Coordinated Heat Response Plan

Cumberland Public Health District

Maine

November 12, 2015

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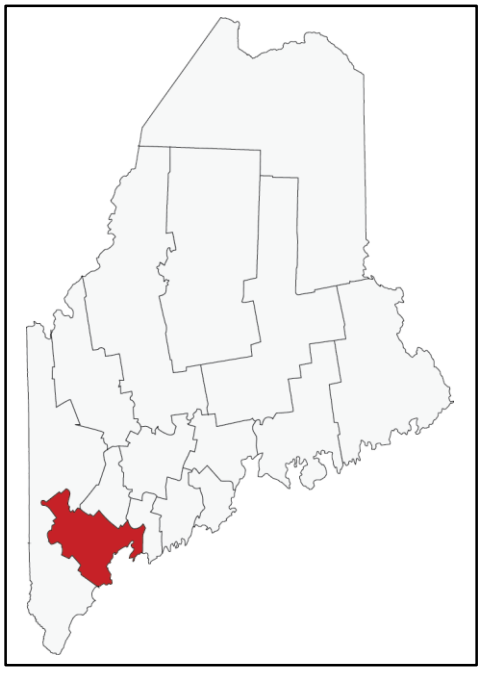
Purpose, Scope, Situation, and Assumptions

Purpose



The purpose of this plan is to establish the phases, triggers, protocols, agreements, roles and responsibilities of partners and stakeholders in response to a heat emergency in Maine's Cumberland Public Health District. This plan is intended to provide a roadmap for coordinated, collaborative action that makes efficient and effective use of resources while ensuring the health and safety of the 285,000 residents of the Cumberland District. This plan is primarily intended for public health, emergency management, public safety, social service and municipal partners, but it is hoped that the entire community will gain greater awareness of excessive heat events and plan appropriately and proactively.

Scope

This is a public health emergency response plan; therefore, at the state level, Maine Center for Disease Control and Prevention (Maine CDC) leads the response and Maine Emergency Management Agency (MEMA) supports the response. At the district level, the District Public Health Liaison and Cumberland County Emergency Management Agency (CCEMA) work as a team to monitor, assess, activate partners, and support local needs. There is a shared understanding among planning partners that at their core, all emergencies are local. This plan is intended as a supporting resource for the 28 towns and communities across the Cumberland District.

Situation Overview

MAINE'S CLIMATE

Relatively speaking, Maine is a cold climate state – its annual average temperature of 41 degrees is the 3rd coldest in the nation. But several times each year, Maine experiences days during which the maximum daily temperature exceeds 90 degrees or more. Planning for a potential heat emergency is appropriate based on this fact alone, but there is also evidence to suggest that if current weather trends continue, the number of high heat days in Maine could increase in the years to come.

The University of Maine has projected that future heat waves are likely to become longer in duration, more intense, and more frequent. By 2050 some areas of Maine could see two or more days per year where the temperature reaches 105 degrees or more and as many as 10-12 days in a row with heat indices above 90 degrees (*see Appendix Four, Slide #12 for projections of intensity, frequency, and duration of high heat events in Portland in the year 2060*). Several significant heat waves could occur over the course of a summer, and could likely occur both earlier and later in the year than what is currently experienced.

In October 2014 the U.S. Department of Defense announced it was integrating climate change threats into all of its plans, operations, and training. This lends additional credence to the hypothesis that emergency response planning activities in Maine and beyond may be wise to consider the implications of shifting weather patterns - warmer, colder, or more erratic - no matter the cause.

HEALTH EFFECTS OF HIGH HEAT

Planning for excessive heat events has traditionally not been as robust as that for floods, fires, earthquakes and typical disaster scenarios. But while heat events destroy less property, they claim more lives on average than all other declared disaster events combined. Statistics from the National Oceanic and Atmospheric Administration show that heat was the primary cause of weather fatalities nationally in 2010 and was second only to hurricanes for the highest 10-year average of weather fatalities from 2001 to 2010.

Heat emergencies can be slow to develop, taking a number of days to have a measurable impact on human health. Vulnerable populations may not be affected immediately, but rather experience the cumulative effects of high heat and humidity that can result in serious illness or even death.

