Climate Change: From Theory to Practice

Adaptation Response to Health Impacts Under the Maryland Climate Action Plan

Clifford S. Mitchell, MS, MD, MPH
Director, Environmental Health Bureau
Maryland Department of Health and Mental Hygiene
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Outline

• Describe public health strategy in context of Maryland State Climate Action Plan
• Describe the Maryland Climate and Health Profile Report and its findings
• Discuss next steps for Maryland Public Health Strategy for Climate Change
Key Recommendations for Adaptation

• Health
  – Conduct vulnerability assessments to gain a better understanding of risks and inform preventative responses
  – Integrate impact reduction strategies into State and local planning practices
  – Streamline and revise data collection and information dissemination channels
Public Health Strategy for Climate Change

- 2012 – CDC funds Maryland Public Health Strategy for Climate Change, using CDC BRACE framework (Building Resilience Against Climate Effects)
- Collaboration with UMCP, Wicomico, Prince George’s, Washington Counties, Baltimore City
Climate and Health Profile Report

- Focuses on using historical health data, climate projections to anticipate likely impacts across the State

- Outcomes:
  - Injuries and temperature-related events
  - Respiratory diseases
  - Waterborne illness and injuries
  - Foodborne illness
  - Vector borne disease
Demographic data on local jurisdictions, including indicators of morbidity, mortality, socio-economic status.
Historical Trends of Health Outcomes with Extreme Temperature and Precipitation
Salmonellosis: Incidence Rate Ratios and 95% Confidence Intervals for Exposure to Extreme Events

IRR (95%CI) for Temperature

IRR (95%CI) for Precipitation
### Vehicle Injury: Incidence Rate Ratios w/ 95% CI for Exposure to Extreme Events

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Extreme Temp. (ETT&lt;sub&gt;95&lt;/sub&gt;)</th>
<th>Extreme Precip. (EPT&lt;sub&gt;90&lt;/sub&gt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Model</td>
<td>1.01 [1.00-1.02]</td>
<td>1.23 [1.22-1.24]</td>
</tr>
<tr>
<td>Season</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring</td>
<td>1.05 [1.03, 1.07]</td>
<td>1.20 [1.18, 1.21]</td>
</tr>
<tr>
<td>Summer</td>
<td>1.09 [1.07, 1.10]</td>
<td>1.24 [1.22, 1.25]</td>
</tr>
<tr>
<td>Fall</td>
<td>0.88 [0.86, 0.90]</td>
<td>1.32 [1.31, 1.34]</td>
</tr>
<tr>
<td>Winter</td>
<td>0.97 [0.96, 0.99]</td>
<td>1.13 [1.12, 1.15]</td>
</tr>
</tbody>
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Projections of Health Outcomes with Extreme Temperature and Precipitation Based on Climate Forecasts
Findings – Statewide and Regional

- Across the range of likely outcomes, estimated magnitude of impacts for the State as a whole:

<table>
<thead>
<tr>
<th>HEALTH OUTCOME</th>
<th>RATES IN SUMMER*</th>
<th>PROJECTION RANKING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2010</td>
<td>2040</td>
</tr>
<tr>
<td>SALMONELLA INFECTION</td>
<td>6.1</td>
<td>7.8</td>
</tr>
<tr>
<td>HOSPITALIZATION FOR HEART ATTACK</td>
<td>38.2</td>
<td>64.3</td>
</tr>
<tr>
<td>HOSPITALIZATION FOR ASTHMA</td>
<td>29.4</td>
<td>69.6</td>
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</tbody>
</table>

*Rate per 100,000 residents, calculated as a seasonal average.

- And for each pilot jurisdiction in different regions of the State:

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<td>2010</td>
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<tr>
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<td>HOSPITALIZATION FOR HEART ATTACK</td>
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<td>29.7</td>
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<tr>
<td>HOSPITALIZATION FOR ASTHMA</td>
<td>22.2</td>
<td>38.9</td>
</tr>
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</table>

*Rate per 100,000 residents, calculated as a seasonal average.
Next Steps

- Maryland Climate Commission Adaptation and Response Working Group
- Continuing work on climate-health projections for State, and for local jurisdictions and planners
- Public engagement around adaptation planning
- Use of Environmental Public Health Tracking, other data display tools to help make data and projections available to individuals and groups
Outreach

Vulnerable Populations Perceive Their Health as at Risk from Climate Change

Karen L. Aebi1, Paul L. Delamater1, Caroline R. Beeler1, Crystal L. Upperman1 and Clifford S. Mitchell1

1. Introduction

Public perceptions of climate change risks have historically been widespread, whereas perceptions of different health outcomes due to climate change have been less common among the public. This is despite an increasing body of evidence that climate change is already affecting human health. Health outcomes associated with climate change include increased incidence of infectious diseases, such as malaria, dengue fever, and meningitis, as well as increased heat-related mortality, and reduced air quality due to increased pollution from wildfires. These health outcomes are expected to become more severe as climate change progresses.

1. Background

The National Academy of Sciences (2011) identified climate change as one of the most significant threats to public health in the United States. The report highlighted the need for public health professionals to better understand the health impacts of climate change and to develop strategies to mitigate and adapt to these impacts. The report also emphasized the importance of involving the public in the development of climate change response plans.

2. Methods

A survey was conducted to assess public perceptions of climate change and its health impacts. The survey was administered online and included questions about the perceived health impacts of climate change, as well as questions about individual risk perceptions.

3. Results

The survey results showed that respondents perceived climate change as a serious threat to public health. Most respondents believed that climate change would increase the frequency and severity of extreme weather events, which would in turn increase the incidence of infectious diseases and heat-related mortality. Respondents also believed that climate change would reduce air quality, which would increase the risk of respiratory and cardiovascular diseases.

4. Conclusion

Public perceptions of climate change risks are widespread, with many respondents perceiving climate change as a serious threat to public health. These perceptions are important for the development of climate change response plans, as they can help to inform public health professionals about the health risks associated with climate change and the strategies that are needed to address these risks. The survey results also highlight the need for continued research into the health impacts of climate change and the development of effective strategies to mitigate and adapt to these impacts.
Acknowledgements

RESEARCH TEAM

Maryland Institute of Applied Environmental Health University of Maryland, College Park

Amir Sapkota, PhD
Associate Professor

Chengsheng Jiang, PhD
Research Assistant Professor

Sutyajeet Soneja, PhD
Postdoctoral Fellow

Crystal Romeo Upperman, MPA
Program Manager

Jared Fisher, MPH
Graduate Student

Maryland Department of Health and Mental Hygiene

Clifford S. Mitchell, MS, MD, MPH
Director, Environmental Health Bureau

Ann Liu, PhD
Chief Epidemiologist, Environmental Health Bureau

Contributors

Rachel Hess-Mutinda, MSW
Environmental Health Bureau
Maryland Department of Health and Mental Hygiene

Nancy Servatius, PhD
Outreach Coordinator, Environmental Health Bureau Maryland
Department of Health and Mental Hygiene

Jed Miller, MD, MPH
Medical Advisor, Science Services Administration Maryland
Department of Environment

Steven Davis
Program Officer
Centers for Disease Control and Prevention

Xin-Zhong Liang, PhD
Professor, Department of Atmospheric and Oceanic Sciences
University of Maryland, College Park