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Massachusetts Population Health Information Tools: Tools for Community Health Needs Assessment and Planning

Erin Collins
*Massachusetts Department of Public Health*

*Et al.*

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Massachusetts Population Health Information Tools: Tools for Community Health Needs Assessment and Planning

Community Engagement & Research Symposium/UMMC
March 3, 2017
If you would like access the tool we will be demonstrating, please follow these instructions before the session begins:

1. Log onto the network labeled “Umassmed-guest”
2. Once connected open web browser and accept the terms and conditions
4. Minimize the page until directed to open it
Massachusetts Department of Public Health
Bureau of Environmental Health

Presenters

Erin Collins, MS, Epidemiologist
Community Assessment Program
Erin.Collins@MassMail.State.MA.US

Dr. Robert Knorr, Director
Environmental Epidemiology Program
Robert.Knorr@MassMail.State.MA.US

Dr. Fran Medaglia, Director
Environmental Health Clinical Outreach & Education
Frances.Medaglia@MassMail.State.MA.US
Public Health Council approved revisions to the Determination of Need regulations in Massachusetts
Published on January 16, 2017
Discussion Topics

MDPH Health Needs Assessment Tools*

- Environmental Public Health Tracking (EPHT)
- Population Health Information Tool (PHIT)
- Social Determinates of Health (SDoH) Tool

*Data Access

www.mass.gov/dph/research
The Environmental Public Health Tracking Network

The Tracking Network is a system of integrated health, exposure, and hazard information and data from a variety of national, state, and city sources.

http://www.mass.gov/dph/matracking
Global Warming Causing Disease to Rise

Associated Press (November 2006)
Health Data and Content

- Asthma
- Birth Defects
- Cancer
- Childhood Blood Lead Screening
- CO Poisoning
- Heart Attack
- Heat Stress
- Pediatric Diabetes
- Reproductive Health Outcomes
Environmental Hazard Data & Content

- Air Quality (ozone, PM 2.5)
- Drinking Water Quality
- Climate Change
- Radon Resources
3 Modules within EPHT to Examine Data

- Community Profiles (by town)
  - [http://www.mass.gov/dph/matracking](http://www.mass.gov/dph/matracking)

- Childhood Lead Screening Community Progress Report (by town)
  - [http://www.mass.gov/dph/clppp](http://www.mass.gov/dph/clppp)

- National Portal “Info by Location” (by county)
  - [https://ephtracking.cdc.gov/InfoByLocation/](https://ephtracking.cdc.gov/InfoByLocation/)
Demonstration

http://www.mass.gov/dph/matracking
Thought Exercise

There have been several recent reports in the media about lead paint in homes within environmental justice (EJ) communities in Massachusetts. As a community leader in Worcester, you decide to review the lead data available on the EPHT portal for the city of Worcester.
This website is designed to provide you with current health and environmental data for your community.
Welcome to the Massachusetts Environmental Public Health Tracking (MA EPHT) Program Website

This website is designed to provide you with access to current and accurate health and environmental information available for Massachusetts. You can use Massachusetts Environmental Public Health Tracking (MA EPHT) information to learn about the health of your community and access information about your environment.

The MA EPHT Portal includes the latest available data for:

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

**Environmental Data:**
- Air Quality
- Drinking Water Quality
- Radon

**Climate Change Data:**
- Vulnerable Populations

**Inspection Data:**
- Food Protection
- Lead Inspections
- Mammography

"...linking environmental and health data enables a timely response to potential public health problems related to the environment"
Former CDC Director Dr. Julie L. Gerberding

What's New on MA EPHT

**December 8, 2016**
New Data Available! You can now look at 2015 for Childhood Flood Lead data, and 2014 for Outdoor Air Quality data.

**October 8, 2016**
New Content Posted! Check out our Health Impact Assessment web page, under Planning & Tools tab in the main menu and the Recreational Beaches web page, under the Environment tab in the main menu.

**October 1, 2016**
We've Updated! You might notice a new look and feel to our data queries and reports - we've recently upgraded the software that runs our system that enhances performance.
Welcome to MA EPHT
National EPHT Program
EPHT In Action Video
Success Stories
Video Tutorial
Nurse and the Tracking Network Podcast
Tracking-related Online Training
Related Links
About Our Data
Contact Us
Glossary

Welcome to Massachusetts Environmental Public Health Tracking (MA EPHT) Program Website

The MA EPHT Program can help you gain quick access to the latest findings and accurate health and environmental information available for the Massachusetts Environmental Public Health Tracking (MA EPHT) information to learn about the health of your community.

