MA Environmental Public Health Tracking

Regional Planning Agency • Healthy Community Design
Climate Change + Health • May 26, 2016
Glennon Beresin, Program Manager EPHT
AGENDA

1. MA EPHT Overview
2. Demonstration
3. Future EPHT Tools
HISTORY

• In 2000, the Pew Environmental Health Commission identified the lack of basic information needed to link environmental hazards and chronic diseases.

• The MA EPHT is part of the CDC’s federal Environmental Public Health Tracking program

• The first EPHT Portal was created in 2008

• The current version went live at the end of 2014

• Now, moving toward a focus on data utilization and enhancements
EPHT is a COLLABORATION

- The Centers for Disease Control
- US Environmental Protection Agency
- Center for Health Information and Analysis
- Massachusetts Department of Environmental Protection
- MDPH Massachusetts Cancer Registry
- MDPH Registry of Vital Records and Statistics
- MDPH Center for Birth Defects
- MDPH Office of the General Counsel
- MDPH Bureau of Community Health and Prevention
- Community Assessment Program
- Environmental Epidemiology Program
- Environmental Health Outreach and Edu Program
- Environmental Toxicology Program
- GIS Center
- Indoor Air Quality
EPHT DATA

What Types of Data?

a. Nationally Consistent Data Measures (NCDMs)

b. Non-NCDMs
DEMONSTRATION
Welcome to MA EPHT
National EPHT Program
EPHT In Action
Success Stories
Tutorial
Nurse and the Tracking Network Podcast
Tracking-related Online Training
Related Links
About Our Data
Contact Us

About MA EPHT
Inspection Data:
- Climate Change
- Food Protection
- Mammography

Welcome
This website is designed to provide Massachusetts Environmental Public Health Tracking information to your community.

The MA EPHT Program
Welcome

Health Data:
- Asthma
- Birth Defects
- Cancer
- Carbon Monoxide Poisoning
- Heart Attack
- Heat Stress
- Pediatric Diabetes
- Reproductive Outcomes

A key feature of this website is that you can make tables, charts, and maps of environmental and health data for the community that you live in. This website also provides important background information including limitations associated with the data. It is important to stress that the data cannot be used to determine the cause of disease. They can be used to identify areas where public health action is needed.

What's New on MA EPHT

July 14, 2015
New content area! Visit our Radon page for information about radon in Massachusetts.

June 29, 2015
Updated website design has been released. Click here for additional details.

June 23, 2015
Check out our updated Climate Change page. We have added a lot of new content including a climate vulnerability mapping tool.

June 5, 2015
MA EPHT has uploaded 2 new years of hospitalization and emergency department data. Data for 2011 and 2012.
Climate Change

There is widespread agreement among climate scientists that the climate is changing. Massachusetts has been leading the nation in addressing ways to mitigate the effects of climate change by reducing greenhouse gas emissions, building a clean energy economy, and proactively preparing for the public health threats and challenges posed by a changing climate. Massachusetts is already experiencing the effects of climate change from hotter summers and rising sea levels to more frequent severe weather events and inland flooding. Climate impacts are predicted to degrade air quality, compromise infrastructure, homes and buildings, increase the risk of injuries and fatalities from storm events; increase the risk of food and drinking water contamination; and increase vector-borne illnesses. The aftermath of Hurricane Katrina and Super Storm Sandy show how extreme weather events and economic stress can negatively affect mental health by increasing the risk of anxiety, depression, and traumatization.

In general, public health impacts from climate change are predicted to include **HCP103505** in:

- Number of residents experiencing heat stress
- Exacerbation of respiratory and cardiovascular diseases
- Exacerbation of asthma and allergies
- Illnesses associated with degraded water quality
- Geographic range and frequency of vector-borne diseases

Vulnerable populations - especially those with pre-existing health problems (e.g., asthma, cardiovascular disease), limited resources, and in close proximity to areas of greater risk (e.g., flood zones, living on the coast) - are most at risk to climate-related impacts. DPH/BEH is working with local health and municipal partners and other state and federal agencies to address the environmental and community health impacts of climate change. Below is a summary of ongoing efforts at DPH/BEH.

