Climate and Health Adaptation Plan:

A Plan of Action to Adapt to the Public Health Impacts of Extreme Weather and a Changing Climate in New Hampshire

May 2016

Acknowledgments:

This document is an update of a 2010 planning process report entitled “Preparing for Climate Change: A Strategic Plan to address the Health Impacts of Climate Change in New Hampshire.” The goal was to understand the progress that has been made in the last five years in collaboration with many partners across the State. Participants included the NH Climate and Health Working Group, respondents to an online prioritization survey (i.e. Delphi process), and a focus group of key informants who met to discuss the strategic plan.

The planning process was supported by a cooperative agreement between the NH Department of Health and Human Services (NH DHHS) and Centers for Disease Control and Prevention (CDC) in Atlanta, GA. The planning process and Delphi survey were facilitated by Stephenson Strategic Communications (SSC) and partners.

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This publication was supported by grant number #5UE1EH001046-04 from the National Center for Environmental Health (NCEH) at the Centers for Disease Control and Prevention (CDC) in Atlanta, GA. Its content is solely the responsibility of the authors and does not necessarily represent the official views of the CDC.

CDC Guidance “Developing and implementing a Climate and Health Adaptation Plan. The goal of this step is for jurisdictions to develop and implement a strategic plan or sectoral climate change adaptation plan that introduces changes needed to health system functions and programs to effectively prevent or reduce the increase in magnitude or additional health burden of disease and injury associated with climate change.”

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1. Executive Summary

The climate is changing in New Hampshire, with significant environmental and health challenges. We need to quickly respond to the short-term safety threats of severe weather while also preparing for the long-term public health impacts associated with climate change. The State of New Hampshire has been proactive on the environmental side, with efforts to reduce carbon emissions via the Regional Greenhouse Gas Initiative (RGGI) and other and initiatives at the Governor's level. On the public health side, there have also been initiatives to assess climate-related vulnerabilities and develop programs and policies to address them. This strategic plan was developed to report on our progress, and propose viable strategies to reduce public health impacts.

The intended audience for this report includes planners, public health professionals, and decision makers who want to learn about viable strategies that address the health impacts of a changing climate. Specific targets include organizations and agencies charged with preparing for the health impacts of climate and weather. State, federal and local stakeholders will find the assessment process and prioritization of strategies useful for their own planning purposes.

The process used to update this strategic plan included an online survey, meetings with stakeholders, and a focus group. The public health community has assessed where we've been, progress to date, capacity and resources, and where we want to go over the next five years. This report also describes the process of finding strategies that work to reduce risks and improve health for New Hampshire communities and vulnerable populations.

This report focuses on assessment, planning and action, and does not address trends in climate or health impacts in New Hampshire. For those who want a more in-depth description of the science of climate change and health impacts in the Northeast US, a number of excellent reports are available[1],[2].

2. THE STATE PUBLIC HEALTH SYSTEM (SPHS)

The State Public Health System (SPHS) is a broad network that influences health at the population level of communities, while the healthcare system generally focuses on the individual level. Most organizations who work on population health employ epidemiologists and health promotion experts who have the capacity to study and act at the community level. Classic organizations include the state health department, state environmental and safety agencies, city health departments, regional Public

[1] National Climate Assessment, Health Chapter, 2014. http://nca2014.globalchange.gov/downloads
[2] Climate Change in New Hampshire, Climate Solutions NE, 2014. http://www.climatesolutionsne.org

Health Networks, hospitals, insurance companies, large advocacy organizations, and some university programs. Although the SPHS is not managed by any one entity, much of the coordination, guidance, and legislative authority is provided by the NH Department of Health and Human Services (DHHS), Division of Public Health Services.

In regard to the challenge of climate change within the SPHS, there has been much progress made since the last assessment in 2010. We have gained a better understanding of the environmental hazards associated with climate change such as heat waves, floods, thunderstorms, winter storms as well as changes in air quality and disease vector distributions. The next step is to link the environmental exposures to health impacts in a way that better identifies the vulnerable populations, and allows us to act and protect those in high-need communities.

This report describes a recent strategic planning effort that re-confirms NH SPHS has a strong capacity to address risks from weather and climate. Even with that strength, our surveys revealed that there is a need for improved collaboration, communication, and risk reduction around this issue. We have the right people and resources in place, and now need to improve how they work together to reduce risk and protect health.

How do public health officials address such an expansive, global issues such as climate change? First, the SPHS is very familiar with the impact of dangerous weather and seasonal health cycles. Each summer, agencies prepare for weather extremes and the impact of heat waves, thunderstorms, hurricanes and floods. Each winter, agencies prepare for the threat of cold snaps, blizzards, and ice storms. Each season, agencies prepare for a different set of asthma triggers, injuries, and pathogens that rise and fall during the year.

Second, the SPHS is less familiar with the challenge of long-term trends such as an aging population, a growing obese population, or developing a service economy. These require long-term strategic processes that balance the needs of today, with the emerging challenges in order to allocate resources accordingly.

A Two-Pronged Approach? *Climate change is a relatively slow process that takes place over many decades. An effective response may require two very different strategies. First, a short-term approach to deal with changes in severe weather via improved identification of vulnerable populations and training in severe weather response and emergency preparedness. Second, a long-term approach to build workforce capacity and infrastructure that will be resilient under future climate scenarios. The combined approach will prepare New Hampshire for a future that is warmer and wetter, with more severe weather.*
(Proposed text box, or a graphic)

3. STRATEGIC PLANNING OVERVIEW

The NH DHHS is building on the climate and public health strategic planning process started in 2010[3] by evaluating what has been accomplished in the past 5 years and building consensus on priorities for the next 5 years. In keeping with the structure established in 2010, the strategic plan looks at four strategic topics:

1. **Where are we now?** (i.e., environmental scan based on what has been accomplished and research completed, mission & niche)
2. **What do we have to work with?** (i.e., systems in place, opportunities created, resources, and workforce)
3. **Where do we want to be?** (i.e., vision statement)
4. **How do we get there?** (i.e., strategic priorities and action steps)

Recap of Past Research: In February 2010, more than 50 public health stakeholders from both the public and private sectors met in five focus groups to assess the capacity and performance of New Hampshire's public health system to anticipate, prepare for, and address the adverse health impacts associated with climate change. They used a structured, facilitated process recommended by the Centers for Disease Control and Prevention (CDC) National Public Health Performance Standards Program (NPHPSP)[4]

The purpose of the performance assessment was to reinforce and improve the public health system by identifying strengths and weaknesses in order to address weaknesses, prioritize action, and maintain areas of strength.

Four concepts are applied in the NPHPSP:

1. The standards are designed around the Ten Essential Public Health Services, intended to support community health, rather than individual health care.
2. The standards focus on the overall public health system, rather than a single organization.
3. The standards describe an 'optimal' level of performance.
4. The standards are intended to support a process of quality improvement.

[3] Preparing for Climate Change: A Strategic Plan to Address the Health Impacts of Climate Change, July 2010. http://des.nh.gov/organization/divisions/air/pehb/ehs/ehp/documents/strategic-plan.pdf

[4] *State Public Health System Performance Assessment Model Standards*, Version 2.0; U.S. DHHS, CDC, October 15, 2008; http://www.cdc.gov/od/ocphp/nphpsp/documents/state/State.BookletA.pdf.

In order to develop the 2010 Needs Assessment[5] these NH stakeholders chose to use the 10 Essential Public Health Services modified with climate change adaptation-specific language. This concept was first introduced by the California Department of Public Health[6] (see Table 1 below).

Table 1 – Standard and Climate-Specific Essential Public Health Services

Standard Essential Public Health Services	Modified 'Climate-Specific' Essential Services
1. Monitor health status to identify and solve community health problems	*1. Monitor **environmental** and health status to identify and solve community **climate change** problems*
2. Diagnose and investigate health problems and health hazards in the community	*2. Diagnose and investigate **climate change** public health problems and hazards at the community level*
3. Inform, educate, and empower people about health issues	*3. Inform, educate, and empower people **and communities** about **climate change** public health issues*
4. Mobilize partnerships and actions to identify and solve health problems	*4. Mobilize partnerships to identify and solve **climate change** public health problems*
5. Develop policies and plans that support individual and statewide health efforts	*5. Develop policies and plans that support individual and community level **climate change risk reduction** efforts*
6. Enforce laws and regulations that protect health and ensure safety	*6. Enforce laws and regulations that protect **the public from climate change threats***
7. Link people to needed health services and assure the provision of health care when otherwise unavailable	*7. Link people to needed **climate change risk reduction services** and assure the provision of these services when otherwise unavailable*
8. Assure a competent public and personal health care workforce	*8. Assure a competent workforce **that is trained in climate change-related science, adaptation, and mitigation activities***
9. Evaluate the effectiveness, accessibility, and quality of personal and population-based health services	*9. Evaluate effectiveness, accessibility, and quality of **environmental health services related to climate change***
10. Research for new insights and innovative solutions to health problems	*10. Research for new insights and innovative solutions to **reduce climate change public health risks***

DPHS and DES then identified a subset of the *Needs Assessment* participants to become part of a statewide Climate Change and Health Improvement Planning Committee. The Planning Committee met in June 2010 to: 1) create a Vision

[5] An Assessment of New Hampshire's Public Health System Capacity to Address the Health Impacts of Climate Change. NH Department of Environmental Services, May 2010. http://www.astho.org/Programs/Environmental-Health/Natural-Environment/Climate-Change/Climate-Change-Grantees/Materials/NH-Attachment-A---Needs-Assessment-Report/

[6] **Modified Essential Services with Climate-Specific Additions,** provided by Dr. Paul English, California Department of Public Health in email from Daniel Sinclair, Senior Analyst, Environmental Health, ASTHO Climate Change Adaptation grantees, dated 10/01/2009

Statement; 2) review and discuss the Needs Assessment results to set improvement priorities; 3) identify and address any barriers to progress;; 4) narrow the list to 3–5 strategic priorities, and 5) identify goals, objectives, strategies, responsibilities and a timeline for addressing each strategic priority.

