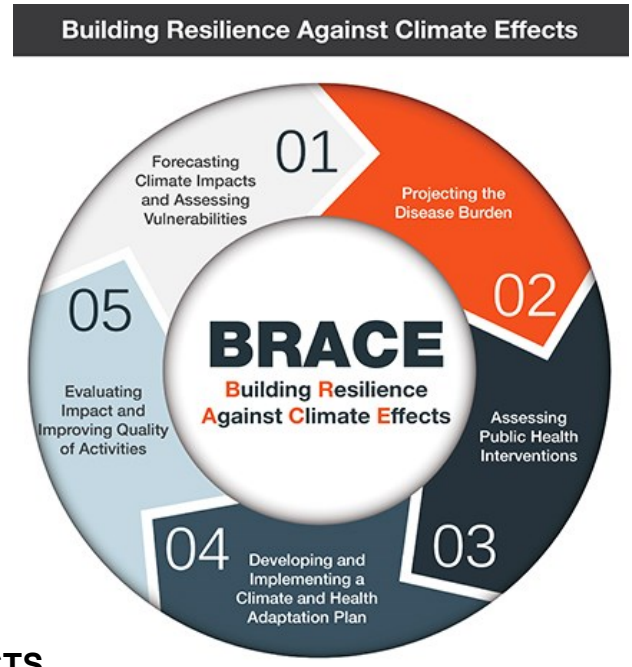


Figure 1: Center for Disease Control (CDC) BRACE Five-Step Framework

BUILDING RESILIENCE AGAINST CLMATE EFFECTS

CDCs BRACE framework provides guidance to states and cities to develop strategies and programs to prepare for the health implications of climate change. The BRACE framework is an evidence-based approach developed by CDC for public health agencies to develop health-based climate change adaptation strategies. The 5-step process of the BRACE framework incorporates an assessment of climate change impacts and vulnerability (Step 1), the modeling of projected health impacts (Step 2), an evaluation of evidence-based public health intervention options (Step 3), developing and implementing a climate and health adaptation plan (Step 4),and systematic evaluation of all activities (Step 5) in an iterative framework.

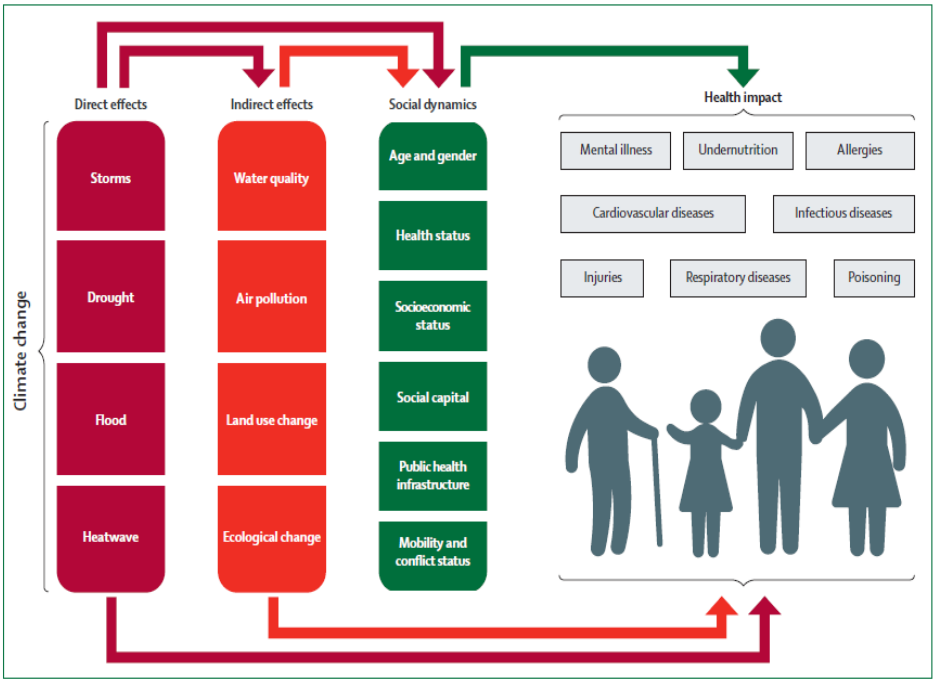
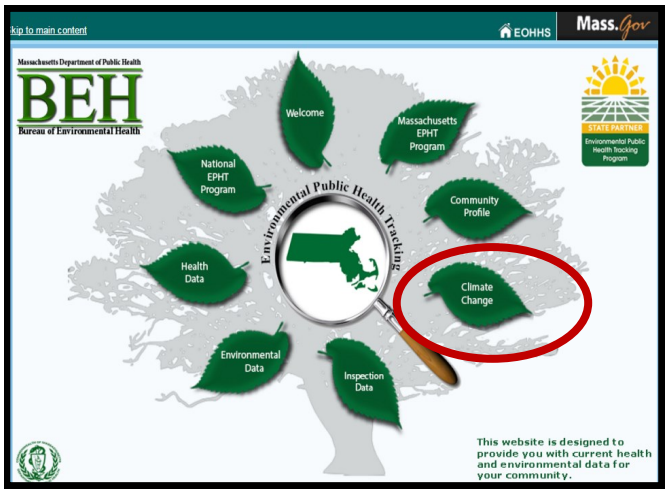


