

Climate & Health Intervention Summary Report – Upper Valley RPHN

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1. Background

Project Background

This climate and health adaptation initiative for the Upper Valley region is an outgrowth of the NH State Climate Action Plan created in 2009. That Plan's adaptation chapter recommended that the public health community identify and protect the vulnerable populations at risk for climate impacts, such as the groups located in high-hazard areas. Between July and November 2015, Upper Valley partners including the Public Health Council of the Upper Valley, Regional Coordinating Council for Emergency Preparedness (RCC), Upper Valley Lake Sunapee Regional Planning Commission (UVLSRPC), Upper Valley Adaptation Workgroup (UVAW), Upper Valley Housing Coalition (UVHC), and Upper Valley Strong collaborated to develop the Upper Valley's first Climate+Health Adaptation Plan.

The plan considered available data^{1, 2} and input from partner organizations and concluded priority should be placed on increasing regional, community, and individual resilience to extreme heat events with a focus on the senior population. Some of the data and information included predictions of some key climate-related indicators, including:

- A steep rise in the percentage of the population over age 65 by 2040;
- the number of older adults who are isolated in rural parts of our region;
- older adult vulnerabilities to heat related illness; and
- the opportunity to build functional partnerships with organizations serving older adults.

¹ Wake, C.P. et al. (2014). Climate Change in Southern New Hampshire: Past, Present, and Future. Climate Solutions New England Report, Sustainability Institute at the University of New Hampshire.

² Wake, C.P. et al. (2015). Climate Change and Human Health in New Hampshire: Past, Present, and Future. Climate Solutions New England Report, Sustainability Institute at the University of New Hampshire.

The partners also determined that the remaining vulnerabilities highlighted in the plan were either already adequately addressed by our emergency response capabilities or were not feasible to address at present. By developing a capacity to help protect older adults from the health effects of extreme heat events, we can create a sustainable approach to addressing other issues relating to vulnerable older adults.

The region has been consistently experiencing higher summertime average temperatures. Since the 1980's there have been an average of eight days per year greater than 90° F, and that number is expected to increase by five to six days per year by 2039 and to as many a 50 days per year by 2099.³ Outreach and training to care providers of older adults in our region about the risks of extreme heat events should decrease the number of injuries and deaths as well as admittance into hospital emergency rooms by the target group.

Fiscal Year 2017 Project Goals

1. Increase the number of older adults who are informed of the potential risk for heat-related illness;
2. Increase the knowledge of heat-related illness and protective measures for one additional target population;
3. Increase regional access to standard heat-related illness response actions/functions in local plans in order to improve response capabilities.

Fiscal Year 2017 Accomplishments

Continuation of implementation of the pilot project, Heat & Older Adults:

- Trained intermediaries for Heat & Older Adults Pilot Project and dissemination of pre-tests and post-tests as well as data collection sheets to capture interactions with older adults;
- Completed data analysis of pre-tests, post-tests and data sheets and findings were summarized and reported to NHDHHS;
- Continued dissemination of Toolkits and materials to older adults & intermediaries;
- Blog posts on the PHC website with Toolkit information and links, summary in PHC E-News, Press release to Valley News, information sent to local groups including *Aging in Community* and *Elder Forum*;
- After continued positive feedback about the materials produced for this project, Alice worked with Claire Pendergrast to develop and market educational materials to be used more broadly at Senior Centers throughout the state.
- Alice also expanded the information produced for our project in NH to care providers in Vermont. She provided a Toolkit overviews to four organizations: 1 Vermont Blueprint Community Health Team, 1 Vermont SASH program coordinator, 1 Care Manager from

³ Wake, C.P. et al. (2015). Climate Change and Human Health in New Hampshire: Past, Present, and Future. Climate Solutions New England Report, Sustainability Institute at the University of New Hampshire

Armistead Care Services, and 1 to the Windsor Area Community Health Team. In addition she provided in-service training to the Armistead Home visitor staff.

Identified Additional Target Groups

- Three additional vulnerable populations were identified that are at risk of impact of extreme heat (young children, athletes, outdoor workers);
- We worked with a consultant who interviewed community members and identified key themes learned;

Developed a Regional Standard for Heat Response (see Appendices)

- Outreach to emergency management directors in twelve towns in the region with six responses;
- Templates of heat annexes were provided to several of the region's emergency management directors.

2. Methods

Based on a review of available literature⁴, there are many interventions that are effective in reducing heat stress in older adults. The general approach to reducing the health risks of extreme heat events on older adults (especially those who are more isolated), includes increasing awareness of the risks, ensuring they know of actionable strategies, and connection with community resources. In the Upper Valley, we conducted two focus groups and five interviews⁵ with representatives of organizations who work with older adults to determine the best approaches to raising awareness and teaching strategies. The interview and focus group process identified four recommendations to guide the pilot phase of our project:

1. Train volunteer groups to recognize the signs and symptoms of heat stress, which may look different in the elderly than for the younger population.
2. Develop a universal tip sheet and protocol for staff and volunteers.
3. Develop a set of universal intake questions.
4. Develop and widely distribute an information card that can be posted on refrigerators. It must be verbally and visually short and clear, legible, large type size, accessible vocabulary, with 1-3 bullet points and an actionable message – “Remember,....”, and the name/phone number of a person to contact.

Our 'theory of change' is that if we can raise the knowledge and skills of caregivers and volunteers who routinely interact with older adults in home or community settings, they will transmit that information more effectively to the older adults and will provide trigger information when older adults need to act to prevent or address health related illness. The logic model outlined in the figure below outlines how

⁴ New York State Heat Interventions Literature Review (currently in publication via the CDC)

⁵ CLIMATE+HEALTH – Upper Valley Climate and Health Adaptation Plan, Seniors & Extreme Heat Events– Focus Group and Stakeholder Interviews Report (2016).

change will occur, with key project inputs on the left side, and short or long-term outcomes on the right side.