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

Climate Change Data:
Vulnerable Populations

Inspection Data:
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Lead Inspections
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CANCER

Cancer Overview

Cancer is not one disease, but a group of diseases. According to the American Cancer Society, one in two men and one in three women will develop cancer during his or her lifetime. Research has shown that there are more than 100 different types of cancer, each with different causative (or risk) factors. A risk factor is anything that increases a person’s chance of developing cancer and may include hereditary conditions, medical conditions or treatments, lifestyle factors, or environmental exposure. Cancer may be caused by several factors acting together over time. In general, most adult cancers have a long period of development that can range from 10 to 40 years.

The World Health Organization (WHO) estimates that 30% of cancer could be prevented, mainly by not using tobacco, having a healthy diet, being physically active and preventing infections that may cause cancer.

Cancer incidence data provided on this website are obtained from the Massachusetts Cancer Registry (MCR) within the MDPH Office of Data Management and Outcomes Assessment. The MCR is a population-based cancer registry that collects information on new diagnoses of cancer in Massachusetts.

The MA EPHT website presents cancer data using two different types of statistics: direct incidence rates and indirect incidence rates. For more information on these statistics, select the Direct Incidence Rates and Indirect Incidence Rates tabs located at the top of this page.

Data Considerations

When reviewing and interpreting cancer incidence data, it is important to consider the following:

Click on the Maps & Tables button to begin a query
Enter your selections top to bottom, left to right. Options in later columns are dependent on earlier selections.
Lung and Bronchus Cancers for Males and Females Combined in Worcester for 2004 - 2008

DEFAULT MAP

- SIR is more than 100% above expected
- SIR is 51% to 100% above expected
- SIR is 15% to 50% above expected
- SIR is within 15% of expected
- SIR is 15% to 50% below expected
- SIR is more than 50% below expected
- Statistically significantly greater
- Statistically significantly lower
- Not shown due to small numbers
- Not calculated
ALTERNATIVE BASEMAP: CANCER

Lung and Bronchus Cancers for Males and Females Combined in Worcester for 2004 - 2008

Map showing the distribution of lung and bronchus cancers with different color coding for various SIR categories.
SEARCH LOCATION

Lung and Bronchus Cancers for Males and Females Combined in Worcester for 2004 - 2008

Cancer Mapping
- Geography: 25027731600
- Cancer Type: Lung and Bronchus Cancers
- Observed: 17
- Expected: 14.0
- Standardized Incidence Ratio: 121
- 95% Lower Confidence Interval: 71
- 95% Upper Confidence Interval: 194
- Statistical Significance: Not statistically significantly different

Legend:
- SIR is more than 100% above expected
- SIR is 51% to 100% above expected
- SIR is 15% to 50% above expected
- SIR is within 15% of expected
- SIR is 15% to 50% below expected
- SIR is more than 50% below expected
- Statistically significantly greater
- Statistically significantly lower
- Not shown due to small numbers
- Not calculated
Lung and Bronchus Cancers for Males and Females Combined in Worcester for 2004 - 2008

ADJUST SYMBOLOGY
Empowering with Information

- EPHT data can provide a baseline health status of the community, neighborhood or school (asthma data).

- EPHT data can support decision making related to health & environmental issues.

- EPHT data can help evaluate potential health & environmental impacts of existing projects.

- EPHT can support budgetary decisions & policies.
Coming Soon…

1. Mobile friendly website

2. New Data Modules
   - Social Determinants of Health (SDoH)
   - Population Health Information Tool (PHIT)

3. New content
   - Exposures
   - Environmental Justice Populations/Identification of Vulnerable EJ Populations

4. New datasets
   - Indoor Air Quality inspections
   - Lead Inspections
   - Community/Census Tract Level Ambient Air Exposure Data
Other Data Tools Being Developed

- Population Health Information Tool (PHIT) – Expected to be available by the end of the year

- Social Determinants of Health (SDoH) Tool – Expected to be available by the end of the year.
Population Health Information Tool (PHIT)

- Importantly, PHIT is built upon the EPHT infrastructure and will have the same functionality, though with greatly expanded health outcome data.

- Originally, PHIT was envisioned to help tax-exempt hospitals conduct Community Health Needs Assessments (CHA) ... a requirement of the Affordable Care Act.
  - Hospitals are required to consult and document consultations with state and local health departments in developing CHAs and intervention strategies.