### Massachusetts Climate Change Adaption Report

In May 2009, the Secretary of Massachusetts’ Energy and Environmental Affairs (EEA) created the Climate Change Advisory Committee, under the authority provided in the state's 2008 Global Warming Solutions Act (GWSA). In addition to requiring targets to reduce GHG emissions, the GWSA directed the EEA to develop a report on the potential health impacts of climate change in Massachusetts. The report, the “Massachusetts Climate Change Adaptation Plan: Health Impacts and Opportunities for Mitigation,” was released in 2010. The plan identified key health impacts and mitigation opportunities, including:

- **Increased heat-related health effects:** The plan identified strategies to reduce indoor and outdoor temperatures, increase awareness of heat-related health risks, and improve public health preparedness.
- **Stress on water resources:** The plan recommended implementing water conservation measures to address the increased demand for water.
- **Increased flooding:** The plan suggested developing community disaster plans and improving infrastructure to withstand future floods.

### Climate Change

- **Climate and Health Profiles**
- **Extreme Heat & Air Quality**
- **Inland Flooding**
- **Sea Level Rise**
- **Severe Weather Events**

### Conceptual Pathways

### Vulnerable Populations

- **Mapping Tool**

### Maps

- **Flood Zones**
- **Heat Vulnerability Index**
- **Vulnerable Populations**
- **EOHHS Regions**
- **EPRC Regions**

### FAQs

### Related Links
<table>
<thead>
<tr>
<th>Climate Event/Impact</th>
<th>Risk Factor</th>
<th>Populations at Risk</th>
<th>Vulnerable Infrastructure, Systems, and Physical Features</th>
<th>Near - Term and Longer - Term Health Impacts</th>
<th>EOHHS Regions Affected</th>
<th>EPRC Affected</th>
</tr>
</thead>
</table>
| Increased temperature extremes | - Extreme heat  
- Extreme cold  
- Air pollution  
- Increase in amount and allergenicity of pollen  
- Longer growing/pollen season | - Homes with no AC  
- Urban areas and those without forest canopy  
- The elderly and the very young  
- Non-white races  
- Homeless or transient individuals  
- Outdoor workers, people active outdoors  
- Low income communities  
- Those with compromised immune systems  
- Individuals with pre-existing respiratory and CVD conditions | - Heat can cause pavement to expand and soften, which can lead to rutting and potholes  
- Heat can cause rail tracks to expand and buckle  
- Increased energy consumption or overstressing of electrical grid  
- Changes in ventilation heating and cooling loads/fresh air provision  
- Damage to and degradation of building materials  
- Alteration in indoor allergen levels  
- Damage to crops and plants/negative impacts to agriculture | - Heat stress/stroke or hyperthermia  
- Cardiovascular stress and failure  
- Heat exhaustion  
- Increases in heat-related mortality, cardiovascular related mortality, respiratory mortality and all-cause mortality  
- Heat related kidney damage  
- Increase respiratory symptoms  
- Damage to lung tissue  
- Inflamed airways  
- Exacerbation of asthma and allergen-mediated illness  
- Exacerbation of COPD  
- Exposure to chemicals from damaged building materials  
- Reduced access to food/malnutrition | 1  
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<table>
<thead>
<tr>
<th>Data</th>
<th>Geography</th>
<th>Data Sources</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma (inpatient and ED)</td>
<td>Community</td>
<td>Hospitalization data from MDPH/BEH EPHT Portal¹</td>
<td>Rate of health outcomes in study area by community for 2008-2010</td>
</tr>
<tr>
<td>Myocardial infarction</td>
<td>Community</td>
<td>Hospitalization data from Center for Health</td>
<td>Rate of health outcomes in study area by zip code for 2008-2010</td>
</tr>
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<td>Heat Stress</td>
<td>Community</td>
<td>Information and Analysis</td>
<td></td>
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<tr>
<td>Congestive heart failure</td>
<td>Community</td>
<td>Hospitalization data from Center for Health</td>
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<td>Stroke</td>
<td>Community</td>
<td>Information and Analysis</td>
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<td>Hypertension</td>
<td>Community</td>
<td>Hospitalization data from Center for Health</td>
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<td>Pediatric diabetes</td>
<td>Community</td>
<td>BRFSS²</td>
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<td>Adult obesity data</td>
<td>Community</td>
<td>BRFSS²</td>
<td>Outcomes for 2009</td>
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<td>Adult hypertension</td>
<td>Community</td>
<td>BRFSS²</td>
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<tr>
<td>Adult diabetes</td>
<td>Community</td>
<td>BRFSS²</td>
<td></td>
</tr>
<tr>
<td>No exercise</td>
<td>Community</td>
<td>BRFSS²</td>
<td></td>
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<td>Ozone</td>
<td>County</td>
<td>MDPH/BEH EPHT Portal¹</td>
<td>Number of days over NAAQS and Number of person-days over the NAAQS for 2000-2011</td>
</tr>
<tr>
<td>Particulate matter (PM2.5)</td>
<td>County</td>
<td>MDPH/BEH EPHT Portal¹</td>
<td></td>
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</tbody>
</table>