The literature we reviewed pointed to outreach and education, heat alert systems, and access to cooling shelters as the most effective strategies. Because we do not have local control over heat alert systems and there is insufficient evidence that cooling shelters would be an effective approach with rural, older adults in our communities, we elected to focus on outreach and education. We relied heavily on the information provided at the CDC website (<https://www.cdc.gov/extremeheat/>) to shape our educational materials.

One of the challenges of implementing a heat-stress education effort for older adults is that few prior studies have developed standard methods and evaluation protocols. We found few examples of existing training materials, and few performance measures that can easily and accurately assess changes in knowledge, skills and abilities to reduce heat injury at the population level. As a result, this project developed its own training methods, borrowed existing materials, and created a pre-post test survey to assess if change had occurred in the target audience.

In addition to the training efforts above, Upper Valley project staff from the Public Health Council and the Upper Valley Lake Sunapee Regional Planning Commission will continue to participate in trainings provided by the DHHS in Concord as available. We will use these training opportunities to learn best practices in the field of climate and health interventions and consult with state program staff.

One of the main goals of the intervention is to disrupt the exposure pathway between the points of heat exposure and adverse health outcome in older adults. The table below outlines the elements of the intervention methodology, with the main exposure to excess heat or ambient temperatures (as projected to increase over time) with baseline data on exposure outcomes (# of hospitalizations per year in the state), the goal of the project (to reduce injuries by 50%), intervention types, strategies, and specific activities. This table represents a high level workplan for implementing the intervention.

Another goal of this intervention could be to find or create a measure of heat stress 'proficiency' in preventing exposure to heat stress dangers. In other words, how knowledgeable are they in relation to some standard of care. We'd like to know that knowledge has increased to the point that caregivers are able to break the exposure pathway at the right point. An example would be that all trained caregivers can list at least five risk factors that lead to heat injury, or at least five protective actions that can prevent heat injury, or at least three community resources to help elders. The research literature reviewed so far has few examples of heat stress proficiency in terms of knowledge, skills or abilities to reduce impacts. The literature has more information on how to recognize and treat heat stress when it becomes an illness, although that knowledge is less appropriate for this target audience, and does not emphasize prevention.

3. Evaluation of Impact

The impact goal for this work was based on a baseline average count of 125 heat-related hospital visits per year (1998-2009, NH WISDOM online database). Our target was to reduce rate the of heat-related hospital visits by 50% in the region before 2020.

The Evaluation Report provides more detail on the measures used to document process and outcomes. For outcome evaluation, used measures of knowledge and attitudes to document the effectiveness of training. For process evaluation, we used measures such as # of people trained and contacted to capture dissemination. To guide the feasibility of the project, we used focus groups as a qualitative source of information upon which to develop the intervention and to explore what worked and what didn't.

Process Measures (Phase 1):

- Number of intermediaries and stakeholders trained using toolkit and project protocol;
- Number of pre- and post-tests completed and analyzed;
- Number of information cards and magnets distributed to older adults in the region;
- Reporting sheets documenting older adult contacts and materials distribution collected for data entry and analysis;
- Meeting records from focus groups;
- Records of community outreach and publicity;
- Lists of partners participating in project;
- Schedule of trainings;
- Collect data about number of contacts and materials distributed;
- Increase the number of older adults who receive information about heat-related illness from x to y.

Outcome measures (Phase 1):

- Increase the number of older adult stakeholders (service providers, volunteers, etc.) who report being knowledgeable about heat related illness after receiving training and a toolkit from xx19% (at baseline, pre-test) to xx50% (at post-test) by June 30, 2017.

Our baseline measures came from the survey questions on the pre-test. Pre-tests surveys were provided to trainees before the training begins and were collected upon completion. The survey questions were developed by Stevenson Communication, in consultation with DHHS and PHC staff. This information established the "baseline" knowledge of the trainees. After the pilot project period was completed the participants were given a post-test survey. The change in knowledge from the pre-tests (pre-training) to the post-test established the effectiveness of the training itself and attitudes as they are shaped by caregivers' experiences with older adults.

4. Findings

As of December 31, 2016, the PHC has trained four supervisors (via a Train-the-Trainer process) from three organizations, who planned to train their own staff in heat stress awareness. An additional 26 people were trained to deliver the information in the Toolkits to older adults. The trainees included the RSVP Volunteer Program of the Grafton County Senior Citizen's Council, Bone Builders instructors, Chore Corps volunteers, home delivered meals drivers, ambulance service crew members, and community volunteers. A total of 39 caregivers were trained about the risks of heat stress in older adults.

Tracking sheet data documented 156 contacts with older adults, of which 29 were follow-up contacts and 129 took place at a Senior Lunch. The Grafton County Senior Citizens Council reported having touched at least 90 older adults, however these are not all documented on tracking sheets and rely on verbal and written reports from program staff. It's estimated that a total of 217 older adults were contacted in the Upper Valley region.

In regard to evaluation of the education efforts, the project provided a pre-test before the training (i.e. day of survey), and a post-test (i.e. follow up survey) after the educational materials were distributed. By the end of data collection, we received 39 completed pre-tests and 12 completed post-tests. A complete "Upper Valley Heat Extreme Pre- and Post-Test Executive Summary of Findings" is attached to this report. A summary of key results is provided below.