In 2010, a survey of environmental health professionals identified that while NH's SPHS had much of the **capacity** in place to address climate-related health threats, there were significant limitations noted, including:

- there is little recognition that climate change exacerbates some public health problems, and
- there is no coordinated effort in the state to modify existing systems to address climate-related health impacts or focus on climate change in public health planning.

4. WHERE ARE WE NOW?

Fortunately, since 2010 there has been a coordinated effort to address the impacts of climate change on the environment and health. The NH DES and NH DHHS have both been able to fund dedicated staff and resources to assess how climate and severe weather affect the state's population. In addition, a number of key planning projects and research efforts have been able to increase our understanding and improve our approach. The following graphic shows various state agencies and organizations working on weather & climate health impacts.

This purpose of this document is to provide an update on State efforts in order to better understand the State's capacity to deal with climate issues, while developing appropriate strategies to reduce the health impacts associated with climate change. This strategic planning process was meant to be a time-limited endeavor, as many other planning processes have provided direction on how to address climate adaptation. Past efforts include the 2009 Governor's Climate Action Plan[7], the 2012 NH DHHS' State Health Improvement Plan[8], and the 2014 Department of Safety's State Hazard Mitigation Plan[9].

Assessing Progress since 2010

In September 2015, NH DHHS engaged Stephenson Strategic Communications (SSC) to design and implement a 2-phase Delphi Survey targeting the people in the state who know and care the most about the connection of climate change to health. The Delphi Study presented an opportunity to re-evaluate perceptions on the strategic priorities and the vision established in 2010, and to receive input on

[7] NH Climate Action Plan, 2009. http://www.library.unh.edu/digital/object/mrg:0053
[8] NH State Health Improvement Plan (SHIP, 2012), http://www.dhhs.nh.gov/dphs/documents/2011statehealthprofile.pdf
[9] NH Department of Safety, Multi-Hazard Mitigation Plan and climate issues, 2014 https://www.nh.gov/safety/divisions/hsem/HazardMitigation/planning.html

strategies to support the Regional Public Health Networks going forward, both programmatically and financially.

Methodology & Rationale For Delphi Approach

The Delphi Survey was used because it is a research tool designed for both gathering data & driving small groups towards consensus. It is also cost and time-effective, because participants can weigh in using an online instrument over an established period of time rather than commit to attending two rounds of meetings away from their own offices. The process works as follows: the researchers report a summary of the data from Round 1 of the survey and use it to draft a series of questions in Round 2 that lead respondents to prioritize and comment on specific areas of focus.

The first Delphi survey was sent to over 80 NH climate & health opinion leaders on September 30, 2015 and participants had one week to respond. Members of SSC's research team made reminder phone calls and sent reminder emails to urge participation - 41 responses were received. The second Delphi survey was sent out October 19, 2015 and closed on Oct. 27th – 39 responses were received.

Four Key Findings from Delphi Study

- Collaboration: Respondents report there is still a need to achieve better collaboration on climate-health issues. The top 3 recommendations for doing this are:
    - "Create more partnerships among and with non-governmental groups" (21%);
    - "Facilitate issue-based discussions of all stakeholders on the best practices and trends on the topic of climate and health" (19%) and
    - "Broaden leadership outside state agencies, and include those outside the health system" (16%).

- Prioritization: Almost 9 out of 10 Delphi respondents agreed that the following top 3 Climate-Specific Essential Public Health Services (from Table 1) are priorities and deserve the most attention:

    - "Mobilizing partnerships to identify and solve public health problems"

    - "Inform, educate and empower people and communities about public health issues"

- "Develop policies and plans that support individual and community-level risk reduction efforts"

- Program Focus: The top 2 programming options respondents feel the State plan should focus on are:

  - "Partnering with community groups and organizations on the most effective projects that will minimize the impact of climate on health"

  - "Raising awareness of the impact of climate change on health through a targeted publicity and behavior-change campaign"

- Funding Focus: The top funding solutions for the state plan are:

  - "Increase seed money for programs with promise"
  - "Fund more community education programs"

Progress Since 2010

The 2015 survey process confirmed past priorities and concerns, although progress has been made to address previous gaps. Primarily, both DES and DHHS have funded programs to address climate change issues. In addition local agencies have begun to organize and plan to address climate adaptation. Table 2 serves to update the capabilities and gaps originally identified by climate and health stakeholders in the 2010 Needs Assessment. Emphasis is on the 3 priority Essential Public Health Services that were agreed upon by Delphi respondents (highlighted green in the table below).

Table 2 - Summary of Identified Climate & Health Capabilities and Gaps

Provider Orgs	Current Capability	Identified Gaps and Progress since 2010
1. ***Monitor environmental and health status to identify and solve climate change problems***		
State: DPHS, DES, HSEM, F&G, Agi, UNH Fed: USGS, EPA, NOAA Local: MHD, NPHCS, PHNs Other: Coastal CAW, Upper Valley AW	Strong Monitoring & Data Services: meteorological, air quality, water quality, snow pack, river and lake levels, agri production, ED and hosp. discharge, food, water, vector, illnesses, deaths, wildlife diseases, TEMSIS, claims data, EPHT. Strong Reporting/Surveillance: asthma, air quality, water quality, food/water/vector borne disease, deaths.	• Weak pollen & mold spore data • Improved standard data reporting platform/ systems integration, via WISDOM • Weak information dissemination • Improved training on data use • Improved coordination around climate change and health

	Strong Climate Models: UNH atmospheric, USGS hydrologic.	
2. *Diagnose and investigate climate change public health problems and health hazards*		
State: DPHS, DES, HSEM, F&G Fed: CDC Local: MHD, NPHCS, RPHNs	Strong Investigation Services: Existing capacity for food/water/vector-borne disease investigations, communicable disease investigations, health risk assessment, disease cluster investigations, laboratory services	• Improved coordination around climate change, climate disease burdens being assessed • Improved long-term trend analysis
3. *Inform, educate, and empower about climate change public health issues*		
State: DES, DPHS, HSEM, F&G, UNH Fed: CDC, EPA Local: MHD, NPHCS, PHNs Other: RPHNs NHPHA, APHA, ASTHO, TFAH, BreatheNH, ALANH, NHCAW, UVAW	Strong Information Services: high capacity for air quality alerts, Health Alert Network, heat advisory alerts, emergency alerts, health officer listserve, fact sheets, press releases, Twitter messaging, website messaging AHHR risk communications	• Improved coordination around climate change via C&H working group Improved focus on primary prevention via SHIP
4. *Mobilize partnerships to identify and solve climate change public health problems*		
State: DES, DPHS, HSEM Local: MHD, NPHCS, PHNs Other: NHPHA, NHCAW, UVAW	Some strong partnerships on climate. Expanded partner agreements/MOAs with regional PHN planning, emergency preparedness conf, coastal adaptation planning, mosquito tracking/spraying, tick prevention plan, NHPHA policy committee.	• Improved current partnerships focused on climate change via state agencies and PHNs • Improved inter-agency partners (i.e.: local energy committees, regional planning, DOT, etc.) • Improved specific funding via CDC & DES
5. *Develop policies & plans that support climate change risk reduction efforts*		
State: DES, DPHS, HSEM, OEP Fed: CDC, FEMA Local: MHD, NPHCS, NHPHA	Improved Risk Reduction Services. NH climate change action plan, arboviral plan, new tick-borne disease plan, food health emergency response plan, drought mgmt. plan, dam operations plan, state energy plan, State SHIP plan, state/local hazard mitigation plans, emergency prep plans, PHEP,	• Still weak on planning/policies directly focused on climate change health impacts • Improved mechanism to collaborate on climate change adaptation via mini grants • Improved flood maps • Improved outreach on EPA clean power plan, emphasis on climate costs and public health benefits

