Chesapeake Bay Program
Climate Resiliency Work Group

Climate Change, Public Health, and Diversity: An Overview of Maryland’s BRACE Program

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Learning Objectives

• Discuss the goals of the new Maryland Climate Change Program:
  – Identify populations not engaged in climate change discussions, or with increased vulnerability
  – Use results of Climate and Health Profile Report to guide discussion
  – Improve outreach, communications
  – Monitor adaptation implementation
Maryland Public Health Strategy for Climate Change

- Original discussion of public health impacts of climate change as part of adaptation work group for Climate Change Commission prior to 2006

- Department of Health and Mental Hygiene created Public Health Strategy for Climate Change with first CDC cooperative agreement 2012 – 2016

- New cooperative agreement 2016 – 2021
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
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>
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<tr>
<td>SALMONELLA INFECTION</td>
<td>6.1</td>
<td>7.8</td>
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<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>
</tr>
</tbody>
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*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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*Rate per 100,000 residents, calculated as a seasonal average.
Vulnerable Populations Perceive Their Health as at Risk from Climate Change

Karen L. Ablon1, Paul L. Delamater, Caroline B. Reisler1, Crystal R. Upperman1 and Chelsea S. Mitchell1

1. Introduction

Public perceptions of climate change risk have primarily been misunderstood, evidenced by physical changes in the environment [1,2] and the role of vulnerability in shaping people’s risk perceptions [3]. Hence, whether vulnerability significantly impacts people’s perceptions of climate change risk has been little explored. This study addresses this gap by exploring the relationship between vulnerable populations’ perceptions and their health. The aim of this study is to understand how vulnerable populations perceive climate change risk and how these perceptions may influence their health outcomes.

1.1. Literature Review

Salmanshock is an estimated 1.2 million cases of acute gastroenteritis, including 2,000 hospitalizations and 450 deaths, in the United States each year (Slocum et al., 2011). In Maryland, 1927 cases of culture-confirmed cases of Salmonella infections were reported to the FoodNet program between 2002 and 2012. Salmonella infections have been attributed to a number of sources, including produce, meats and eggs (Grimm, et al., 2014). Salmonella is typically transmitted to humans through the ingestion of food contaminated with the bacteria. Salmonella infections primarily occur during colder seasons characterized by elevated temperatures and precipitation, which can amplify bacterial replication and transmission into surface water and food crops, increasing the potential of infection (Grimme et al., 2006; Blaser, 2003; Koster et al., 2012; McMillan et al., 2012; Tang, 2010).

Global climate change is expected to increase the frequency and intensity of extreme temperature and precipitation events (IPCC, 2013). This study uses a climate-based proxy for climate change, the annual average temperature and precipitation, to explore whether people who perceive climate change risk are at increased risk of Salmonella infections.

1.2. Methodology

The study uses a mixed-methods approach, combining survey data with secondary data sources. The survey data were collected through a structured questionnaire administered to participants from vulnerable populations in Maryland. Secondary data sources include climate data from the National Oceanic and Atmospheric Administration (NOAA) and Salmonella infection data from the Maryland Department of Health.

1.3. Results

The analysis revealed a significant association between perceptions of climate change risk and increased risk of Salmonella infections. Participants who perceived climate change risk were more likely to report experiencing gastrointestinal illness symptoms, such as diarrhea and fever, compared to those who did not perceive climate change risk. The results also showed that individuals who perceived climate change risk tended to engage in protective behaviors, such as washing their hands more frequently.

1.4. Conclusion

The findings of this study highlight the importance of understanding the relationship between perceptions of climate change risk and health outcomes. Public health interventions should focus on improving vulnerability resilience by promoting awareness and education about the risks associated with climate change and advocating for policy changes that can mitigate the effects of climate change on vulnerable populations.
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
Maryland Climate Change Health Adaptation Program (MCCHAP)

- Cooperative agreement with CDC for 5 years (2016 – 2021)
- Goals:
  1. Develop overall statewide implementation and monitoring strategy for climate change health adaptation efforts that is integrated with the Maryland Climate Plan
  2. Provide tools and technical assistance to communities and other stakeholders on evidence-based public health interventions for climate adaptation
  3. Institute a surveillance system for climate interventions and their associated health outcomes as they are implemented
  4. Use surveillance results to further refine and improve state and local interventions
  5. Measure and communicate the health impacts of those interventions
Year 1 – Planning and Recruitment

- Identify and strengthen relationships with old and new stakeholders, including representatives from vulnerable populations
- Based on the State Climate Action Plan, develop an overall Maryland Implementation and Monitoring Strategy (IMS) for climate change health adaptation efforts
- Develop a plan for communicating the IMS to community, leaders, and other relevant stakeholders
- Communicate and disseminate IMS to key stakeholders
- Develop evaluation plan for IMS and associated interventions
Years 2 – 4 Implementation/Evaluation

- Diverse projects across the State
- Will be consistent with State Climate Change Plan
- Tools such as [Environmental Public Health Tracking](#)