1. Most respondents self-reported that they felt "somewhat" or "very" knowledgeable about the risks older adults face in hot weather and this did not change significantly from pre- to post-test (97.3% vs 100%).
2. Changes in knowledge of heat-related illness, signs and symptoms, and strategies was negligible but generally moved in the right direction. These are not matched pre-and post-test results, so it is not possible to document the impact of the training and project information on individuals' knowledge. We do note that on three questions, relating to giving fluids for heat stroke, treating with body powder, and using a fan, correct knowledge did increase notably from pre- to post-test; these are areas where pre-test respondents showed the least amount of knowledge.
3. When comparing behaviors pre- and post-test (results summary provided in **Table 1** below):
 - In almost every case, reporting knowledge of understanding appropriate behaviors increased after the training. The two exceptions (i.e., calling 911 and calling a relative or neighbor to check on an older adult) may be due to the relatively small number of very hot days experienced over the summer. These actions would only have been triggered by a documented concern for an individual.
 - No volunteers in the pre- or post-test said they had ever reviewed medicines and raised concerns about the medicine's impact on older adults in heat extremes (clearly out of their comfort zone)
 - The highest levels of knowledge (i.e. Likely behaviors) from volunteers are 1) reminding older adults to stay hydrated during a heat wave; 2) recommending older

adults postpone outdoor activities during heat extremes and 3) checking the indoor temperature of an older person’s apartment [question 6 and 8 on post-test]

- Two volunteers who responded to the pre-test and three on the post-test reported they did not practice any of the behaviors because they did not feel it was their responsibility.
- For weather information, top sources are the National Weather Service (62%), the TV news (60%), a weather app (43%), multiple radio stations, and the local newspaper (Valley News).
- The most helpful sources of information are “top 5 things” (74%), “checklist” (72%), and “supplies or tools” (36%).

Table 1. Results of pre & post-test responses about knowledge levels on heat extremes.

Question:	Correct Response	Pre-Test		Post-Test N=12	Direction of Change
Older adults more “at risk” because less likely to sweat, cool down body naturally	TRUE	83.30%	N=36	75%	Negative
Age, obesity, dehydration, poor circulation, fever, sunburn, use of alcohol and prescription drugs contribute to inability to feel cooler during hot weather	TRUE	92.30%	N=39	100%	Positive
If you suspect an older adult has suffered from heat stroke, you should give them fluids immediately (behavioral cue)	FALSE	59.50%	N=37	75%	Positive
The following symptoms (headache, nausea, confusion, rapid & strong pulse & body temp above 103 degrees) indicate possible heat stroke	TRUE	92.30%	N=39	100%	Positive
If you suspect an older adult has suffered from heat stroke, call 911 because this is a medical emergency (behavioral cue)	TRUE	97.40%	N=39	100%	Positive
The best treatment for heat rash is to keep the affected areas wet and avoid the use of body powder	FALSE	48.70%	N=37	75%	Positive
A fan is a reliable cooling device during a heat wave	FALSE	55.90%	N=34	83.30%	Positive
It is important to drink fluids in extreme heat before a person actually feels thirsty.	TRUE	100%	N=38	100%	No Change
To avoid dehydration during a heat wave, it is appropriate to recommend 2 gallons of water every hour, especially when working or exercising outside	FALSE	91.90%	N=37	91.70%	Negative
Extreme heat events are the most common cause of weather-related deaths in the U.S.	TRUE	89.50%	N=38	100%	Positive

Those with psychiatric illnesses; are homebound or bedridden have the highest risk of death during a heat wave	TRUE	97.40%	N=39	100%	Positive
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On the pre-test, most of the respondents were home-delivered meals volunteers, followed by Upper Valley Ambulance Service (UVAS) crew, Bone Builder instructors, and Chore Corps volunteers. On the post-test, Half reported “Other”, while the remainder were split between home-delivered meals, UVAS, Bone Builder, Good Morning Program volunteers, and a Plainfield employee. About one-third of respondents reported they have worked or volunteered for two years or less and another third reported 10 years or more. Most come in contact with older adults once or twice per week and visit for 5-10 minutes. On the post-test, respondents were more likely to report seeing the elderly population once or twice a week or more frequently (91.7%), suggesting people who saw older adults more frequently were more likely to complete a post-test. Most of the respondents indicated that they are older than 56 years of age (66% on the pre-test); however, post-test respondents were younger with 45% aged 41 to 55 and 45% aged 56 or older.

The trained individuals expressed that outreach has helped increase awareness in both the dangers of extreme heat events and the prevention of injury. **However, only 18% reported that they handed out the information cards and magnets.** This suggests that 1) there was insufficient understanding or buy-in for the project protocol, or 2) the situations volunteers/caregivers found themselves in with older adults did not match our expectations and did not provide the right opportunity for using the materials.

Caveats relative to data interpretation include:

1. We collected 39 completed pre-tests, but only 12 completed post-tests. This small and mismatched number makes drawing firm conclusions difficult. We had expected to be able to match pre-and post-tests, but again the small number of matched tests renders that analysis less useful for the purposes of generalization.
2. Question #3 on the pre-test asks if respondent had received training on this topic in the past year. The range of responses suggests that some respondents included the training relative to this project in their response, inflating the number who reported training. Nearly 13% reported receiving training; this percentage is likely much lower.

On December 19, 2016, we conducted a final focus group with the four individuals who had been trained initially and asked to serve as site coordinators and trainers for the next circle of volunteers and caregivers. A copy of the notes of that meeting is attached. Key points are as follows:

- The protocol was logical, but it was not really taken up by volunteers and home visitors. We should work in some way to “negotiate” it with the folks who will have contact with older adults to make sure it works for them.
- Develop video-based training which can be posted online and shared as a link.
- Focus more on addressing groups of older adults, rather than individuals. For example, during a senior lunch or similar gathering.