	COOPs, laboratory coordination plans.	•
6. *Enforce laws and regulations that protect the public from climate change threats*		
State: DES, DPHS, HSEM, DOT Fed: EPA Local: MHD, NPHCS, other municipalities	Strong Laws/Regs Enforced: air pollution, water pollution, dam maintenance, building codes, construction stds, food protection, public health emergency powers	• Still weak on laws specifically focused on climate-change related health issues • Improved hazard mitigation plans, FEMA now requires climate risk • Still weak on local authority to enforce health-related ordinances • Weak on champions & leaders for weather and climate
7. *Link people to climate change risk reduction services and assure services are provided*		
State: DES, DPHS, HSEM Fed: CDC, FEMA Local: RPHNs MHD, NPHCS, municipalities Other: community health centers	Improved risk reduction services: NH functional needs plan, 211, emergency after-action plans, air quality alerts , water quality alerts, reverse 911, translation services, transportation services, vulnerable population services, mental health services, elderly services, NH Stay Warm Prog	• Improved translation/ interpretation services • Improved coordination around climate change in asthma, heat, and VBD-Lyme • Improved system to specifically identify/link people vulnerable to climate related health issues via SVI tool • Improved ability to identify and expand cooling centers or plans
8. *Assure a competent workforce trained in climate change-related science and adaptation activities*		
State: DES, DPHS, HSEM, UNH, KSC Fed: CDC, EPA Local: MHD, PHNs Other: NHPHA, APHA, ASTHO, NACCHO,NEWWA, Dartmouth College	Improved Training Services: NH specifically around Practice training, NIMS/ICS, NHHOA training, AHHR training, NPHCS, climate change & public change training series, NPHPA training, water systems operators training, asthma training, medical provider training	Institute for Local Public Health • no coordination UNH• some current training not focused on climate APHA change health webinar • current climate focused mitigation, not adaptation
9. *Evaluate effectiveness and quality of environmental health services related to climate change*		

State: DES, DPHS, HSEM, UNH Fed: CDC, EPA Local: MHD, NPHCS, RPHNs	Improved Evaluation Services: new DHHS quality improvement pgm, public health & environmental laboratory QA/QC programs, DES quality assurance system, EPA QA program, CDC evaluation program, asthma evaluation committee, PHIAP, NH Energy & Climate Collaborative	• Improved evaluation efforts for weather & climate change via DPHS program plan • Improved weather & climate-related evaluation systems via the state SHIP plan for injury control, asthma, VBD infection, and emergency preparedness.
10. *Research new insights and innovative solutions to reduce climate change public health risks*		
State: DES, DPHS, F&G, UNH, KSC, PSU Fed: CDC, EPA, NOAA Other: Dartmouth College	Improved research services. Expanded research collaboration with UNH, PSU, Dartmouth on climate change and public health issues.	• Improved research. Academic institution agendas at UNH and PSU have aligned with specific SPHS needs

Specific Progress on Essential Services

Progress on ES#3 – Inform, educate and empower about climate change public health issues.

Since the development and implementation of the 2010 strategic plan, progress has been made in the following areas:

- Improved coordination around climate change via Climate and Health working group. A Climate and Health Working Group with 60 members has been meeting periodically to advise state staff on development of vulnerability assessments, disease burden reports, and outreach efforts.
- Improved outreach to specific target audiences in the fields of emergency preparedness, public health and environmental services. Staff from DHHS and DES have been involved in dozens of outreach projects that address the issues of heat stress, expanded pollen seasons, and other public health impacts.

Progress on ES#4 – Mobilize partnerships *to identify and solve climate change public health problems*

Since the development and implementation of the 2010 strategic plan, progress has been made in the following areas:

- Improved inter-agency partners (i.e., local energy committees, regional planning, DOT, etc.) The NH DES has initiated a project to bring major environment, health and safety agencies together to discuss strategies. A meeting was held on September 18, 2015 to present progress from DES, HSEM, DOT, and DHHS to a large audience of climate stakeholders.

- Improved current partnerships with Regional Public Health Networks (PHNs) via mini-grants to develop climate adaptation plans, and choose interventions to address key climate-related health impacts such as heat stress and Lyme Disease.
- Improved specific funding via CDC & DES. The DES has funded two positions to work on interagency collaborations, and outreach to community groups focused on climate change adaptation. The DHHS has funded 1.5 positions to work on climate change program management, and health burden assessments.
- Expanded agreements and partnerships. The DHHS and DES have developed an Memorandum of Agreement to co-fund a USGS-led study of climate effects on hydrology at the watershed level. The DHHS and DES have also agreed to partner on vibrio bacteria testing in the shellfish beds in the Great Bay and other seacoast areas.
- Expanded partnerships and outreach via community climate adaptation workgroups. Two community groups continue to act in the Upper Valley (Lebanon, NH area) and the Seacoast (Portsmouth area). These groups have pursued vulnerability assessments, pubic outreach and training.

Progress on ES#5 – Develop Policies and Plans for Risk Reduction

Since the development and implementation of the 2010 strategic plan, progress has been made in the following areas:

- Improved mechanism for climate change adaptation planning via mini grants to Regional Public Health Networks. Funds in the range of $20,000 have been awarded to two organizations in the Lakes Region (Laconia area) and the Upper Valley (Lebanon area) in order to complete a planning process, and develop interventions to reduce climate or weather –related health impacts.
- Improved flood maps. FEMA has begun an update of flood maps in New Hampshire which will improve the ability of communities to plan for flood plain preservation and emergency planning.
- Improved outreach on EPA clean power plan, emphasis on climate costs and public health benefits. This new policy is intended to reduce carbon emissions and improve energy efficiency among all states. The cost of the plan are balanced with savings on health benefits, such as preventing 3,600 premature deaths, 1,700 heart attacks, 90,000 asthma attacks, 300,000 missed work days and school days.[10]
- Improved climate vulnerability assessments by UNH and USGS. The NH DHHS funded UNH to develop a vulnerability assessment based on changes in atmospheric conditions under a low and high emission scenario in NH. The model

[10] EPA Clean Power Plan factsheet, 2014. http://www.epa.gov/cleanpowerplan

projected increases in excess heat, severe precipitation, growing seasons, and snow cover over the next 85 years. The USGS also developed a vulnerability assessment under a high and low emission scenario that showed significant changes in stream flow (i.e. flood and scouring) and groundwater recharge (e.g. drought) over the next century.

- Improved assessment of population risks via a Social Vulnerability Index. The NH DHHS uses census data to track 15 indicators of risk (e.g. age, income, living alone, disability, etc.) to estimate vulnerability to disasters at the census block level.
- Improved focus on primary prevention via the State Health Improvement Plan (SHIP). The State Health Improvement Plan has four priorities related to climate change, including emergency preparedness, asthma control, injury control, and infection control (i.e. tick and other vector borne disease).

Key to the success of these activities was the creation of thirteen Regional Public Health Networks (RPHNs) in 2013 "to integrate multiple public health initiatives and services into a common network of community stakeholders", thus presenting climate and health professionals with potential opportunities. In 2015 2 RPHNs applied for and received funding to develop and implement regional climate change and public health adaptation plans.

To support the funded RPHNs, DPHS:

- Surveyed RPHNs to determine their primary needs from a training session, and to ask them about progress made on pulling together their Advisory Councils, awareness levels on the primary climate-health issues in their catchment areas, etc.
- Drafted a "Guidance Document" which gives RPHNs advice on localizing their Climate & Health Adaptation Plans, tips on accessing relevant data, and ideas for pursing funding sources.

Delivered a 1-day training session on BRACE Planning for RPHNs to discuss emergency preparedness plans, review the Guidance Document and introduce behavior-change theory evaluation concepts. A second training focused on BRACE Intervention development and evaluation will be held on December 18, 2015.

5. WHAT DO WE HAVE TO WORK WITH?

Since the prior strategic plan was completed in 2010, a number of new tools are available to help advance climate and health adaptation.

At the state level:

The 2013 State Health Improvement Plan (SHIP) identifies **several priority areas that can be influenced by a shifting climate** (examples include injury prevention; infectious disease; asthma control; emergency preparedness).

The 2013 update of the NH Multi-Hazard Mitigation Plan **recognizes climate change may exacerbate existing vulnerabilities**.

The 2014 Social Vulnerability Index allows users to explore map-based reports by census track on major risk factors for disaster vulnerability.

The 2014 Climate Change in Southern New Hampshire: Past, Present, and Future modeled the likely impacts of climate change on excess heat, precipitation, and severe weather under low and high emission scenarios over the next 85 years.

The 2014 Hydrologic Response to Climate Change in Four Watersheds in New Hampshire modeled the projected impact of climate change on stream flow and groundwater recharge.

At the local level:

Local Community Health Improvement Plans are being developed by municipalities in New Hampshire. Some CHIP plans are in place or are planned for completion.

The structure of the Regional Public Health Networks is in place. Two RPHNs have developed Climate Adaptation Plans to address the health impacts in their region. A sample climate adaptation plan for the Upper Valley PHN was developed in the autumn of 2015.

The foundation of the CDC BRACE framework (Building Resilience Against Climate Effects) provides solid guidelines for each RPHN to develop a Climate Adaptation Plan.

The NH Coastal Adaptation Workgroup (CAW) and Upper Valley Adaptation Workgroup (UVAW) have established their own regional networks and relationships and bring state and academic resources to bear.

