Priority Actions for Climate Change Adaptation: Perspectives from the Health Sector

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Emerging Need for Action on Adaptation and Mitigation

Despite the evidence of harm...

The Public health effects of climate change remain largely unaddressed
Climate Change

Environmental Change

Human Health

Mitigation

Adaptation

Greenhouse Gas and Other Drivers
Potential Health Effects of Climate Change

Climate Change:
- **Temperature rise**
- **Sea level rise**
- **Hydrologic extremes**

Adapted from J. Patz
Climate Assessments that Focus on Health

- US GCRP
- United Kingdom
- Canada
- Australia

Synthesis and Assessment Product 4.6 (2008)
Types* of Climate Change Adaptation

- Reactive / autonomous
- Anticipatory / planned

- Much adaptation is reactive
  - e.g. extreme weather events

- Few anticipatory adaptation activities
  - considerable evidence of intention to act
  - e.g. vulnerability assessments (Berrang-Ford, Ford et al. 2010).

- Climate assessments (NCA, IPCC) provide critical evidence to support anticipatory adaptation

Towards an Anticipatory Approach:

CDC’s Priority actions for Climate Change

- A set of “priority actions”
  - guide a comprehensive approach to capacity building for climate change adaptation

- 2007 CDC Climate Change Workgroup recommendations

- Forms the cornerstone for CDC’s policy on Climate Change:
CDC’s Priority health actions for climate change

Key Audiences:
- General Public
- Policy Makers
- Scientific community

Actions
- Develop communications strategies and materials
- “Health in all Policies”
- Identify and fund priority research
Research Priorities and Gaps for Climate Change and Health

http://www.cdc.gov/climatechange/pubs HHCC_Final_508.pdf
• primarily asthma, hay fever, rhinitis, and atopic dermatitis for allergies

• chronic obstructive pulmonary disease (COPD) in adults

• impact approximately 50 million individuals within the United States

• management of asthma and other allergic diseases relies on several factors including strict control of exacerbation triggers of the diseases
Asthma, Allergies and Airway Disease

- **Air quality changes**
  - climate variables (temperature, humidity, etc.), CO₂, and other air pollutants may alter the production, distribution, and allergenicity of pollen particles.
  - climate change is likely to alter airborne dust, including indoor dust, and changes in dust composition resulting in asthma exacerbation.
  - **wildfires** from reduced rainfall will impact asthma and other respiratory diseases, both acutely and over time.
  - COPD is sensitive **air pollution** levels which will change in complex ways with the changing climate.

- **Floods and extreme weather**
  - **molds and mildew** exacerbate existing lung disease and cause others.

- **Oceans**
  - **harmful algae blooms** which can increase in frequency and intensity with changing weather could exacerbate asthma attacks.
Mitigation and adaptation

- Energy and transportation
  - Could increase or decrease certain air pollutants increasing or decreasing lung disease
  - Walking and bicycling can reduce pollution but increase traffic deaths
  - New fuels for cars could create new air pollutants with unknown impacts on lung function
  - Depending on the source for electricity, electric cars could increase air pollution and/or greenhouse gases

- Increased air conditioning use could reduce heat-related morbidity and mortality but increase demand for energy and increase pollution levels
The Public Health Response to Climate Change

Study and predict links between climate change and health

Track diseases and trends related to climate change

Investigate infectious water-, food-, and vector-borne disease outbreaks

Credible resource on health consequences of climate change

Partnerships with private sector, civic groups, NGOs, faith community, etc.

Public health workforce prepared to respond

Heat wave and severe storm response plans
CDC’s Priority health actions for climate change

Track data on environmental conditions, disease risks, and disease occurrence

Will require enhancement and expansion of national disease surveillance systems and the integration of infectious and environmental disease information systems.
CDC’s Priority health actions for climate change

Communicate the health-related aspects of climate change.