Figure 2: The Direct and Indirect Effects of Climate Change on Health and Well-being
Lancet. 2015 Nov 7;386(10006):1861-914
www.thelancet.com

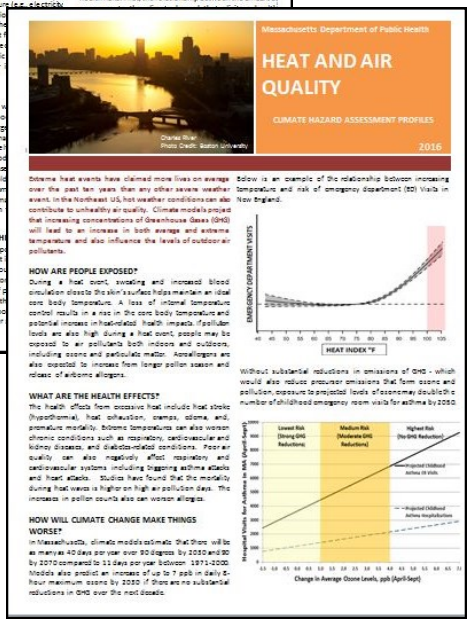
MASSACHUSETTS PUBLIC HEALTH TRACKING PORTAL (EPHT)

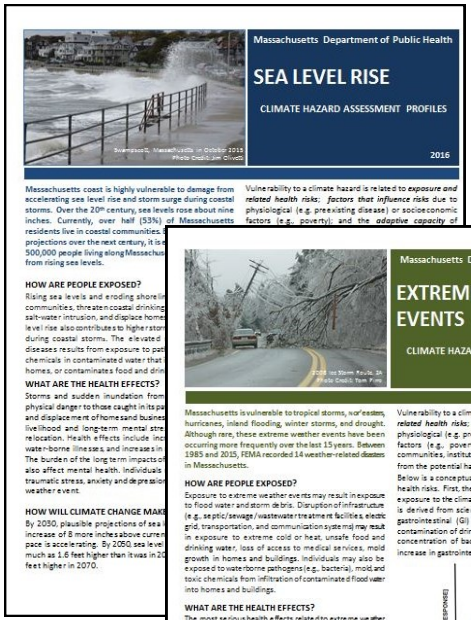
MDPH is leveraging the Massachusetts Environmental Public Health Tracking (MA EPHT) portal to assist state and local partners in preparing for climate change. The EPHT portal provides a dynamic web platform to engage various stakeholders in project planning efforts to reduce health impacts from climate change. This includes access to community-level climate-related health data, and environmental and health indicators to support adaptation planning at the local level. For more information on implementing the BRACE framework in Massachusetts please visit: https://matracking.ehs.state.ma.us/Climate-Change/index.html