Identifying Strengths, Opportunities & Related Barriers

New Hampshire already has in place much of the ***capacity*** to:

- monitor diagnose, investigate, and develop plans to address and prevent climate-related health threats;
- educate, empower, and link people regarding climate-related health information and services; and
- train and enable the public health workforce to address and prevent climate-related health problems.

There are many valuable research and technical assistance resources in the State at academic centers, state agencies, and not-for-profit foundations and institutes that can potentially be employed to quantify and address identified climate change and health needs.

Many cross-organizational and state-local partnerships already exist that may be beneficial in effectively and efficiently focusing existing resources on addressing and preventing climate-related health issues.

The small size and limited resources of the New Hampshire State Public Health System demands collaboration and creativity. **However, NH climate-health opinion leaders say collaboration is an area that needs work.** In response to this need, the first objective in the strategic plan is to improve partnerships via coordination, engagement and expansion (see section 7 below).

There is a lot of competition for attention on the issues of the day.

NH needs a true champion on this issue of climate change and health impacts…and the funding to support it.

The RPHNs are operating with volunteers, not staff – and person power and enthusiasm levels are likely to vary region to region.

The opportunity exists at the State level to provide high-level support in the form of research, awareness-building & training to see that RPHNs to succeed at a local level.

Extreme weather situations have gotten the attention of NH residents – though the controversial topic of “climate change” will remain a barrier to collaboration at times and a minor speed bump elsewhere.

6. WHERE DO WE WANT TO BE?

The 2010 Strategic Planning Committee created a vision statement to define where they want New Hampshire to be with regards to identifying, preventing, preparing for, and responding to health threats associated with climate change. The call to act is still very relevant today.

The current Vision Statement reads as follows:

> *New Hampshire and its local communities have organized, coordinated and put effective systems in place to identify, prevent, prepare for, and respond to health hazards associated with our changing climate*. [11]

Optimism for the future: When asked specifically in Round 1 of the Delphi study about NH is in achieving its vision for climate change and public health, fewer than 3 out of ten opinion leaders say the vision has been "somewhat achieved" to date. However, when asked where NH could be in the next five years in achieving its vision for climate change and public health, the same number (three) say it could be "achieved" and an additional 6 of ten say it could be "somewhat achieved.

7. HOW DO WE GET THERE?

Based on findings from Round 2 of the Delphi Study, NH opinion leaders recommended prioritizing 3 essential services:

1. Mobilize partnerships to identify and solve climate change public health problems.

2. Inform, educate & empower people and communities about public health issues.

3. Develop policies and plans that support individual and community-level risk reduction efforts.

In the following pages, supporting goals and action steps fall under each priority.

[11] Adopted June 23, 2010 by a statewide Climate Change and Health Improvement Planning Committee. Members identified in Preparing for Climate Change::A Strategic Plan to Address the Health Impacts of Climate Change in New Hampshire July 2010 Appendix B

Strategic Priority 1: Mobilize partnerships to identify and solve climate change public health problems

Goal 1. Coordinate Partners- Achieve improved coordination of interventions, activities and messages on Climate & Health

Leaders: DPHS, DES, Climate and Health Working Group

Partners: Regional Public Health Networks (2 PHNs currently funded, 2 proposed), NH DPHS Asthma Control Council (state plan include climate objectives), NH DPHS Injury Control Program (collaborating on injury data sharing), NH DPHS Bureau of Infectious Disease Control (collaborating on design of a Integrated Pest Management project to reduce tick populations near schools). NH DES Coastal Program (co-funding climate assessment of NH watersheds).

Action Steps:

Step 1. Partner with NHDES to create of an Inter-Agency Workgroup.

a. Coordinate with NH DES in order to improve communication and identify collaboration opportunities on Climate & Health-related initiatives

b. Help form and participate in a Climate and Health Advisory Board

c. Identify and track climate and health adaptation initiatives via a shared website, GIS tool, or similar solution.

Timeline: Jan. – June 2016

Step 2. Partner with DPHS QI Program to conduct a Performance Management Assessment (PMA) to monitor progress and improve results.

Timeline: Jan to Sept 2016.

Step 3. Conduct inter-agency briefings via SHIP plan:

a. Develop a policy statement and talking points for specific departments

b. Consistently use key messages in all communications about climate & health (e.g. in Community Health Improvement Plan, State Health Improvement Plan etc.)

Step 4. Develop consistent messaging with other state agencies

a. Consistently use key messages in all communications about climate & health (e.g. in Community Health Improvement Plan, State Health Improvement Plan, etc.)

Timeline: Jan. – June, 2016 and ongoing

Goal 2. Engage Partners - Identify and prioritize direct and indirect climate–related health threats for New Hampshire

Leaders: DPHS, NHDES, Homeland Security and Emergency Management (HSEM)

Partners: Multiple (see Appendix B for complete list)

Action Steps:

Step 1. Continue Vulnerability Assessment for New Hampshire using local health statistics and environmental data to identify the populations, communities and geographic areas most at risk for identified health threats

- There are Vulnerability Assessments on 6 Coastal Towns now
- Develop coastal hazard risk maps overlaid with the Social Vulnerability Index

Step 2. Form Vulnerability Subcommittee to serve the Inter-Agency Workgroup and gather CDC data and health effects on vulnerable populations (note: topics of focus include injury, obesity, emergency preparedness, substance abuse, heart disease and aging)

Timeline: Ongoing

Goal 3: Expand Partners - Broaden & deepen partnerships, Focusing on the Public Health & Medical Community.

Leaders: DPHS

Partners: All Regional Public Health Networks in NH

Action Steps

Step 1: Improve capacity via trainings and guidance for more RPHNs to apply for grant money to help them develop their Climate and Health Adaptation Plans. Preliminary Goal: Add two (2) additional PHNs to cohort in 2016; work towards having10 of 13 funded to pursue Climate and Health Adaptation Plans in place by 2020). See list of suggested partnership efforts below:

- Invite PHNs to Upper Valley PHN to speak at a regional forum to share successes and lessons learned
- Propose DPHS speakers at RPHN annual meetings
- Publish accomplishments of leader RPHNs via web and other communications.
- Publish a directory of members that includes all RPHNs on the website to encourage communication with each other
- Simplify RFP application process and connect RPHNs with Regional Planning Commissions to get them to assist with the application process

Timeline: Jan. – Dec. 2016

Step 2: Increase climate and health fluency within PHN Advisory Councils

- Provide guidelines on Advisory Council roles & responsibilities
- Provide tips on identifying and recruiting a good cross-section of Advisory Council members
- Speak at annual meeting of Advisory Council members

Timeline: May-June 2016, (just before next RFP cycle)

Step 3: Establish a public health network presence at existing conferences in order to build relationships with Regional Planning Commissions & the Medical Community

- NH Planners Conference
- NH Municipal Association conference
- NH Medical Society
- National Association of County Health Officials
- NH Public Health Society
- Dartmouth Medical School (Bob McLelland)
- Community Health Centers

Strategic Priority 2: Inform, educate, and empower about climate change public health issues

Goal 1. Outreach to Professionals - Conduct climate and health-related education/training for broad range of public health professionals around state in order to detect, track, respond to, and develop interventions to prevent and/or reduce the human health impacts of climate change. Goal 1 comports with a top collaboration recommendation from 2015 Delphi

Study respondents *("Issue-based, regular discussions of all stakeholders on the best practices and trends on the topic of climate and health")*

Leaders: DPHS

Partners: EPHT, Manchester Health Department (MHD) Institute for Local Public Health Practice, DPHS health messaging group, all partners listed in Strategic Priority 1, Goal 1.

Action Steps:

Step 1. Continue to schedule presentations at regional & state conferences (Homeland Security, Public Health nurses etc.) Preliminary goal: NH DHHS and NH DES to provide at least six (6) presentations per year on climate and health issues, for a total of 12 presentations at events with at least 10 participants in attendance.

Step 2. Continue training workshops for RPHNs to educate about the BRACE framework & how to use it to improve community resilience. Collaborate with EPHT Program to create, display and share Climate & Health data via WISDOM data portal.

Step 3. Update the 2015 'Guide on Climate and Health Adaptation for Regional PHNs' document based on feedback from RPHNs after they have used the document.

Goal 2. Outreach to the Public - Conduct climate and health-related outreach, education and technical assistance in order to improve risk reduction among the general public in light of climate change (including mitigation, prevention and preparedness planning)

Leaders: DPHS, DHHS-Public Information Office (PIO), DES, HSEM

Partners: UNH Coop Extension, Department of Education, Ready NH, media, social media, all partners listed in Strategic Priority 2, Goal 1.