The human body does adapt to changing temperatures, but only to a narrow range of temperatures if over a relatively short period of time. Heat-related illness occurs when the body is unable to cool off in high heat environments. When the body's temperature rises rapidly, vital organs may be damaged, which could result in death *(See Appendix One for a chart of medical conditions directly attributable to excessive heat exposure).*

Humidity exacerbates the effects of high heat by limiting the effectiveness of sweating. For this reason, it is important to consider the heat index, which is a measurement of the air temperature in relation to the relative humidity, as a more accurate indicator of discomfort and danger (*see Appendix Two for heat index and health effects charts*).

MORBIDITY AND MORTALITY

Analyses of Emergency Department utilization data show that during excessively hot days in Maine, hospitalizations are significantly increased for a number of key chronic diseases that are normally found to be elevated during heat waves, including cardiovascular disease, renal disease, and electrolyte imbalance (*see Appendix Four, Slide #9*). It is important to note that heat-related illness and chronic disease morbidity also have significant associated health care costs (*see Appendix Four, Slide #10*).

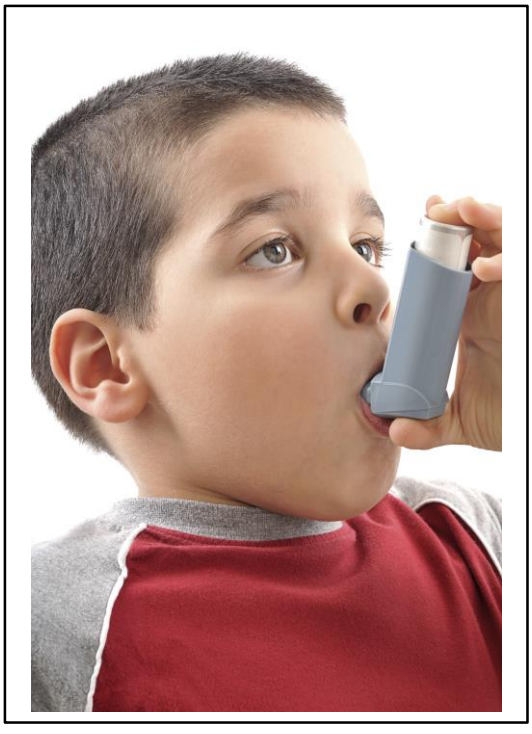
There is no doubt that the public health burden associated with high heat goes well beyond a strict focus on heat-related illness. Assessing the overall impacts on morbidity and mortality provides a much higher and more realistic estimate of the overall impact. For example, studies of the health impacts of the 2003 European heat wave estimated that approximately 70,000 excess deaths occurred as a result of that event – a toll far beyond that of pure heat-related illness.

VULNERABLE POPULATIONS

Factors that affect the body's ability to cool also include physical exertion or activity from work or exercise as well as health status. Health status factors include age (especially the very young and the very old); pregnancy; dehydration; sunburn; fever; mental illness; chronic illnesses like heart conditions, diabetes, obesity, or lung disease; mobility restrictions; some prescription drugs; and use of caffeine or alcohol. People who are homeless, socially isolated, living in poverty, or non-English speaking could also be considered vulnerable or at greater risk in a heat emergency.

Maine has the oldest median age and the highest proportion of people over 50 years of age in the United States. In addition, Southern Maine has the fastest growing proportion of the nation's population over 60 years of age. The elderly often have multiple risk factors for heat illness, including chronic medical conditions, the use of prescription medicines, cognitive difficulties (e.g. dementia), mobility challenges, financial limitations, and fear or concern for their own safety which can lead to a reluctance to ask for help.

THE IMPACTS OF AIR POLLUTION



A secondary effect of high heat is the increased level of ozone pollution that is produced when higher temperatures, increased sunlight, and stagnant atmospheric conditions transform air pollutants into ozone. And while high heat and unhealthy air quality may not always occur together, the potential always exists, thereby warranting consideration of their combined effects.

According to the American Lung Association, ozone acts as a powerful respiratory irritant and breathing ozone may lead to serious harm to health, including chest pain, inflammation of the lining of the lungs, increased risk of asthma attacks, and even premature death. Those most at risk are children; seniors; people with lung diseases such as asthma, chronic bronchitis and emphysema; and people who work or exercise outdoors.