- Find caregivers who spend more time in the home with older adults and may be better able to deliver the message (e.g., visiting nurses, community-based physical therapists).

In preparation for Phase 2 of the project which would carry on the education of issues related to extreme heat events and health to a new target group (young children, athletes, or outdoor workers), phone interviews were conducted with various community members after the response to a focus group was poor. Lizann Peyton conducted the interviews and found several key themes:

3. *There is a lack of public awareness of the difference between temperature and heat index, and implications for safety and health.* Our long winters produce regular media coverage of the dangers of wind chill and strategies for staying safe. Skiers are warned to go inside and warm up. Parents, teachers, and early childhood workers are used to cancelling outside recess. Hikers are used to checking reports for the high peaks. Weather reports routinely include wind chill information, in addition to temperature and wind speed, but don't always explain heat index during summer months. Upper Valley residents, tired of long winters, may eagerly embrace warm days without understanding the dangers below 100 degrees. One of the interviewees felt confident that most people don't understand what heat index means.
4. *There is a lack of public understanding that periods of intense heat will occur more frequently, and last longer.* Some interviewees were unaware of projections for increasing temperature and consecutive days without relief. Strategies effective when the weather is in the 70s and low 80s may not be enough when heat waves arrive, and the sense of urgency is low.
5. *There is a lack of awareness that certain populations are at greater risk because of physiology.* Parents and caregivers need to understand that hot weather is not a time to let children make decisions about their own safety. While used to health advice on sun protection, they may not know that young children's central nervous systems are not fully developed, that they are unable to regulate their body temperature, and aren't self-aware of whether they're hot and thirsty. Parents need to step in and make decisions for their safety rather than rely on children's self-reports.
6. *Public health leaders should identify opportunities to leverage face-to-face conversation.* The biggest impact on translating awareness to action may come from coaching and mentoring at junctures where relationships and conversation can happen – e.g. parent-teacher interaction, sports coaches and personal trainers, pediatric and visiting nurse appointments, neo-natal care.

If funding is made available to continue outreach for a Phase 2 of this project, the above four findings should be revisited and help direct the selection of another target population and the focus of educational outreach.

5. Conclusion or Lessons Learned

In concluding the first phase of our project, Heat & Older Adults, we found that some aspects worked well, others need significant improvement, but that there is enthusiasm for moving forward. Positive feedback continued through the end of June, 2017 regarding the outreach materials produced for this project.

There was a significant amount of existing material from CDC that we were able to incorporate into the outreach campaign, reducing the overall cost of the product. It is not always necessary to create all of the materials from scratch. Our materials were well-received, if not always used as much as we had hoped.

Data collection was a challenge both in terms of post-test completion and tracking of contacts and actions taken. Coming up with minimalist data collection tools and easy to use collection strategies should be an important task for the next round of interventions.

Baseline knowledge about the health risks of extreme heat events was high in the target population of volunteers and caregivers. Our intervention showed low to moderate impacts on knowledge about signs and symptoms and cooling strategies; however, knowledge did not always translate into willingness or comfort in sharing this information with isolated older adults. This is hard to gauge because we received so few tracking forms and post-tests from individuals trained; however, one might assume that trained individuals highly engaged in the project might have made more effort to report back and take a post-test.

A few ideas include:

- One possibility is that the volunteers and caregivers we targeted simply do not have enough time in their contacts (with elders) to adequately share information or assess the situation in the home;
- Another is that these individuals do not see their role in this way (as educators), or are uncomfortable addressing health issues with older adults;
- Another possibility is that our training method (multi-layer) did not give these volunteers enough information and confidence that they could transmit information adequately. This is backed up by one report that Bone Builders instructors, though trained, deferred to their supervisor to provide the information to class participants whenever possible.

Based on review of the data and final focus group, our final conclusions for Phase 1 are:

1. The trainings were difficult to complete. It is unrealistic to gather the target group of volunteers and caregivers for training, yet without the training, the feasibility of adherence to the protocol is low.
 - Train-the-Trainer approach is moderately effective at getting across information, but not for getting buy-in on protocol;
 - The protocol was logical, but it was not really taken up by volunteers and home visitors. We should work in some way to “negotiate” it with the folks who will have contact with older adults to make sure it works for them;
 - Post-test data collection does not work well with this diffuse approach to training and implementation.
2. The impact of the trainings were difficult to evaluate based on only a set of brief pre- and post tests. We cannot deduce answers to the following issues:
 - How was the information received and used by older adults;
 - The impact it had on heat-related illness.
3. A number of lessons learned may help us to improve the intervention. Here is what we will work to modify and strengthen in the upcoming intervention cycles:

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- Focus on training and dissemination via groups (e.g., senior lunches, classes) with expert trainer;
- Develop video-based training which can be posted online and shared as a link;
- Find caregivers who spend more time in the home with older adults and may be better able to deliver the message (e.g., visiting nurses, community-based physical therapists);
- Look into media approaches to dissemination;
- Explore other ways to measure outcomes and impact.

For the beginning of the selection of a target group for Phase 2, we were challenged with no response from groups we sought to engage. When we changed the format to more direct outreach by conducting phone interviews we were able to have higher engagement. This may suggest that many in these groups feel that they have adequate knowledge about safety and health during extreme heat events. Phone interviews also suggest that there may need to be more focus on education around the State's heat index and heat advisory rather than specifically focusing on behavior during extreme heat events, although these educational materials should still be part of the overall product produced.