Action Steps:

Step 1. Update NH DHHS website as central source of information on state-level Climate & Health issues for a specific audience within the SPHS. (and a variety of audiences outside the Health Community)

- Talking Points on Climate Change and Policy Statement (blessed by Communications Professionals)
- Speakers Bureau information
- Climate and Health data (in user-friendly form for each region)
- Climate & Health toolkit with program templates for RPHNs

- Special sections with relevant information for the target audiences of Emergency Preparedness/responders, meteorologists, medical and teaching communities

- Step 2: Promote Climate & Health website to specific target audiences (e.g. state agencies, local health agencies, higher education) who want and need to use the information. Create an opportunity for opinion leaders to participate in conversations posted on website (comments on blogs, quick polls etc.)
- Make it easy to navigate and find region-specific information
- Regular publicity and push email to drive audiences to the site where there is new information to share
    - Use triggering events (political discussions, new research, season changes, extreme weather events) to draw attention to information on website

- Publicize key statistics on NH's climate-related health threats by leveraging naturally-occurring triggering events such as extreme weather, asthma season, tick season (for Lyme disease awareness) etc.

- Use communication tools such as press releases, blast email, Twitter, Facebook, Public Service Announcements (PSAs) and speaking engagements to raise awareness

Step 3: Investigate options to assess community knowledge of Regional Public Health Networks, knowledge of what is being done to address pressing climate/health issues in each region, climate-health messages retained and behavior-change based on education delivered. In addition:

- Measure knowledge & perceptions of specific target audiences like Emergency Preparedness Responders, Meteorologists, the Medical and Teaching communities as well as Health and Safety professionals
- Measure retention of the general message that the "Northeast is getting warmer and wetter with more severe weather"
- Measure behavior changes (e.g. Lyme prevention, hydration in hot weather, etc.)

(BRFSS, UNH survey, focus groups, etc.)

Timeline: End of 2016-2017

Strategic Priority 3: Develop Policy & Plans That Support Individual & Community-Level Risk Reduction

Goal 1. Risk Reduction Policy: Assess & strengthen state and federal policies directly focused on Weather or Climate Change Health Impacts

Leaders: DHHS, DES

Partners: Homeland Security and Emergency Management (HSEM), legislature, regional organizations, other federal programs (i.e.: EPA, CDC, EJ grants, energy efficiency/weatherization)

Action Steps:

Step 1. Inventory existing and potential policies related to Climate Change Health Impacts

Step 2. Research policies in other states for ideas on how to improve and strengthen NH policies

Step 3. Convene stakeholders of existing initiatives to champion policy improvements. Preliminary Goal: Measure the number of required hazard mitigation plans that mention climate change as a driving factor of specific hazards in the local community, and provide data or examples.

Timeline: ongoing and continuous

Goal 2. Risk Reduction Actions: Implement Specific Risk Reduction Efforts to reduce climate and weather Health Impacts

Leaders: DPHS, DHHS, DES

Partners:

Action Steps:

Step 1. Reduce the risk of heat exposure and injury. Preliminary goal: Reduce the impact of heat stress via a community-based intervention (to be chosen by a funded PHN).

Step 2. Reduce the risk of tick exposure and vector-borne disease. Preliminary goal: Reduce tick exposure and Lyme disease via a community-based intervention (to be chosen by a funded PHN).

Step 3. Reduce the risk of severe weather and related traumatic injury. Preliminary goal: Reduce the impact of extreme weather events via a community-based intervention (to be chosen by a funded PHN).

Step 4. Reduce the risk of physical inactivity and related conditions such as obesity and diabetes. Innovative approaches may provide co-benefits to health and the environment, while ensuring greater security and protection for communities. Preliminary goal: coordinate with HEAL Program to assess if livable-walkable community planning can both reduce carbon emissions, improve community resilience, and improve health via walking, biking and physical activity[12].

Timeline: ongoing and continuous. May be timed with seasonal rise in disease burden incidence or prevalence.

8. WHAT ACTIONS ARE ALREADY BEING TAKEN?

There are two existing projects addressing climate-related hazards, vulnerable populations and health effects.

Upper Valley Region
Interventions for Excess Heat, At-Risk Elders, and Heat Stress

Specific Project Description – In Spring 2015, the NH DHHS funded a set of regional public health agencies to explore and address the public health impacts of severe weather and climate change. The Upper Valley Public Health Network (PHN) undertook a climate Adaptation Planning process via a stakeholder advisory team in order to assess the primary weather/climate hazards in the region. They also identified the vulnerable populations, existing support systems, and viable actions that could reduce risks and improve public health. They are working with an existing partnership called the Upper Valley Adaptation Workgroup (UVAW), who have assessed climate hazards, built partnerships, shared information, and engaged with the public.

Implementation and Monitoring Strategy - The Upper Valley PHN identified their main climate-related health concerns as rising temperatures, heat stress, elders living alone, and heat stress or injury. In working with Elder Services agency staff, they also identified a target audience of over 100 elders (lower income, living alone) are already part of Meals-On-Wheels project that could be used to launch an intervention that would help elders to adapt to climate-related health impacts. Using the Upper Valley Adaptation Plan as a foundation, the partnership has begun to develop an IMS to address elder heat stress via education of elder services workers and assessment of elders in their homes. The IMS also has begun to form an implementation strategy team whose role is to oversee implementation and monitoring activities. The IMS team will include NH DHHS staff, Upper Valley PHN staff, Regional Planning

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12 INTEGRATING HOUSING, HEALTH, AND RESILIENCE. Urban Land Institute, 2014. http://uli.org/wp-content/uploads/ULI-Documents/Housing-in-America-2014.pdf

Commission (RPC) staff, and elder services agency staff. Table 1a and 1b describe the elements of the IMS process for the two proposed interventions.

Table 1a: Checklist of Elements of the IMS Process – Excess Heat Stress in Elders

Required Elements	NH Status or Plans
Team Approach: A team roster, identifying roles and responsibilities, including facilitator(s) or leader(s).	Team leader is Upper Valley PHN staff (Alice Ely), technical support from RPC (Mike McCrory), resource support from NH DHHS (M Cahillane & K Bush).
Interventions: A list and description of chosen interventions (from previously developed Adaptation Plan), including delineation of specific target populations or locations.	Proposed Interventions: 1) Education on heat stress for elder services staff and home visitors (limited evidence). 2) Direct assessment of heat stress metrics in homes of at-risk elders (sufficient evidence).
Collaborations: Identification of stakeholders and partners necessary for both implementing and monitoring the interventions.	Implementation partners – PHN staff, NH DHHS, elder services agencies. Monitoring partners – RPC staff, NH DHHS, elder services agencies.
Intervention Strategy: Proposed methodologies for intervention implementation.	Viable Strategies: - Direct Education of Social Services staff. - Direct observation of environmental conditions and heat signs/symptoms in elderly
Monitoring Strategy: Proposed methodologies for monitoring interventions, specifically identifying measurable impacts.	Viable Strategies: - Pre-post testing of knowledge measures in elder services agency staff. - Checklist of risk factors for elders, summary score, then linked to actions by elder services or EMS
Impact Strategy: Proposed methodology for assessing how, collectively, the interventions impact a jurisdiction's adaptation to climate-related health outcomes.	Viable data analyses: - Analysis of real-time ED visits for heat stress via existing syndromic surveillance. - Analysis of behavior change (protective actions) in elders, if feasible.
Timeline: A calendar of events outlining activities, deadlines, and milestones.	Regional PHN agencies will create heat stress training curriculum in June-July 2016, train home visitors in Summer 2016, assess progress in Fall 2016, improve program in Winter 2017, re-train in

	Spring 2017, implement in summer 2017, evaluate in Fall 2017. NH DHHS will complete the IMS and deliver it to CDC before end of year 1, or by August 31, 2017

Expected Results: By the end of Year 1, completion of the IMS development process for elder heat stress will lead to improved methods for interventions, access local data, identify key stakeholders, and increased partnership work and organizational readiness to implement the IMS (i.e. Outputs A, B, C, D and E as shown in the logic model).

Lakes Region
Interventions for Tick Season, At-Risk Youth, and Tick-Borne Disease

Specific Project Description – In Spring 2015, the NH DHHS funded a set of regional public health agencies to explore and address the public health impacts of severe weather and climate change. The Lakes Region Public Health Network (PHN) undertook a climate Adaptation Planning process via a stakeholder advisory team in order to assess the primary weather/climate hazards in the region.

Implementation and Monitoring Strategy - The Lakes Region PHN identified the main climate-related health concerns to be rising temperatures, longer insect seasons, expanding tick habitat, and tick-borne diseases such as Lyme, babesiosis, and anaplasmosis. In working with schools and summer recreation department staff, they also identified a target audience of 20 adult staff and 120 children (ages 6-15, playing outdoors each day) that are already part of City Recreation Program that could be used to launch an intervention that would help youth to understand and adapt to climate-related health impacts. Using the Lakes Region Climate & Health Adaptation Plan as a foundation, the partnership has begun to develop an IMS to address tick exposure (i.e. bites and illness) via education of recreation department workers and observation of youth at play. The IMS also has begun to form an implementation strategy team whose role is to oversee implementation and monitoring activities. The IMS team will include NH DHHS staff, Lakes Region PHN staff, Regional Planning Commission (RPC) staff, and City Recreation Department staff.