DISTRICT DATA ON POPULATION VULNERABILITY

The Maine CDC's 2009 Public Health District Health Indicator Tables include the following health status data for Cumberland County:

- Under age 5: 15,505 (5.6%)
- Age 65 and over: 37,029 (13.5%) (including 11,015 living alone)
- Adults with high blood pressure: 27.5%
- Adults with asthma: 9.3%
- Lung cancer incidence: 70.9 per 100,000
- Adults who smoke: 13.3%
- Adults who are overweight or obese: 56.5%
- Adults reporting fair or poor health status: 10.9%
- Adults with high cholesterol: 37.2%
- Acute myocardial infarction hospitalizations: 16.2 per 10,000
- Stroke hospitalizations: 16.7 per 10,000
- Asthma emergency department visits: 52.5 per 10,000
- People who speak a language other than English: 14,888 (5.9%)
- Disability among those over 5 years old: 42,102 (17.1%)
- Individuals living in poverty: 25,837 (9.7%)

DISTRICT GAP ANALYSIS

In the summer of 2013 an inventory of district-level heat response assets and gaps was conducted among Cumberland District emergency management and public health partners. Results revealed that while some respondents felt they were prepared for an extreme heat event, most felt there was more information and planning needed to maximize the effectiveness of their response (*see Appendix Three for the full 2013 report on district assets and gaps*). In a companion Hazard Vulnerability Analysis conducted in southern Maine, heat emergencies were ranked a high priority among respondents.

Planning Assumptions

In preparing the Cumberland District Heat Response Plan, partners based their work on the following assumptions:

- Maine will experience an extreme heat event in the near future;
- Maine citizens are not prepared for an extreme heat event;
- National heat response triggers are established for heat indices above those at which Maine people will experience heat-related morbidity;
- Because extreme heat is primarily a public health emergency, emergency preparedness and response planning at both the district and local levels have not included a plan for an extreme heat event;
- Most Maine homes, schools, public facilities and long-term care facilities are not air conditioned;
- Certain groups would be considered vulnerable or at great risk in a heat emergency;
- District public health and emergency management professionals have extensive communications networks that could be activated in advance of and during an extreme heat event;
- Social service agencies and municipalities play a critical role in symptom recognition, early intervention, and communicating important information to individuals and families; and
- A coordinated approach to an extreme heat event could reduce morbidity and mortality.

Concept of Operation

The Cumberland District heat response phases are triggered by the information and analyses of the National Weather Service (NWS), the Maine CDC, and the Maine Emergency Management Agency (MEMA), with consideration for "situational awareness" data collected on the ground in municipalities throughout the district.

Response Phases

ACTIVE COMMUNICATIONS PHASE

When the heat index is predicted to hit 90°F for three or more days (for two or more hours per day), the NWS will issue an outlook saying a "Heat Wave" is likely. This moves the Maine CDC, MEMA, and Cumberland County Emergency Management Agency (CCEMA) into a state of situational awareness in which local needs are assessed and supported wherever possible.

At this point the Cumberland District Public Health Liaison and CCEMA begin an "Active Communications" phase in which information is gathered and shared among partner networks and community stakeholders, including 211, hospitals, public safety, municipalities, local emergency management agencies, social service agencies, the Southern Maine Regional Resource Center, and state-level partners. Public communications efforts by state and county partners are actively supported and amplified at the district level.

ACTIVE MONITORING & ASSESSMENT PHASE

When the NWS expects the heat index to reach 95°F for one or more days, a District Response Team is convened. The Team consists of the District Liaison, CCEMA, Maine CDC, and MEMA. The Team engages in daily dialogue and analyses of both clinical and anecdotal data gleaned through communications with partner networks and community stakeholders. At any point in this phase of "Active Monitoring and Assessment" the Team can decide to move to the more proactive "Take Action" phase as circumstances warrant.

It should be noted that when the heat index is expected to reach 95°F for two or more days, the Maine CDC will issue a "Heat Alert" public communication through the Health Alert Network (HAN). At any point during a high heat event, municipalities, in coordination with CCEMA, MEMA, and the Red Cross, may elect to open a daytime cooling center and/or an overnight shelter. The Maine CDC and MEMA may also consider evacuations of high risk settings.

TAKE ACTION PHASE

When the NWS expects the heat index to reach 100°F or more for one or more days, they will issue a "Heat Advisory" and the Maine CDC will follow with a "Heat Alert" if this phase hasn't already been triggered. At this point, the Cumberland District will automatically move into a "Take Action" phase, if it hasn't already done so.