Extreme Heat Media

*Climate Change: Mastering the Public Health Role* webinar series

Preventing and Treating Heat Related Illness: an e-learning course
CDC’s Priority health actions for climate change

Identify locations and population groups at greatest risk

Examples:
- Epidemiologic investigations
- Vulnerability mapping
Vulnerability Assessments and Mapping

Philadelphia: Using NASA Data and Models to Improve Heat Watch Warning Systems for Decision Support

Austin, TX: Local Environmental Public Health Indicators for Climate Change
Priority health actions for climate change

Promote workforce development
Adaptation Strategies for Climate Change

- Develop evidence based approaches that identify spatially-specific vulnerable populations and places

- Enhance surveillance by integrating environmental, meteorological and health data

- Identify co-benefits for health of mitigation and adaptation strategies
Formally constituted as a Program in March 2009 with a congressional appropriation

Leads efforts to:
- identify the health impacts of climate change and the populations most vulnerable to these impacts;
- anticipate future trends;
- assures that systems are in place to detect and respond to emerging health threats;
- takes steps to assure that these health risks can be managed now and in the future.
The Climate Change Program at CDC fills three critical roles:

(1) to **analyze and translate** the latest evidence in climate science to our public health partners;

(2) to apply these findings to evidence-based **decision support tools**
   - aid in the state and local public health response

(3) to **provide leadership**
   - inside and outside CDC
   - ensure that public health concerns are represented in climate change adaptation and mitigation strategies
   - create linkages between public health and other sectors
Translate Climate Science to our Public Health Partners

Identify the health impacts of climate change and the populations most vulnerable to these impacts

Identify regional climate trends that impact health

Model future health impacts
Develop Support Tools for State and Local Public Health

Technical guidance and support for adaptation planning

Create vulnerability maps

Enhance surveillance tools
Leadership and Collaboration

Establish and communicate the key importance of public health in the climate change response

Create linkages between public health and efforts in other sectors
**Climate-Ready States and Cities Initiative: Building the Anticipatory Approach**

**Objective:** To enhance the capability of state and local health agencies to deal with the challenges associated with climate change

**Cooperative Agreements with State and Local HDs:**

“Developing Public Health Capacity and Adaptations to Reduce Human Health Effects of Climate Change”

**Developing Decision Support Tools:**

- Communications and Educational Tools
- Vulnerability Mapping Tools
Climate-Ready States and Cities Initiative

Category 1: Assessment and Planning to Develop Climate Change Programs

4 States and 1 City HD

Activities
- Agency needs assessment
- Early strategic plan implementation
- Partnership building & engagement with other initiatives
- Strategic plan development
Climate-Ready States and Cities Initiative

Category 2: Building Capacity to Implement Climate Change Programs and Adaptations

4 States and 1 City HD

Activities
• Strategic Plan Implementation
• Identification and prediction of health impacts & population & system vulnerabilities
• Develop & tailor health programs
• Identify co-benefits and intended consequences of policies, programs and projects in other sectors (HIA)
Towards and Anticipatory Framework for Climate Change Adaptation Planning

- The BRACE (Building Resilience Against Climate Effects) Framework.
- A series of actions for Health Departments to take that will lead to a formal Climate Change Adaptation Plan.
BRACE’s 5 Steps

- Forecasted Impact & Vulnerability Assessment
- Health Risk Assessment
- Intervention Assessment
- Health Adaptation Planning & Implementation
- Evaluation
Key Points to Consider

- Stakeholder Engagement
  - Critical throughout
  - Appropriate stakeholders may change by stage.

- Prioritization of health impacts
  - Can occur at Stage 1, 2 or 3
  - Dependant on level of prior analysis
  - Available evidence
  - Political considerations
Step 1. Forecasted Impact & Vulnerability Assessment

Goal: Identify the range of climate impacts, associated potential health outcomes, & vulnerable populations and locations within a jurisdiction

- Determine the geographic and temporal scope of the assessment
- Assess localized forecasted climate impacts
- Assess health outcomes sensitive to these climate impacts
Step 2: Health Risk Assessment

Goal: Estimate/quantify the additional burden of health outcomes due to Climate Change

- Identify data sources for climate related mortality/morbidity assessment
- Employ qualitative and quantitative approaches to assessing the data
- Quantify potential magnitude of individual health risks (absolute or relative)
Step 3: Intervention Assessment

Goal: Identify the most suitable health interventions

- List the range of health interventions available for each health outcome
- Assess capacity to deliver each intervention
- Prioritization of health interventions deemed most suitable for the jurisdiction
Step 4: Health Adaptation Planning & Implementation

Goal: Develop and implement a plan that introduces health system program changes that address the health impacts of climate change

- Applying agency procedures to developing a unified plan of action
- Disseminating the plan to stakeholders that play a part in executing the interventions
- Incorporating adaptations into executing the interventions
Step 5. Evaluation

- **Process evaluation goal**: Periodic review to ensure that the projections continue to be sound and the adaptations are still suitable.

- **Outcome evaluation goal**: Ensure that climate change is considered in broader PH planning and implementation activities. To ensure that PH is considered in broader climate change planning and implementation activities.