1. Environmental Public Health Tracking portal is a web-based portal housed at MDPH/BEH that contains a variety of data including health data, environmental data, and health promotion information (e.g., bike trails, walking trails)

2. Behavioral Risk Factor Surveillance System is an annual survey of health issues, health conditions, risk factors, and behaviors
CLIMATE

Climate Change Vulnerability Map
Provided by Massachusetts Dept. of Public Health - Bureau of Environmental Health
Asthma Overview

Asthma is an illness that affects the respiratory tract and airways that carry oxygen into and out of the lungs. During an asthma attack, these airways constrict, resulting in wheezing and difficulty breathing. Asthma can affect people of all ages. However, it often starts in childhood and is more common in children than adults.

Asthma is a common chronic disease that continues to increase in prevalence. It is the most common chronic disease in children. The state of Massachusetts has an elevated rate of asthma compared to the national prevalence rate.

Causes of asthma are unknown. However, episodes of asthma (asthma attacks) can be triggered by certain environmental pollutants such as air pollution, mold, pets/pet dander, and dust mites. A number of studies have reported links between exposure to air pollution and asthma. Reducing exposure to these pollutants can help prevent symptoms. Other factors are also linked with asthma. Therefore, when comparing asthma rates across geographic areas, factors such as access to medical care and health behaviors (e.g., diet or exercise) must also be considered. The Massachusetts Department of Public Health (MDPH) participates in two programs associated with tracking asthma rates in the state.

Asthma hospitalization

Hospitalization resulting from asthma occurs regularly and often when unnecessary. Contributing factors include uncontrolled asthma conditions, limited access to health care services, and/or inadequate medical treatment practices.

Data on hospitalization visits are collected by the Massachusetts Center for Health Information and Analysis (CHIA) from all acute care hospitals and satellite emergency facilities in the state. CHIA collects information on all inpatient hospital admissions and emergency department (ED) visits.

MDPH analyzes these data and provides asthma hospitalization rates for adults and children of all ages for both inpatient hospital admissions and ED visits. Some asthma patients enter the hospital through an ED, but are later admitted to the hospital as inpatients. These patients are included in both the ED visit and inpatient hospitalization rates.