The Response Team will continue its daily dialogue (more often as needed) and share information liberally among partners and stakeholders. Team members will also engage in proactive outreach to social service agencies, advising them to begin using their heat symptom checklist with clients. In addition, all municipalities affected will be contacted and urged to open daytime cooling centers and implement their transportation plans as well as other appropriate elements of their local response plans. Towns may also consider opening overnight shelters in collaboration with CCEMA and the Red Cross.

The Maine CDC will issue a "Heat Warning" through the HAN if the forecast is for two or more days of 100°F or if any single day is expected to exceed 105°F. The Maine CDC will issue a Heat Emergency if the heat index is expected to reach 105°F for three or more days (this is also possible at a lower threshold should situational dialogue warrant).

RECOVERY PHASE

As temperatures and heat indices return to normal, the Maine CDC will advise districts to begin the recovery phase in which the District Liaison and CCEMA will communicate with partner networks and community stakeholders and initiate a district-level after-action review.

The following graphic offers a summary of the Cumberland District Heat Response Plan relative to NWS and Maine CDC response phases as the heat index rises.

Cumberland District Coordinated Heat Response Plan

Summary of Responses

100° or over for 1+ days*

PHASE: Take Action

- District Response Team engages in daily dialogue for situational response
- Social service agencies advised to use heat checklists in client contacts
- Municipalities advised to consider cooling centers and implementation of local response plans
- Partner and community stakeholder information sharing
- Public information campaign aggressively implemented
- Local needs supported

** (or sooner if Response Team decides, based on situation)*

95° to 100° for 1+ days

PHASE: Active Monitoring & Assessment

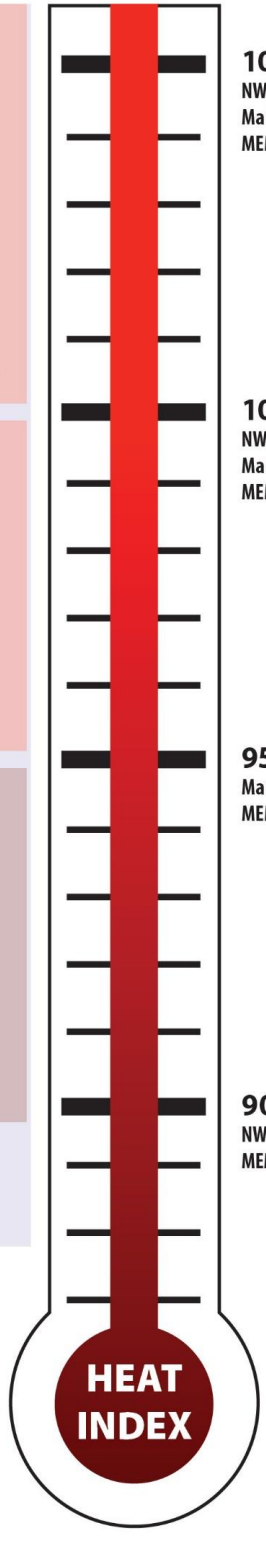
- District Response Team engages in daily dialogue, including assessment of need for possible Take Action Phase
- Partner and community stakeholder information sharing
- Public information efforts encouraged
- Local needs supported

Up to 95° for 1+ days

PHASE: Active Communications

- Active internal communications between District Public Health and CCEMA
- Partner and community stakeholder information sharing
- Local needs supported

The Cumberland District Response Team consists of: District Public Health, CCEMA, CDC, MEMA



105° for 1+ days
NWS: "Heat Warning"
Maine CDC: "Heat Emergency"
MEMA & CCEMA: Action Phase

100° for 1+ days
NWS: "Heat Advisory" (1+ days)
Maine CDC: "Heat Emergency" (2+ days)
MEMA & CCEMA: Readiness Phase

95° for 2+ days
Maine CDC: "Heat Alert"
MEMA & CCEMA: Readiness Phase

90° for 3+ days
NWS: "Heat Wave"
MEMA & CCEMA: Situational Awareness Phase

Heat index is what the temperature feels like when relative humidity is factored in.

Pre-Incident Activities

Preparedness plans must be in place before excessive heat conditions occur, and increased readiness efforts must begin when high temperatures are forecast rather than when they arrive. The District Liaison and CCEMA will communicate regularly with Maine CDC and MEMA as Maine's warmer season gets underway to ensure all primary (coordinating) entities are prepared and that their internal communications system is working effectively.