Table 1b: Checklist of Elements of the IMS Process – Tick Season and Summer Youth

Required Elements	NH Status or Plans
Team Approach: A team roster, identifying roles and responsibilities, including facilitator(s) or leader(s).	Team leader is Lakes Region PHN staff (Susan Laverack), technical support from RPC (David Jeffers), resource support from NH DHHS (M Cahillane & K Bush).

Interventions: A list and description of chosen interventions (from previously developed Adaptation Plan), including delineation of specific target populations or locations.	Proposed Interventions: 1) Education on tick avoidance, inspection, identification and removal (limited evidence). 2) Direct assessment of tick exposure metrics at the outdoor play site (limited evidence).
Collaborations: Identification of stakeholders and partners necessary for both implementing and monitoring the interventions.	Implementation partners – PHN staff, NH DHHS, City Rec Dept. agencies. Monitoring partners – RPC staff, NH DHHS, Rec Dept. staff, evaluation consultants.
Intervention Strategy: Proposed methodologies for intervention implementation.	Viable Strategies: - Direct Education of Rec Dept staff. - Direct observation of tick exposure behaviors in summer youth outdoors.
Monitoring Strategy: Proposed methodologies for monitoring interventions, specifically identifying measurable impacts.	Viable Strategies: - Pre-post testing of knowledge measures in Rec Dept. staff. - Checklist of risk factors for tick exposure, summary score, then linked to actions by Rec Dept. staff or parents.
Impact Strategy: Proposed methodology for assessing how, collectively, the interventions impact a jurisdiction's adaptation to climate-related health outcomes.	Viable data analyses: - Analysis of Lyme disease testing or treatment via primary care data, if feasible. - Analysis of behavior change (protective actions) in youth, if feasible.
Timeline: A calendar of events outlining activities, deadlines, and milestones.	Regional PHN agencies will create tick-disease training curriculum in May-June 2016, train Rec Dept. staff in June 2016, assess progress in Summer 2016, improve program in Winter 2017, re-train in Spring 2017, implement in summer 2017, evaluate in Fall 2017. NH DHHS will complete the IMS and deliver it to CDC before end of year 1, or by August 31, 2017

Expected Results: By the end of Year 1, completion of the IMS for tick exposure in summer youth programs will lead to improved methods for interventions, access local data, identify key stakeholders, and increased partnership work and organizational readiness (i.e. Outputs A, B, C, and D as shown in the logic model).

9. LINKING WITH OTHER INITIATIVES

One of the main lessons learned in the 2010 strategic planning process was that efforts were needed for both the drivers of climate change (i.e. mitigation of carbon pollution), and the effects (i.e. adaptation to the climate effects that are already occurring). In 2015, another key lesson learned was that we would need to address both short-term weather events, and long-term climate change. It is clear that the State public health system (SPHS) already deals with severe weather events, and a bridge must be made to connect weather with climate change. Weather is a one-time event that is not always related to climate change. Climate can be viewed as the long term trend of all-weather events.

Inter-Agency Linkages: Key initiatives in the near future include coordination with the DES-led initiative on an interagency task force to address weather and climate issues. This organization had one outreach event in September 2015, and is planning a broader meeting of agency representatives in January 2016. The charge of this group will be decided by the members, although the discussion will clearly take on the health and safety links between environment, public health, transportation, and public safety. In addition, the Climate and Health Program will be connecting with HSEM on topics related to extreme heat, heat-related injury, and emergency preparedness.

State-Local Linkages: The NH DES has already begun to integrate climate change concepts into its divisions for air, water, and waste. The NH DHHS is just beginning to train its state staff in the impacts of climate change on severe weather and vulnerable populations. NH DHHS is also beginning to train regional PHN staff to plan for weather and climate, while developing interventions that are evidence-based and appropriate for local populations and resources. The Association of State and Territorial Health Officers (ASTHO) and National Association of County and City Health Officials (NACCHO) have already developed policies and resources to support local staff in adapting to climate change. These resources will be essential to support local public health agencies who need to plan for climate change impacts. In the absence of state support, it will be very challenging for local agencies to develop the plans, interventions and evaluation tools to address the impacts of severe weather and climate.

State-Federal Linkages: The Centers for Disease Control (CDC) has developed a framework and funding stream to support state and city health departments to assess and address climate change. The Building Resilience Against Climate Effects (BRACE) framework allows public health staff to interact with peers, assess risks, model disease burdens, and intervene to reduce impacts, all within a planning and evaluation system.

Emphasize evaluation of interventions?

10. NEXT STEPS

Many parts of the State Public Health System will need to plan for both severe weather events and the 'new normal' of a warming and changing climate. They will need to apply these decade-long changes to their strategic planning for capital infrastructure (roads, bridges, hospitals, etc.), human resources (hiring and training the right staff), and community health improvement plans (with climate-vulnerable populations like the elderly, chronically ill, the urban poor, and isolated rural areas).

So, what are the steps to get us from here to there?

After the completion of this planning process, and the publishing of this written plan, the strategies will need to be integrated into many parts of the public health system. Fortunately, many of the risk-reduction strategies and actions have a home in existing programs such as Injury Control, Asthma Control and Infectious Disease. The greater challenge will be to find the resources and time to build partnerships and community outreach across multiple sectors.

A number of concrete steps moving forward will include:

1. Participation in a State-level inter-agency task force facilitated by the NH Department of Environmental Services. The goal will be to assess and address climate needs at the level of the state executive branch. The first meeting was held in January 2016, and discussed how to move our partnership activities forward.
2. Finding champions within the State Public Health System to move these strategies forward. These champions will need to come from within the DHHS, and through the work of the inter-agency task force.
3. Pursuing regional-level support for climate adaptation planning via Public Health Networks. The Lakes Region has already developed an adaptation plan to address habitat change, ticks and vector-borne disease such as Lyme. The Upper Valley has developed adaptation plans to address increasing hot weather, vulnerable populations, and heat stress in the elderly.
4. Pursuing State-level support for risk reduction interventions which are evidence-based and appropriate for the local communities. In addition to the two PHNs mentioned above, the DPHS will pursue assessment to evaluate the impact of severe weather on traumatic injuries, and continue to study the impact of heat stress on hospitalizations and deaths in the state.

Our ultimate goal is to fulfill the vision of the original initiative in 2010, where New Hampshire and its local communities have effective systems in place to respond to health hazards associated with our changing climate.

Our survey of the public health community has confirmed that we have the capacity to respond to weather and climate change, in an organized, coordinated and effective manner. And we are well on our way to identifying the direct health impacts of severe weather and climate change. We are also doing a better job of preventing health impacts from severe weather as a nation, and will explore this further in our own state. We need to do a better job of preventing the drivers of climate change, such as carbon pollution and deforestation, in ways that improve wellness.

The greatest challenge will be to improve 'coordination' efforts across the entire State Public Health System that is focused on specific disease outcomes and behaviors, rather than overriding environmental conditions. One of the long-term visions is to create a place where every health official and medical professional knows how to mitigate and adapt to changing conditions, and feels empowered to act in their own community.

- End of narrative -

REFERENCES

2014 Journal Article Written by CDC Staff on developing adaptation plans
Building Resilience against Climate Effects—A Novel Framework to Facilitate Climate Readiness in Public Health Agencies. Int. J. Environ. Res. Public Health 2014, *11*, 6433-6458; Gino D. Marinucci 1, George Luber 1, Christopher K. Uejio 1,2, Shubhayu Saha, and Jeremy J. Hess. http://www.mdpi.com/1660-4601/11/6/6433

Building Public Health Resilience in a Changing Environment: An Assessment of New Hampshire's State Public Health System (SPHS) Capacity to Address the Impacts of Climate Change. NH DES, May 2010. (not currently published online).

APPENDIX A – Definition of Acronyms

ALANH – American Lung Association of NH
APHA – American Public Health Association
ASTHO – Association of State and Territorial Health Officials
BreatheNH - An organization committed to eliminating lung disease and improving the quality of life for those living with lung disease in NH
CDC – Centers for Disease Control and Prevention
Dept Ag – Department of Agriculture
DES – NH Department of Environmental Services
DPHS – Division of Public Health Services
DOT – Department of Transportation
EPA - Environmental Protection Agency
F&G - NH Fish and Game Department
FEMA – Federal Emergency Management Agency
HSEM – Homeland Security and Emergency Management
Hubbard Brook – (Experimental forest and research organization that promotes the understanding and stewardship of ecosystems through scientific research, long-term monitoring, and education; and develops new initiatives linking ecosystem science and public policy).
KSC – Keene State College
MHD – Manchester Health Department
NACCHO – National Association of County and City Health Officials
NEWWA – New England Water Works Association
NHCAW NH Coastal Adaptation Workgroup
NHPHA – NH Public Health Association
NOAA – National Oceanic and Atmospheric Administration
NPHCS – Nashua Division of Public Health and Community Services
OEP – Office of Energy and Planning
PHNs – Public Health Networks
PSU – Plymouth State University
TFAH – Trust for America's Health
UNH – University of New Hampshire
USGS – United States Geological Survey
UVAW – Upper Valley Adaptation Workgroup

APPENDIX B – Planning Committee

Matthew Cahillane, NH Department of Health and Human Services (DHHS),
Kathleen Bush, NH DHHS
Neil Twitchell, NH DHHS
Mike Dumond, NH DHHS

Roger Stephenson, Stephenson Strategic Communications ()
Stacey Smith, Jackson, Jackson and Wagner
Robin Schell at Jackson, Jackson and Wagner

APPENDIX C – 2011 Needs Assessment

The following figures provide a summary of results from the 2010 Needs Assessment

Figure 1 emphasizes the higher and lower scoring 10 Essential Public Health Services in the context of climate change and health.