Publications

Climate and Health Adaptation Plan for the Public Health Network of the Upper Valley (November 2015)

<http://uvpublichealth.org/wp-content/uploads/2015/12/UVClimate-Health-Adaptation-Plan--Nov2015.pdf>

Blog Post (4/19/2016) by Emma Hartswick “Report on Climate & Health Forum”

<http://uvpublichealth.org/report-climate-and-health-forum/>

Blog post (7-27-2016) by Alice Ely “It’s Hot Outside! Reducing Heat Related Illness”

<http://uvpublichealth.org/hot-outside-reducing-heat-related-illness-among-older-adults/>

Heat and Older Adults Training Toolkit (3 parts):

1. *The Signs and Symptoms of Heat-Related Illness*: <http://uvpublichealth.org/wp-content/uploads/2016/07/Insert-1-Prevent-Heat-Illness-July2016.pdf>
2. *Ways to Stay Cool and Hydrated*: <http://uvpublichealth.org/wp-content/uploads/2016/07/Insert-2-Heat-Chronic-Med-Cond-July2016.pdf>
3. *A Heat Safety Checklist*: <http://uvpublichealth.org/wp-content/uploads/2016/07/Insert-3-Heat-Safety-Checklist-July2016.pdf>

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Anthony Costello, Mustafa Abbas, et al., Managing The Health Effects Of Climate Change, Lancet and University College London Institute for Global Health Commission, May 16, 2009

Justin B. Clancy and Jessica Grannis, Lessons Learned From Irene – Climate Change, Federal Disaster Relief, and Barriers to Adaptive Reconstruction, Georgetown Climate Center, December 2013

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Fact Sheet-What Climate Change Means for New Hampshire and the Northeast, The White House Office of the Press Secretary, May 6, 2014

New Hampshire the Resilient Granite State-A Workbook Guide on Climate and Health Adaptation for Regional Public Health Networks, Healthy New Hampshire, Global Climate Change Implications for Public Health, CDC, April 22, 2015

Jose Their Montero, MD, MHCD, New Hampshire State Health Improvement Plan, Division of Public Health Services, New Hampshire Department of Health and Human Services

Victoria Buschman, Caroline Fernandes, Sarah Guth, Anna Mullen, Piper Rosales-Underbrink, Tropical Storm Irene: A Retrospective on Mental and Emotional Impacts on Vermont Communities Three Years Later, Environmental Studies Senior Capstone Seminar, In cooperation with the Vermont Department of Health Professor Rebecca Kneale Gould and Diane Munroe, December 15, 2014

Martin Downs, MPH Project Director, Edward Ihejirika, MB.BS, MS Program Coordinator, Alice R. Ely, MPH Executive Director, The Upper Valley Healthy Community Project Assessment, Presented by Mascoma Valley Health Initiative , June 2011

Lee Karlsson, Vermont Climate Change Health Effects Adaption, Climate Change Application White Pages Series, Vermont Agency of Natural Resources, May 2011

Evaluation of the education campaign on health risks associated with heat waves and on related protection measures. Céline Gosselin, et al. *Agence de la santé et des services sociaux de Montréal . Montreal Health Agency, 2010.*

www.santecom.qc.ca/bibliothequevirtuelle/hyperion/9782894949092.pdf

Appendices:

1. Notes from Heat and Older Adults (December 2016 meeting?)

Attending:

- Alice Ely, PHC
- Amber Boland, UVLSRPC
- Bernadette Rose, GCSCC RSVP
- Clay Odell and David Sanborn, Upper Valley Ambulance Service
- Stephanie Schell, Plainfield Community Resource Director

Review of Pre- and Post-Test Results:

- Alice shared a summary of the project contact numbers and pre- and post-test results.

Training Discussion:

- The training provided in a small group worked well for this group.
- In Plainfield and with GCSCC, Bernadette and Stephanie ended up providing most of the training to older adults directly as their Bone Builder and other volunteers felt more comfortable deferring to them. They felt these sessions worked well and got the information to an important group of older adults (e.g., at Senior Lunches and Bone Builder classes).
- At Upper Valley Ambulance Service there was so difficulty with the buy-in of crew members. The toolkit materials helped to correct some impressions and increase buy-in; however, they never found the right way to share information with clients as most contact is during transfers to the hospital.
- All agreed that we should see volunteers as an asset to deploy.

Data Collection:

- It was like pulling teeth to get the post-test completed.
- Suggestions to improve this included:
- Not calling it a “test,” but using the word “survey” instead;
- Making a better case for how we will use the information gathered;
- Find a simpler way to collect tracking data (i.e. contact information) such as with a phone call or other approach.
- Suggested we provide some final wrap up message to the volunteers who helped as a way to thank them and make sure they understand the value of their effort.

Protocol:

- The protocol was logical, but it was not really taken up by volunteers and home visitors. We should work in some way to “negotiate” it with the folks who will have contact with older adults to make sure it works for them.

Materials:

- Materials were well done. The magnet and card were a good combination.

Communications and Support:

- Reported as being OK.
- Bernadette shared that one home-delivered meals volunteer did report concern about how hot one home was. Bernadette called the home to see if help was needed with an A/C unit or other cooling strategy. The woman said she was fine and didn't need any help. In the end, her son put in her existing unit. Perhaps bringing the issue to the woman's attention sparked her to get something done.

Other Opportunities:

- Upper Valley Ambulance Service (UVAS) is becoming an installer for LifeLine. This may provide an opportunity to get information into people's homes.
- Look for more opportunities to do community education with existing groups/gatherings.
- Could UVAS be available to check on an individual if the GCSCC Good Morning Program identified them as being at risk?