As higher temperatures are forecast, the Cumberland District Response Team will engage in early dialogue with partners and stakeholders to ensure they are ready and have the supports in place should high heat conditions occur. At this point, towns should review their cooling center assets, including identifying emergency medical services that will be available. Social service agencies should ensure that they have a heat emergency preparedness plan (*see Appendix Eleven*), heat index checklist (*see Appendix Twelve*), and heat index factsheet (*see Appendix Thirteen*) in place. Social service agencies should also confirm that outreach staff are adequately trained and culturally competent, and that translated materials are available.

Because district-level planning is relatively new, Response Team members will also make proactive efforts during colder months to encourage partners and stakeholders to design, adopt, and share their own heat response plans in order to maximize public health and safety during periods of excessive heat.

Information Collection and Dissemination

The key to a successful response to high heat in the Cumberland District is information collection and dissemination of recommended actions. This is the primary function where value can be added over and above what will already be undertaken by local government and non-governmental entities. The phases of the Cumberland District response all involve a high degree of communication between and among public health, public safety, emergency management, hospital, social service, municipal, and public communications (including 211) staff.

INTERNAL COMMUNICATIONS

As heat indices are forecasted to rise to 90°F and above, state-level coordinating partners (Maine CDC and MEMA) will be in close communication with district-level coordinating organizations (CCEMA and the District Liaison) as well as other state-level partners. District-level coordinating organizations will communicate with district-level partners, who in turn communicate with their networks. The plan depends on partners engaging their networks and sharing information downstream and upstream. Internal communication modes can include email, phone, and social media.

The Cumberland District plan is designed to move from "Monitoring and Assessment" to "Take Action" as the Response Team deems necessary based on NWS and Maine CDC advisories, but also based on accurate and robust information-sharing during situational awareness. Types of information collected could include the status of cooling centers; surge activity; bed availability; syndromic surveillance; social service agency assessment of client status; transportation needs; and public inquiries into the 211 system.

CCEMA has a communication network that includes a deep layer of responders and stakeholders, including municipalities, 211, hospitals, the Red Cross (*see Appendix Seven for the CCEMA network list*). The District Liaison has a communication network that includes members of the Cumberland District Public Health Council as well as a broad range of social service agencies (*see Appendix Eight for the District Liaison network list*). Both network lists are updated regularly.

PUBLIC COMMUNICATIONS

Public communications will include both state-level and district-level activities, including press releases, email, phone, and social media. MEMA and the Maine CDC are the primary spokespeople, but district-level spokespeople, including CCEMA, the District Liaison, and municipalities should also be available to reinforce public messages.

CCEMA maintains an extensive list of community resources, including children's summer camps, through which CCEMA will communicate with the public. CCEMA also compiles a calendar of community events which could draw large crowds. In the event of a heat emergency, District Response Team partners may advise directors of community events to increase their response capacity (e.g. more water, more health personnel), reschedule or cancel.

Partners and partner networks play an important role in ensuring the public is well-informed during a heat emergency. Getting information out early on the availability, location, and hours of cooling centers is particularly critical; otherwise residents may not use cooling centers because they don't know they are an option.

211-Maine is a vital resource for the region in the event of a heat emergency. 211-Maine needs to receive good information as early as possible from Maine CDC, MEMA, and CCEMA so they are prepared to field calls from residents. Because people often begin calling 211 ahead of time to ask where they can go if needed, it is important that 211 receives regular updates from CCEMA on the inventory of cooling centers that are open.

Public Safety Answering Points (PSAPs) are a critical component of the public communications system as they receive calls for help via 911. And in some towns members of the public can request a proactive wellness check from fire, EMS, or law enforcement. Anyone interested is advised to contact their town office to see if the service is being offered and learn how to sign up.

In the future, the District Response Team will be exploring options to provide preemptive public information that would raise awareness and encourage individuals, families, and businesses to plan for a high heat event.

Cooling Centers

Cooling centers offer people daytime relief from high heat – they do not provide overnight facilities but are intended for temporary respite during the day. Cooling centers are set up and overseen by town governments, who provide ongoing information and updates to CCEMA. Towns are encouraged to develop and maintain cooling center plans, locations, and management. Response Team partners will assist towns in putting cooling center plans in place if they have not already done so.