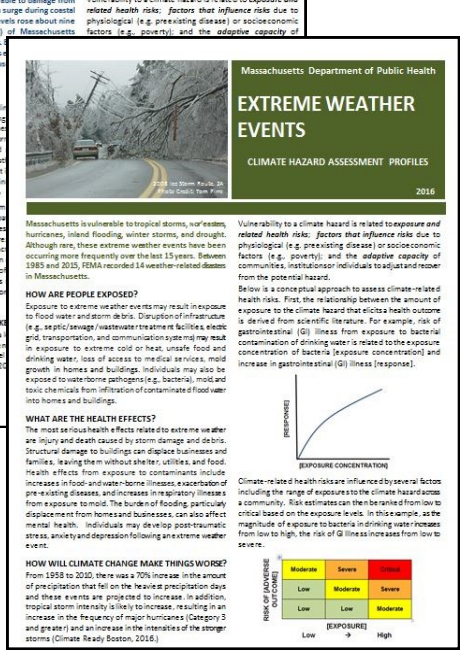


CLIMATE HAZARDS PROFILES

To begin to implement the BRACE framework, MDPH developed Climate and Hazard Assessment Profiles (CHAPs) that describe the climate hazard, vulnerable populations, and interventions for each of the climate hazards of most concern in Massachusetts. To access the CHAPs please visit https://matracking.ehs.state.ma.us/Climate-Change/climate_and_health_profile.htmlcmate_and_health_profile.html







VULNERABLE POPULATIONS IN MASSACHUSETTS

Certain populations are more vulnerable to changing climate effects. The term "vulnerable populations" refers to people or groups that may be more susceptible to the health effects of climate change. Factors that are considered in identifying such populations include health status, age, economic resources, social support, and location (e.g., proximity to the coastal /flood plain, access to community services). Vulnerable populations are commonly identified as children, the elderly, people with disabilities, low-income groups, and persons with certain health conditions. When considering the health impacts of climate change, it is important to identify individuals that may be more susceptible. When seeking to identify vulnerable populations, it is important to first characterize the baseline health status of the population. A baseline community health profile also allows for comparisons between groups to determine how certain groups differ in their health status. Assessing the baseline conditions of a population can include looking at indicators of health, as well as social, economic, and environmental determinants of health.

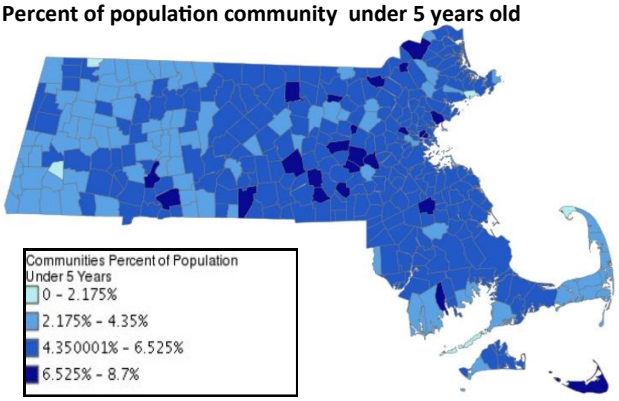
Examples of Vulnerable Populations

- People over the age of 65 and living alone
- Children under the age of 5
- People with less than high school education
- People living below the poverty line
- People living in a flood Zone
- People living in areas lacking greenspace

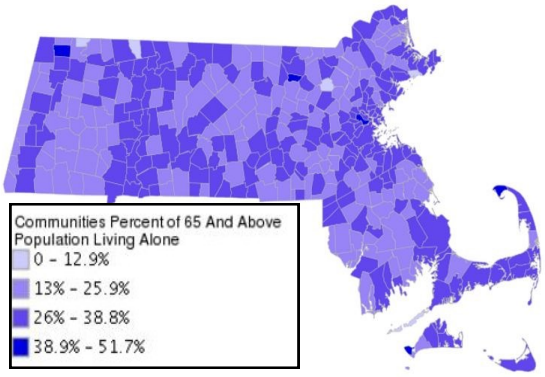
VULNERABILITY MAPPING TOOL

A key feature of Step 1 BRACE framework is to provide information to local officials about the populations that are most vulnerable to the changing climate effects. Equipped with this information, local officials can work with community residents to better prepare for climate effects. To support such work, MDPH has created an interactive mapping system that identifies vulnerable populations at the municipal and census tract levels. The mapping portal can be found at maps.massgis.state.ma.us/map_ol/cc_vuln.php