What would you do differently the next time?

- Training – Develop video-based training which can be posted online and shared as a link. UVAS can help.
- Protocol –
 - Focus on addressing groups. Set up a way to do follow-up visits after 911 calls on related health concerns. Is set up in Plainfield. Could we set up elsewhere?
 - Still work on getting volunteers doing home visits to help but do a better job of getting to them.
 - We discussed whether this would warrant a dedicated group of volunteers and we agreed this would be too much of an investment of resources.
 - Can we work with visiting nurses? Community-based physical therapists? Hair dressers? Town Clerks?
- Materials – 211 is not set up to be helpful at this point. Need to improve this or find a new reference point.

Thoughts about new population for next year:

- Road construction flaggers
- Athletes and coaches
- Camps
- Youth and adults doing outdoor activities

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Wrap Up Activities:

- One-page wrap up letter to volunteers/participants (as shareable blurb)
- Letter to the Editor

2. Heat Annex Outreach Response Table:

Town	Responded to Outreach	Have Some Level of Plan/Heat Info	Considering/Working on Heat Annex	Template Provided	Have Heat Annex
Canaan	no				
Dorchester	no				
Enfield	no				
Grafton	no				
Grantham	no				
Hanover	yes	yes		yes	no
Lebanon	yes	yes			yes
Lyme	yes	yes	yes	yes	no
Orange	no				
Orford	yes		yes	yes	no
Piermont	yes	yes	yes	yes	no
Plainfield	yes				

3. Heat Annex Template:

CITY OF _____ EMERGENCY OPERATIONS PLAN EXTREME HEAT EMERGENCY ANNEX

Purpose

The purpose of this plan is to provide information and support during heat related emergencies.

Background

Over the last several years the City of _____ has experienced several short and medium term heat waves with sustained temperatures above 90°F or greater. These events do not always elicit the same immediate effects as other weather related events, but do pose significant health and safety risks to the public.

Scope

This document shall be used as a guideline for the implementation of local emergency management procedures to be followed during a sustained heat wave. Resources and key city agencies are identified to provide planning and response guidance.

Heat index and associated health risks

Heat index is defined by the National Weather Service as a measure of how hot it really feels when [relative humidity](#) is factored with the actual air temperature. (see chart below).

NOAA's National Weather Service

Heat Index

Temperature (°F)

	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution
 Extreme Caution
 Danger
 Extreme Danger

As the heat index rises, so do the health risks. This is especially true for the following vulnerable populations:

- Infants and small children under age 3
- Pregnant women
- Adults age 65 or older
- People with medical conditions (e.g. heart disease, diabetes, high blood pressure)
- Individuals with drug or alcohol addictions
- People working outdoors or under extreme conditions

Health Risks and Information

Heat Index/Heat Disorders	
Heat Index	Possible heat disorders for people in higher risk groups
130° F or HIGHER	HEATSTROKE/SUNSTROKE HIGHLY LIKELY WITH CONTINUED EXPOSURE,
105° - 130°	SUNSTROKE, HEAT CRAMPS OR HEAT EXHAUSTION LIKELY, AND HEATSTROKE POSSIBLE WITH PROLONGED EXPOSURE AND/OR PHYSICAL ACTIVITY.
90° - 105°	SUNSTROKE, HEAT CRAMPS AND HEAT EXHAUSTION POSSIBLE WITH PROLONGED EXPOSURE AND/OR PHYSICAL ACTIVITY.
80° - 90°	FATIGUE POSSIBLE WITH PROLONGED EXPOSURE AND/OR PHYSICAL ACTIVITY

FULL SUNSHINE CAN INCREASE HI VALUES BY UP TO 15°F. Also, STRONG WINDS, PARTICULARLY WITH VERY HOT, DRY AIR, CAN BE EXTREMELY HAZARDOUS.

Note on the Heat Index (HI) chart the shaded zone above 105°F. This corresponds to a level of HI that may cause increasingly severe heat disorders with continued exposure and/or physical activity. The "Heat Index vs. Heat Disorder" table (below) relates ranges of HI with specific disorders, particularly for people in higher risk groups.

Heat Exhaustion – occurs when the body is dehydrated

- Symptoms – headache, nausea, dizziness, **cool and clammy skin**, cramps, weakness, **profuse sweating**.
- First Aid – move to cooler area, drink water
- Without intervention – can lead to more serious health risks

Heat Stroke – occurs when the body cannot perspire and the body overheats.

- Symptoms – headache, nausea, flushed face, **hot and dry skin**, **no sweating**, body temperature over 101°F, chills, rapid pulse.
- First Aid – move indoors, wrap with cool, wet sheet and get person to medical treatment immediately.
- Without intervention – can lead to confusion, coma, and death

Plan Activation Triggers

The City of _____ Emergency Management Director or designee shall consider activation of this plan if any of the following conditions are forecast:

- Weather data that predicts conditions which may indicate increased illness and or death related to heat.
- Heat Index or Predicted Heat Index of 90°F or higher.
- High heat accompanied with power outages.
- Predicted high daytime temperatures and nighttime temperatures of 85°F or higher.
- 3 or more days with a daytime temperature at or above 90°F.

Plan Activation Levels

Level I – Readiness – activated if the National Weather Service predicts excessive heat for 3 or greater days.

During this level Emergency Management will monitor weather forecasts for the region. The following actions will be taken:

- Convene a meeting of all police, fire, EMS and Recreation representatives.
- Contact local cooling shelters to determine readiness of facilities.
- Inventory on-hand bottled water to ensure that at least 3 cases are immediately available for all designated cooling shelters/facilities.
- Monitor all information from the State of New Hampshire HSEM.
- Coordinate the release of public information to raise public awareness of the risks from excessive heat and local emergency resources available.