- Now, the tool is additionally being developed to help serve the new MDPH Determination of Need process, as well as others prioritizing and conducting community health programs.
Preliminary PHIT Variables

Access to care
Age
Alcohol use
Asthma
Cancer
Cardiovascular
Citizenship
Crime
Diabetes
Disability
Education
Environmental exposures
Employment
Family status
Food access
Fruit/veg consumption
Hospitalizations
Housing
Substance abuse
Income/poverty
Language
Overweight/obese
Physical activity screening
Immunization
Infectious disease
Injury
Insurance coverage
Mental health screening/treatment
Mortality
Population smoking/tobacco usage
Race/ethnicity
Std/sti indexes
Suicide
External DPH Vision

- health outcome
- geographic granularity
- time period
- sub-population

Interactive map

Tailored reports

Output

Downloadable data

Example data table:

<table>
<thead>
<tr>
<th>Year</th>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>Category1</td>
<td>123</td>
</tr>
<tr>
<td>2021</td>
<td>Category1</td>
<td>456</td>
</tr>
<tr>
<td>2022</td>
<td>Category1</td>
<td>789</td>
</tr>
<tr>
<td>2020</td>
<td>Category2</td>
<td>987</td>
</tr>
<tr>
<td>2021</td>
<td>Category2</td>
<td>786</td>
</tr>
<tr>
<td>2022</td>
<td>Category2</td>
<td>567</td>
</tr>
</tbody>
</table>
PHIT Initial Query Box to Select Hospital and Geography of Interest
PHIT Output for Lead Poisoning by Community and Hospital Service Area

Community Data

<table>
<thead>
<tr>
<th>Clinical Care</th>
<th>Childhood Lead Poisoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent Screened for Lead</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Community</th>
<th>Sex</th>
<th>Age Group</th>
<th>Case Count</th>
<th>Percent Screened - Rate per 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>Amherst</td>
<td>Male</td>
<td>9 to 47 Months</td>
<td>167</td>
<td>57.20</td>
</tr>
<tr>
<td>2014</td>
<td>Amherst</td>
<td>Female</td>
<td>9 to 47 Months</td>
<td>161</td>
<td>74.00</td>
</tr>
<tr>
<td>2014</td>
<td>Amherst</td>
<td>Total</td>
<td>9 to 47 Months</td>
<td>328</td>
<td>64.40</td>
</tr>
</tbody>
</table>

Sex

- Male
- Female
- Total
Social Determinants of Health (SDoH) Tool

- Online publicly available tool that can be used to visualize the relationships between social determinants of health (SDoH), environmental exposures, existing health conditions and health care services.

- The tool is also being built upon the EPHT infrastructure to provide dynamic access to SDoH data for customized geographies, selected health conditions, and health care service categories utilizing mapping and statistical software currently available to DPH.

- The proposed tool will help ascertain vulnerability patterns and locally concentrated areas or “hot spots” of at-risk and disproportionately impacted populations.

- The tool will incorporate science-based SDoH instructional content, including explanation for how these non-medical factors play an important role in determining overall health with emphasis on why increased investment in improving social determinants of health will provide substantial health benefits and reduce health care costs.

- Its development has a Community Engagement component.
Initial SDoH Outcomes

Health Outcomes
- Asthma (pediatric and adult)
- Pediatric Diabetes
- Heat Stress
- Myocardial Infarction
- CO Poisoning
- Childhood Blood Lead levels
- Reproductive Outcomes (low birth weight, infant mortality, prematurity)
- Birth Defects (selected types)
- Cancer Incidence (selected types)
- COPD

And

Environmental Exposures:
- Public Drinking Water Contaminants (Heavy Metals, Organics)
- Ambient air pollutants (e.g., Ozone, PM2.5)
- Extreme Heat
- Flooding
- Noise
- Radon
Example Query Prompt

Select your Project Type:
- Health Impact Assessment
- Community Needs Assessment
- Climate Change Adaptation
- Not Specified

Select Your Social Determinants:
- Manually Select Indicators
- Heat Vulnerability Index

Select Your Geography:
- County
- Community
- Census Tract

View by:
- Health Outcomes
- Exposures

Select an Exposure:
- Flooding
- Heat
- Extreme Weather
- Wildfires
Mock Exposure View: Chart Below

Main Map: Heat Vulnerability Index

Index Components:

- % >65 Living Alone
- % In Poverty
- % Minority
- % Households with AC

Legend:
- Red: High Heat Stress + High Vulnerability
- Orange: High Heat Stress + Low Vulnerability
- Yellow: Low Heat Stress + High Vulnerability
- Light Green: Low Heat Stress + Low Vulnerability

View in Main Map
View Beside Main Map
Attributable Fraction Map
Targeted Community Engagement Projects

- Climate change readiness
- Emergency Preparedness
- Prevention of exposure to Lead in Paint and Drinking Water
- Minimizing exposure to Radon and Electromagnetic Fields
- Cancer prevention and addressing disparities
- Asthma intervention and Healthy Homes
- Health Impact Assessments (e.g., Transportation/Built Environment projects)
Engaging and Empowering Communities: Health Equity in Action
Tuesday, March 21, 2017, 01:00pm - 04:00pm

Presented by the Community Health Training Institute

Questions?

Email:  DPH-MA-EPHT@state.ma.us
Phone:  617-624-5757
Toll Free telephone:  1-800-319-3042