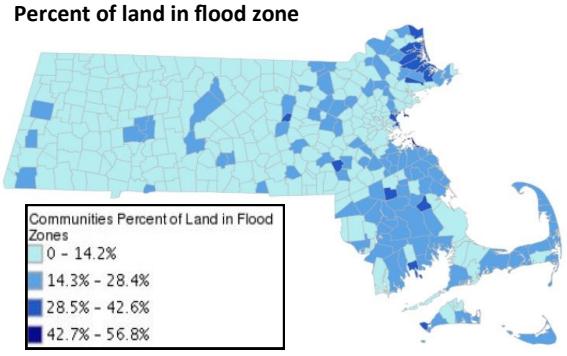
Percent of population community under 5 years old



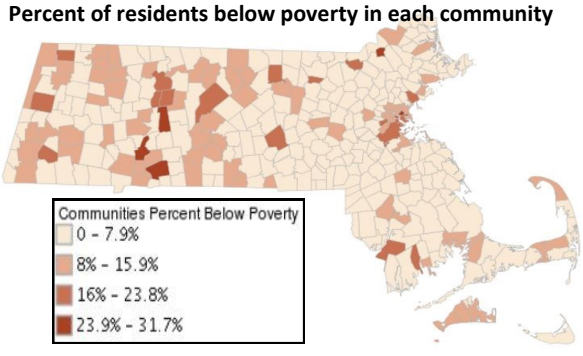
Percent of 65 years and older living alone



Percent of land in flood zone



Percent of residents below poverty in each community



FUTURE TOOLS

The 2011 Massachusetts Climate Change Adaptation Report provides a road map for developing practical strategies to adapt to the predicted changes in climate across all major sectors in Massachusetts. This includes support for the improvement of our existing public health, health care, and local health infrastructure to address climate change effects and promote a strong, healthy and resilient state. MDPH plans to provide additional information to operationalize the intervention recommended in the Massachusetts Climate Change Adaptation Report and support adaptation planning at the local level.

Examples of Climate Change Interventions from the Massachusetts Climate Change Adaptation Report

Heat and Air Quality	Vector-borne Disease	Waterborne Illness	Food-borne Illness
• Work with local health departments to develop and implement a heat response plan in your community, including identifying and mapping vulnerable populations and areas in your community using DPH's Vulnerability Mapping Tool • Determine if cooling centers can operate during loss of electricity • Promote heat island effect reduction strategies: cool roofs, green roofs, green spaces, and designs that minimize heat magnification • Support implementation of DPH's Mass in Motion and other Wellness programs to increase community resilience • Continue to control air pollution direct particulate emissions and precursors of particulates such as sulfur and oxides of nitrogen and other asthmagens • Enhance clean energy generation programs.	• Continue requiring reporting of human cases and positive laboratory results of vector-borne diseases including diseases that are not currently endemic to Massachusetts • Educate the public, particularly high-risk groups, about personal prevention practices, and encourage their adoption • Maintain mosquito surveillance at multiple sites throughout Massachusetts • Educate the public about mosquito breeding habitats and opportunities to eliminate them (such as reducing areas of standing water) • Consider using community-based groups and trade organizations to do outreach and education about risks and prevention, and to connect individuals and families to appropriate services	• Strive to improve and enforce water quality protections from water bodies that are used for subsistence fishing • Create a forum for gathering information on exposures and diseases related to extreme weather events and flooding, and the potential impact of climate change on morbidity and mortality • Follow guidelines on drinking water from outdoor sources • Continue to monitor water quality reports, toxicology reports, epidemiologic reports, and the impacts of storms and hurricanes on water-borne diseases • Clean up contaminated floodwater, sand bags, and other debris from streets and other public areas • Conduct outreach and education on water conservation practices, and reducing the use of pesticides and fertilizers	• Continue to monitor food supplies for potential disease outbreaks • Continue to track food-borne illnesses to determine if new patterns or agents are emerging • Support local health programs to monitor retail food markets and restaurants • Map manufacturing factories in flood zones • Enhance support for Vibrio parahaemolyticus (Vp) control program • Evaluate program to improve refrigeration systems • Provide information on how to prevent and recognize food-borne illnesses

For more information or a complete list of Massachusetts Climate Change Adaptations please visit: **https://matracking.ehs.state.ma.us/Climate-Change/index.html**

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