Level II – Heat Alert - activated when the local heat index is forecast to reach 105°F for three or consecutive days.

During this level the following actions should be taken:

- Convene a meeting of all police, fire, EMS and Recreation representatives.
- Contact local cooling shelters to open for public use.
- Issue a press release (and _____ town alert) to advise the public of the forecasted weather and the availability and location of cooling shelters.
- Monitor all information from the State of New Hampshire HSEM.
- Consider using recreation van for those requiring transportation to a cooling shelter.
- Consider other town specific options
 - *Example: Free admission to Lebanon Municipal Pool is included here in Lebanon's Heat Annex*

Level III – Heat Emergency – activated when the local heat index is forecast to reach 130°F for three or more consecutive days.

During this level the following actions should be taken:

- Convene a meeting of all police, fire, EMS, Recreation, Alice Peck Day and Dartmouth Hitchcock Medical Center representatives.
- Consider opening the local emergency operations center.
- Contact local cooling shelters to open for public use.

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- Staff cooling shelters with (1) EMS trained person with portable radio.
- Issue a press release (and _____ town alert) to advise the public of the forecasted weather and the availability and location of cooling shelters.
- Monitor all information from the State of New Hampshire HSEM.
- Consider using recreation van for those requiring transportation to a cooling shelter.
- Consider other town specific options
 - *Example: Free admission to Lebanon Municipal Pool is included here in Lebanon’s Heat Annex*

Cooling Shelters

The following is a list of identified cooling shelters:

Name of Shelter Address Line 1 Address Line 2 Contact: Cooling Shelter Point Person Phone: Emergency Power: YES/NO	<i>Examples: Lebanon Kilton Library 80 Main Street West Lebanon, NH 03784 Contact: Sean Fleming, Library Director Phone: 603-448-6163 Emergency Power: NO</i>
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Examples of Cooling Shelters: Libraries Recreation Centers City Halls Senior Centers Community Buildings Schools	<i>Lebanon Municipal Pool Pumping Station Road Lebanon, NH 03766 Contact: Paul Coates, Director Phone: 603-448-5121 Pool Phone: 603-448-2058</i>
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Cooling Shelters ideally shall be equipped with the following:

- | | |
|--|---|
| Air Conditioning
Bottled Drinking Water (1 case per shelter minimum)
User sign in sheet (name and address only)
Communications – Phone
Child Friendly activities | Seating area
Continuous Staffing
ADA Accessibility
Restrooms |
|--|---|

If cooling shelters are required for 24-hour operation, Emergency Management should consider opening an emergency shelter.

4. Report on Stakeholder Input *(results of community interviews for Phase 2, May 2017)*

Four representatives of the target populations provided advice via individual interviews in April and May 2017. The focus was on three vulnerable populations: children, recreational athletes, and people who work in outdoor professions during the summer months.

Key Themes

The interviewees noted several overarching themes:

7. Lack of public awareness of the difference between temperature and heat index, and implications for safety and health. Our long winters produce regular media coverage of the dangers of wind chill and strategies for staying safe. Skiers are warned to go inside and warm up. Parents, teachers, and early childhood workers are used to cancelling outside recess. Hikers are used to checking reports for the high peaks. Weather reports routinely include wind chill information, in addition to temperature and wind speed, but don't always explain heat index during summer months. Upper Valley residents, tired of long winters, may eagerly embrace warm days without understanding the dangers below 100 degrees. One of the interviewees felt confident that most people don't understand what heat index means.
8. Lack of public understanding that periods of intense heat will occur more frequently, and last longer. Some interviewees were unaware of projections for increasing temperature and consecutive days without relief. Strategies effective when the weather is in the 70s and low 80s may not be enough when heat waves arrive, and the sense of urgency is low.
9. Lack of awareness that certain populations are at greater risk because of physiology. Parents and caregivers need to understand that hot weather is not a time to let children make decisions about their own safety. While used to health advice on sun protection, they may not know that young children's central nervous systems are not fully developed, that they are unable to regulate their body temperature, and aren't self-aware of whether they're hot and thirsty. Parents need to step in and make decisions for their safety rather than rely on children's self-reports.
10. Public health leaders should identify opportunities to leverage face-to-face conversation. The biggest impact on translating awareness to action may come from coaching and mentoring at junctures where relationships and conversation can happen – e.g. parent-teacher interaction, sports coaches and personal trainers, pediatric and visiting nurse appointments, neo-natal care.

Specific Input

Children:

Jeff Robbins, Director, Dartmouth College Child Care Center

- Focus on heat index awareness – it's a foot in the door. Parents and providers all know about windchill, and a heat index chart would get them to open the mail and start reading.
- Focus on children's inability to regulate temperature, and lack of self-awareness that they're hot, cranky, exhausted, dehydrated – and particularly for infants.