Pediatric asthma tracking in elementary and middle schools

Asthma is a chronic disease that most commonly starts during childhood. To track asthma prevalence among children in Massachusetts, a state-wide surveillance program was implemented with participation from public and private schools serving grades
# ASTHMA

## Massachusetts Environmental Public Health Tracking

<table>
<thead>
<tr>
<th>Content Area</th>
<th>Geography Type</th>
<th>Year Range</th>
<th>Demographic Information</th>
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<tbody>
<tr>
<td><strong>Select a Topic:</strong></td>
<td><strong>Select Geography View:</strong></td>
<td><strong>Select Year or Year Range</strong> From: 2000</td>
<td><strong>Select Rate Type:</strong> Separately by Age Group * All Age Groups Combined (age-adjusted)</td>
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<td>- Asthma</td>
<td>- State</td>
<td>- To: 2010</td>
<td>* Mapping is disabled when viewing data separately by age group.</td>
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<td>- Myocardial Infarction</td>
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<td>- Emergency Dept Visit</td>
<td>- EOHHS Region</td>
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<td>- Hospital Admission</td>
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<td><strong>Select Age Groups:</strong> From:</td>
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<td>- Acton</td>
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<td>To: 65 and over</td>
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<td>- Acushnet</td>
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<td>- Adams</td>
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<td>- Agawam</td>
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<td>- Andover</td>
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**Select Sex:**
- Male
- Female
- Total

[Submit]
ASTHMA

Select Geography:
- Abington
- Acton
- Acushnet
- Adams
- Agawam
- Alford
- Amherst
- Andover
- Aquinnah
- Arlington

Select Time Period:
From: *
2000
To: *
2012

Select Sex:
- Female
- Male
- Total

Age Adjusted Rates of Emergency Dept Visit for Asthma per 10,000 People,
for Males and Females Combined for 2000 - 2012 *

(rates displayed are annual averages for the selected years)
### Crude Rates of Hospital Admission for Asthma per 10,000 People, for Males and Females Combined for 2000 - 2010

**Abington**

<table>
<thead>
<tr>
<th>Year</th>
<th>Age Group</th>
<th>Case Count</th>
<th>Crude Rate</th>
<th>95% Confidence Intervals</th>
<th>Statistical Significance of Difference from State Prevalence</th>
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<td>7.0 - 27.4</td>
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<td>65 and over</td>
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FUTURE WORK

• Performance Enhancements
• Software Updates and improved visualizations
• Targeted outreach materials
• User Feedback & Training
• Applied, cross-cutting “Modules”
FUTURE WORK

Data Enhancements

Data Modules In Progress
• Social Determinants of Health
• Community Health Needs Assessments (CHNA)
• Health Impacts Assessments (HIA)

New Climate NCDM’s in development
• Extreme Weather related morbidity and mortality
• Lyme Disease
• Heat Index
FUTURE – Customizable Geographies
Air Quality Monitoring and Modeled Data Combined
Percent of Days with PM2.5 Concentrations Over the NAAQS for 2007

[Map showing air quality data at different levels: County, Town, Tract]
Table 2. Annual average hospitalizations/ED visits by weather associated E-code

<table>
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<tbody>
<tr>
<td></td>
<td>Hosp (%)</td>
<td>ED (%)</td>
<td>Hosp (%)</td>
<td>ED (%)</td>
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<tr>
<td>Heat</td>
<td>129 (45.1)</td>
<td>878 (56.5)</td>
<td>627 (61.7)</td>
<td>3169 (84.6)</td>
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<td>Cold</td>
<td>140 (49.0)</td>
<td>450 (29.0)</td>
<td>340 (33.5)</td>
<td>187 (5.0)</td>
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<td>Storm/Flood</td>
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<td>49 (3.2)</td>
<td>6 (0.6)</td>
<td>55 (1.5) (median=21)</td>
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<td>Lightning</td>
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<td>23 (1.5)</td>
<td>22 (2.2)</td>
<td>129 (3.4)</td>
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<td>Weather not</td>
<td>8 (2.8)</td>
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<td>21 (2.1)</td>
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CONTACT US!