Figure 1 - Climate Change Performance Stds Summary Scores
(arranged in decending order)

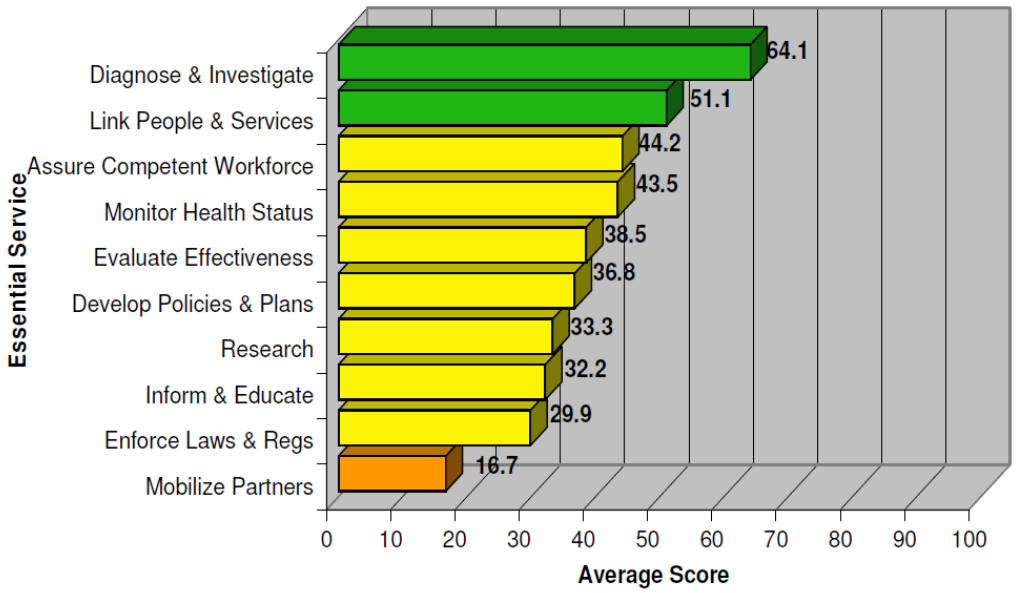


Figure 2 emphasizes the highest scoring 'model standards' in the context of climate change and health.

Figure 2- Performance Summary by Model Standard

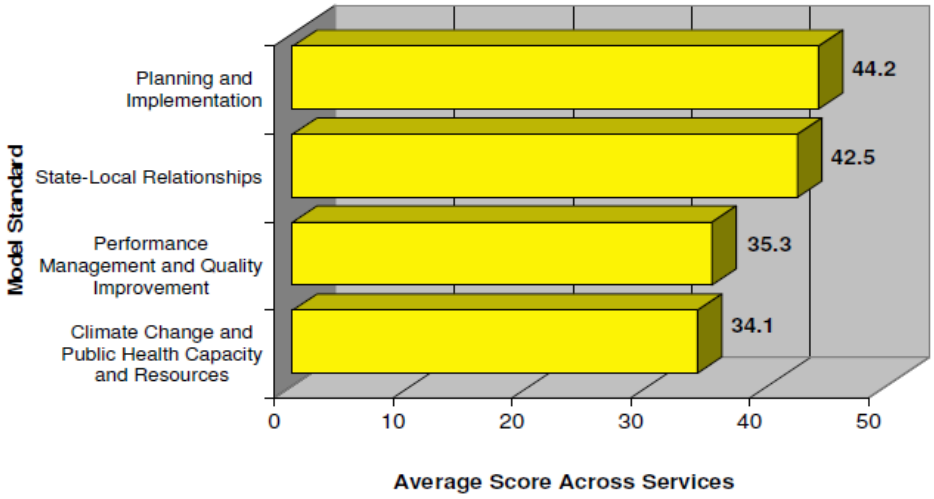
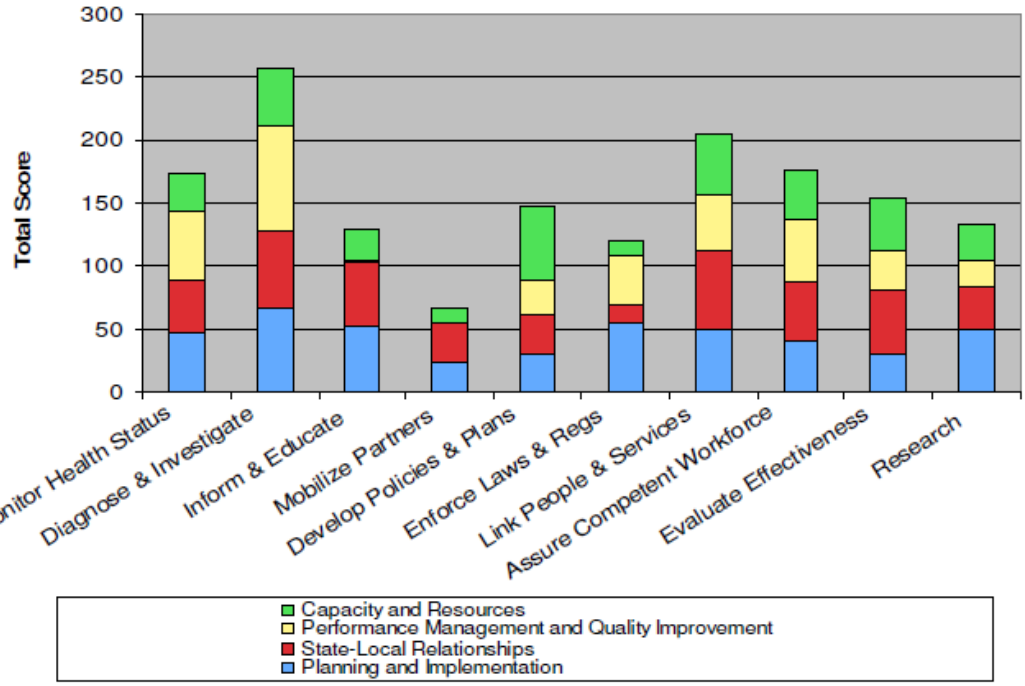


Figure 3 describes the combination of the two figures above.

Overall Total Scores: Figure 3 depicts the total scores for each essential service and the contribution to that score by each model standard. As indicated, the contributing factors to the scores for each essential service vary significantly. The State Instrument Assessment scoring results for each essential service are presented in Appendix D.

Figure 3 - Total Score by Essential Service & Model Std.



APPENDIX D – 2015 Needs Assessment

Summary of Delphi Study Findings, Round 2

Executive Summary

Respondents to this second round of query reached consensus on priorities and narrowed the focus on what they would like to see for programs and funding. The results will serve as a solid foundation for the 2015-2020 State Climate-Health Plan.

Primarily, they see the need for greater collaboration achieved through more "partnerships", "regular face-to-face discussions", and "key messages used consistently".

They agree that the three areas of "mobilizing partnerships", "informing and educating people" and "developing plans and policies for the individual and community level" should be the focus. The majority do not feel that enough progress has been made in each of these areas on individual issues that were identified as needing work in the 2010 plan.

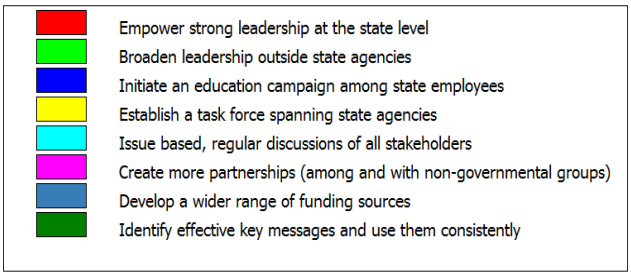
They identify "partnering with community groups and organizations" and "raising awareness through publicity and a behavior change campaign" as top programming strategies.

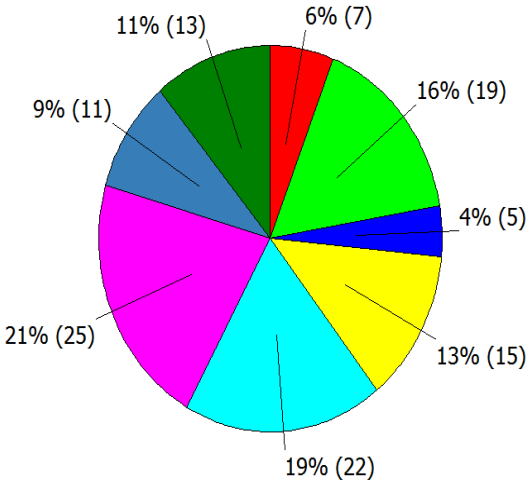
Top funding solutions are "increasing seed money for programs with promise" and "more community education program funding".