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- Tie it to sun safety – that gets talked about more, e.g. parents told that infants shouldn't go out in the sun for the first 6 months; parents and caregivers told to use sunscreen; there's an action that seems manageable and important. Ask what DHMC's sun safety program is right now, and get information into their mailings.
- Look at whether and how information actually changes behavior vs. the "after the workshop" syndrome where people are inspired but action gets lost in day-to-day business.
- Coaching and mentoring is one of the biggest levers in behavior change. Opportunities include hospital stays for C-section patients, pediatricians, home visits, VNA, parent support centers, playgroups, and library story-time.
- Licensed child care providers can forward info to families – Jeff has a list of 60 providers from the Upper Valley Child Care Association. Licensed providers also know what to do – it will just be a question of having to do it on more days, as heat increases.
- It will be harder to get to unregistered/unlicensed providers and we will need to use general public awareness campaign strategies like PSAs, listservs, Facebook and posters at grocery stores.
- The Child Care Project and other resource and referral organizations have increasingly been using prizes and incentives – e.g. raffle drawing if you complete a survey; use the survey as an education tool. CCP was mandated to get updates from providers saw a big uptick in response when they offered a drawing for a \$25 gift card.
- Grandparents are another potential audience.
- Talk to bigger networks and find out how they get information, e.g. to home providers.
- Partner with Child Care Aware of NH, a statewide resource and referral agency that sends out information via a monthly newsletter, weekly updates, and a Facebook page (<https://www.facebook.com/groups/1561778314053715/>).
- Partner with Nancy Bloomfield, director at The Family Place in Norwich, which picked up the referral role that the Child Care Project was doing.
- Partner with Mary Ellen Otis, Orange County Parent Child Center, which some of the funding for training that the Child Care Project was doing.
- There may be a way to leverage standard-setting organizations to include this topic and add legitimacy to the recommendations. The American Academy of Pediatrics publishes *Caring for Our Children; National Health and Safety Performance Standards - Guidelines for Early Care and Education Programs*, available online and described by Jeff as "the bible for child care health and safety policies." (At first glance, the table of contents references sun care but not heat and cold.) NAEYC (National Association for the Education of Young Children) accredits child care centers and holds trainings and conferences.

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Allison Colburn, Executive Director, Child Care Center in Norwich

- Children are not a good judge of when they're dangerously hot or cold – they have immature central nervous systems. They can get dehydrated very easily, which makes their judgment even less reliable. They need us as caregivers and parents to make the decisions
- But parents are way too willing to let a 3 yr old make decisions and assume they're good decisions – "she'll tell me if she's thirsty, she'll come inside and get a drink of water."
- Child care center practices include creating shade on playgrounds and keeping children hydrated, and watching for signs of heat stress.
- There are no set temperature thresholds for staying indoors during summer or winter – center staff just exercise their judgment.
- The Center can send information home to parents, and ask teachers to talk with parents.
- Otherwise the best methods to convey information are listservs, the Valley News, and Facebook – a lot of parents are on Facebook.

Athletes:

Wayne Burwell, personal trainer and owner of Wayne's World fitness center, Lebanon.

(He also works with schools and summer camps.) waynesworldeft@gmail.com, 860-803-8857

- People don't think heat is an issue because they're not experiencing much of it or hearing stories of people having problems with it. So there's no sense of urgency to do anything different than what they do now.
- That same lack of hot days means people haven't gotten conditioned to exercising in heat, so when a hot spell does come, their bodies aren't able to cope as well as somebody from DC or Philadelphia.
- Athletes who work with trainers get good information already about being smart in the heat because the whole training relationship is about understanding what your body needs. Trainers develop a personalized nutrition and self-care program that includes nutrition, hydration, enough sleep, things that help your body cope, and good decision making about when and how much to exercise.
- Distance runners are more vulnerable: They've more likely to have been training in the morning in order to catch the cool hours, rather than training at hours that match the race they'll run. So they haven't conditioned themselves to actual race conditions, including mid-day heat. Short races start early and are done before the heat of mid-day. Marathon runners are on the course for 3-5 hours and can't escape mid-day heat.
- For the "weekend warriors" the issue is less about heat and hydration, and more about lifestyle. People have a few drinks the night before and don't realize that it dehydrates them so much that "I drank a lot of water before the race" still doesn't get them hydrated enough.

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- High school sports teams already have pretty good practices in place, between coaches and trainers. Coaches schedule summer practices in the morning and evening to stay out of the heat. They're teaching the kids about hydration, shade, ice, take a break, and if necessary, shut down the practice. The risk for high school athletes is about bad decision making in general, about using alcohol and drugs -- again, the drinking dehydrates you and lowers your body's ability to cope with physical stress. Athletes on turf are more at risk: Turf is 5-10 degrees hotter than grass.
- There's a difference between core body temperature and skin temperature - football players don't necessarily have trouble with core body temperature but their equipment makes their skin temperature heat up.
- Methods to get the information across: Coaches, trainers, health clubs, listserves.

Jean Brown, Executive Director, Norris Cotton Cancer Center

Jean.E.Brown@dartmouth.edu, 603-653-3630

- Friends of the Norris Cotton Cancer Center sponsors the Prouty event in July, and there are similar public events such as the CHaD half-marathon in the fall.
- Jean is not sure whether people understand about the heat index.
- Getting the message across: The Prouty doesn't have booths or display options for groups at the Prouty start/finish line, but they'd be happy to include information and alerts in their emails to Prouty registrants, as long as it's not too long and wordy - use bullet points, and a link to more information.
- There would be similar channels for communication via those who organize the CHaD half-marathon and other DHMC fundraising events.
- Getting the message across: People often don't read what you tell them but they do pay attention to listservs and tweets.
- People don't pay attention when a prediction says "it's going to increase from 80 to 90" but they do pay attention when the news calls it "record heat," just as they pay attention to hurricane alerts. Think of "how do we get heat issue to the hurricane level in people's minds?"

Outdoor workers:

A chance encounter with a civil engineering surveying crew on Main Street in Norwich resulted in a short conversation with three messages:

- People aren't aware of what heat index means.
- We don't stop working during heat waves – we just try to stay hydrated and take breaks.
- The best place to get information across to outdoor workers is to post information in the break room or OSHA notice board.