☐ Consensus on Actions Most Effective In Achieving Better Collaboration

Summary Statement: Round 1 of the Delphi identified a variety of actions that respondents felt should be taken to create more collaboration around climate and health issues. When asked to narrow those actions down to three (3), 21% said “Create more partnerships (among and with governmental groups) to pursue more partnerships that target priority NH audiences”; 19% said “Issue-based, regular discussions of all stakeholders on best practices & trends on the topic of Climate & Health” and 16% said “Broaden leadership outside State agencies to work on Climate & Health issues, and include those outside of the health system.”

Respondents in Round 1 said that "collaborations among all agencies and community organizations involved with climate and health issues" is key to moving forward. Which three (3) actions below do you believe would be MOST effective in achieving better collaboration?





☐ Priorities for Action on Climate and Health Over Next Five (5) Years

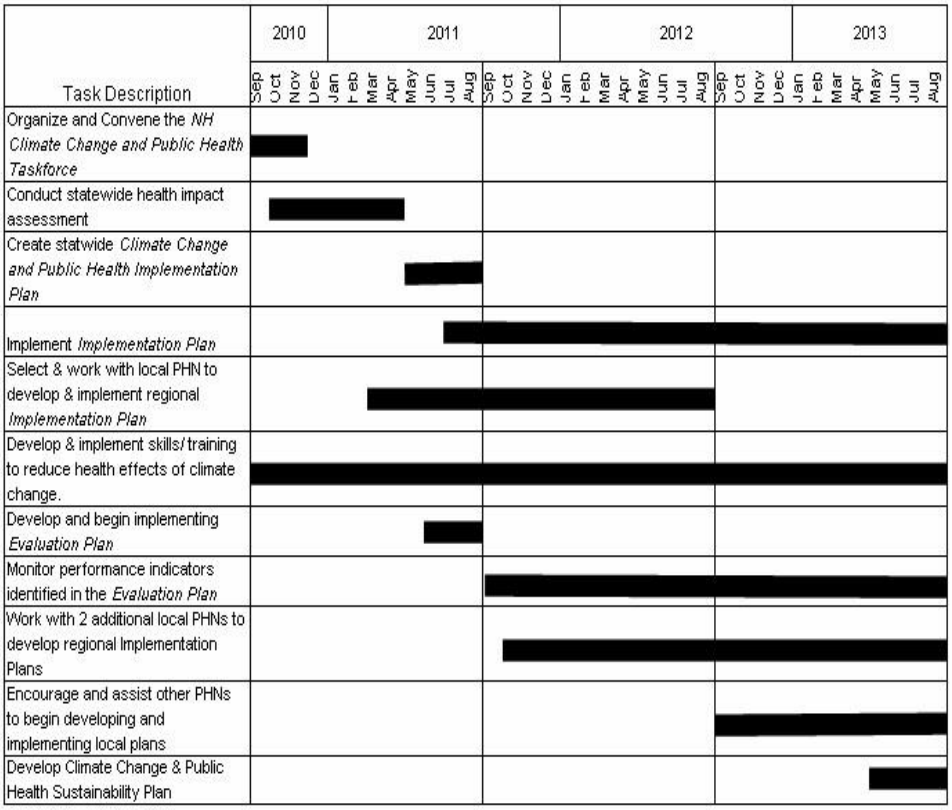
Summary Statement: A vast majority (87%) agree the top 3 priorities for action, identified in Round 1, on the topic of Climate Change & Health over the next 5 years should be:

- Mobilizing partnerships to identify and solve public health problems
- Inform, educate and empower people and communities about public health issues
- Develop policies and plans that support individual and community-level risk reduction efforts

Respondents in Round 1 identified three top priorities for action on the topic of Climate Change and Health over the next 5 years (selected from the 10 Essential Public Health Services.) They are 1) Mobilizing partnerships to identify and solve public health problems, 2) Inform, educate and empower people and communities about public health issues, and 3) Develop policies and plans that support individual and community-level risk reduction efforts.
Can you agree that these three areas should be the main priorities for the next strategic action plan on climate and health?

APPENDIX E – Timeline of Past Activities

Timeline of Past Activities – Progress on 2010 Strategic Plan to Address the Health Impacts of Climate Change in NH



Task Description	Status
Organize and Convene the *NH Climate Change and Public Health Taskforce*	Complete
Conduct statewide health impact assessment	Complete
Create statwide *Climate Change and Public Health Implementation Plan*	Partial
Implement *Implementation Plan*	Partial
Select & work with local PHN to develop & implement regional *Implementation Plan*	Complete
Develop & implement skills/ training to reduce health effects of climate change.	Complete
Develop and begin implementing *Evaluation Plan*	Partial
Monitor performance indicators identified in the *Evaluation Plan*	Partial
Work with 2 additional local PHNs to develop regional Implementation Plans	Complete
Encourage and assist other PHNs to begin developing and implementing local plans	Complete
Develop Climate Change & Public Health Sustainability Plan	Partial

APPENDIX F - Timeline of Future Activities

Timeline of Future Activities – A Strategic Plan to Address the Health Impacts of Climate Change in NH

Outline of Workplan for CHAMP Years 1-5, New Hampshire Climate & Health Program						
Year	**Goal(s)s**	**NH Strategies and Activities**	**Define Outputs** (Using CDC Logic Model, FOA p.4-5)	**Define Performance Measures**	**NH Timeline**	**NH Implementation Roles for Measures**
Year 1	**"A Year of Planning & Strategy"** To implement a **Climate and Health Monitoring Program (CHAMP)** via an Implementation and Monitoring Strategy (IMS) the tracks improvements in public health. **NH Priorities:** 1. Excess Temps & Heat Injury 2. Extreme Weather &	• Identify & cultivate relationships with new stakeholders, including reps. from vulnerable populations • Develop a NH **Implementation and Monitoring Strategy (IMS)** with all relevant stakeholders • Develop a plan to communicate the IMS to community, leaders, & other stakeholders	Methods for interventions and adaptations **(Output A)**	Presence of viable methods for implementing interventions	September to December 2016	Epidemiologist (K Bush) finds methods, and Program Manager (M Cahillane) provides resources
			Local data for perf. measures **(Output B)**	Increase in local data identified or acquired	Ongoing	Epidemiologist obtains data, Manager provides resources
			A network of new stakeholders **(Output C)**	Increase number & type of stakeholders for each specific intervention or adaptation	September to December 2016	Manager engages stakeholders, Health Promoter (J Morton) maintains network database & connections
			An IMS team: • A team roster with roles and responsibilities • Facilitator for agency partners **(Output D)**	Increase in organization of agency and partnership work	September 2016	Program Manager creates team, Health Promoter facilitates partnerships & meetings

	Injury 3. Physical Activity & Co-benefits 4. Tick Habitat & Related disease	• Develop evaluation plan for CHAMP, which includes the IMS & associated interventions	A Completed IMS, with written strategies **(Output E)**	Increase in readiness to implement IMS	December 2016 to March 2017	Program Manager writes IMS, NH staff provide input
			Completed communication and dissemination strategy **(Output F)**	Increase in readiness of agency to effectively communicate IMS	March 2017 to August 2017	Program Manager creates communication strategy, NH provide input
			A completed Evaluation and Performance Measurements Plan **(Output H)**	Presence of a process & outcome measures, performance measures (PMs) for each intervention, plus strategies & activities	December 2016 to February 2017 (due < 6 month)	Program Manager creates IMS Evaluation Plan, NH staff & partners provide input
			A complete Annual Performance Report (APR)	Submit to CDC a report on PMs and required elements.	May 2017	Program Manager creates APR, with input from NH program and finance staff
Year 2	**"Year to Test Plans and Strategies"** **Goals(s):** To use our newly developed **Implementation and Monitoring Strategy (IMS) and Support Team** to prepare to implement viable, evidence-based interventions to address specific regional climate/weather hazards, and public health impacts. **Outputs**: Activities F, G and H will be accomplished, including increased agency readiness to communicate the IMS, deliver IMS to relevant audiences, and evaluate progress.					

Year 3	**"Year to Launch and Refine Interventions"** **Goals(s):** To use our tested **Implementation and Monitoring Strategy (IMS) and Team** to implement viable interventions, measure outcomes that improve public health, and refine our strategies. **Outputs**: Activities I, J and K will be accomplished
Year 4	**"Year of Full Implementation of Interventions"** **Goals(s):** To use our tested **Implementation and Monitoring Strategy (IMS) and Team** to implement viable interventions, expand interventions to new target populations, and measure outcomes to improve public health. **Outputs**: Activities I, J and K will be accomplished and reported to CDC via reporting mechanism.
Year 5	**"Year of Improving Interventions"** **Goals(s):** To use our tested **Implementation and Monitoring Strategy (IMS) and Team** to implement interventions, utilize results of the evaluation process to improve interventions, and measure outcomes to improve public health. **Outputs**: Activities I, J and K will be accomplished and reported to CDC via reporting mechanism.