As cooling centers are activated, towns will inform CCEMA, which will then inform 211 as well as other partners and stakeholders so that the public may be given the timeliest information about cooling center availability, including transportation options.

MEMA suggests the following minimum criteria for cooling centers in Maine in order to meet the basic functional and access needs of community members seeking respite:

- Reliable air conditioning and backup generators
- ADA compliant
- Seating for 10 or more people
- Drinking water and snacks
- Continuous staffing

- Communications (i.e. phone, computer, Wi-Fi)
- Child-friendly
- Pet-friendly
- Outlets for charging/equipment
- Information for people that may need referrals to additional resources (e.g. health care, social services)
- A plan to help people without access to transportation get to and from the center
- Public restrooms continuously maintained and accessible for those with disabilities
- Security personnel (or staff/volunteers who can handle security role if needed)
- Parking

Cooling center assets may also include:

- Entertainment - books, games, television, etc.
- Interpreters or a plan to provide language access (e.g. YouTube videos)

The following is an inventory of municipal cooling center capacity in Cumberland District, self-identified by each town, as of July 2015:

MUNICIPAL COOLING CENTERS

Town	Generator?	Air Conditioning?	Location/Notes
Baldwin			NONE
Bridgton			NO INFORMATION AVAILABLE
Brunswick			NONE
Cape Elizabeth	no	yes	UNKNOWN
Casco	yes	yes	Community Center (can also use Fire Station)
Chebeague Island			NO INFORMATION AVAILABLE
Cumberland	no	yes	Greely Middle School
Falmouth	yes	yes	Central Fire Station
Freeport	yes	yes	Community Center
Frye Island			NO INFORMATION AVAILABLE
Gorham			NO INFORMATION AVAILABLE
Gray			NO INFORMATION AVAILABLE
Harpswell	yes	yes	Town Office
Harrison	no	yes	Community Room
Long Island			NO INFORMATION AVAILABLE
Naples			NO INFORMATION AVAILABLE
New Gloucester			NO INFORMATION AVAILABLE
North Yarmouth			NONE
Portland - Cummings Center	yes	yes	Cummings Center
Portland – Preble Street	no	yes	Preble Street Resource Center
Pownal			NO INFORMATION AVAILABLE
Raymond			NO INFORMATION AVAILABLE
Scarborough	no	yes	Public Library
Sebago			NO INFORMATION AVAILABLE
South Portland	yes	yes	Redbank Community Center
Standish	yes	yes	Municipal Center
Westbrook			NO INFORMATION AVAILABLE
Windham			NO INFORMATION AVAILABLE
Yarmouth			NONE

Regional Shelters

Overnight accommodations can be coordinated by towns at designated local shelters. If the need were significant, Cumberland County has identified 11 large capacity Regional Shelters, several of which have air conditioning, which could be opened in a heat emergency *(see list below*). Each town has a local shelter plan and CCEMA has a county-level shelter plan. The process for opening a shelter is made easier if a "state of emergency" is declared by the governor.

CCEMA and its Red Cross partner have the capacity to operate two Regional shelters at a time in Cumberland County. Capacity in the various shelters ranges from 250 - 1000 people. The shelters are animal-friendly and provisions are made to accommodate the pets of shelter residents.

Transportation considerations and all cooling center assets are equally applicable to regional shelters. Regional shelters may also have additional assets, including showers, sleeping cots, food, assurance of accessibility for people with disabilities, cultural accommodations (e.g. prayer room), and a Functional Assessment Services Team (FAST) to help assess people with access and functional needs and help them get what they need in order to stay in a shelter.

CCEMA will share and regularly update a list of open shelters and the assets they have available with 211, partners, stakeholders, and in all public communications.

The following regional shelters have been identified by the Cumberland County Emergency Management Agency:

REGIONAL SHELTERS

Town	Facility	Generator?	Air conditioning?
Brunswick	Brunswick High School	Limited Capacity	None
Cumberland	Greely Middle School	Transfer Switch	Yes
Falmouth	Falmouth High School	Full Capacity	Partial
Gorham	Gorham Middle School	Full Capacity	Unknown
Gray	Gray New Gloucester High School	Limited Capacity	Unknown
Naples	Lake Region High School	No	Unknown
Portland	Portland Expo	Full Capacity	Unknown
Scarborough	Scarborough High School	Full Capacity	Yes
South Portland	Redbank Community Center	Full Capacity	Yes
Westbrook	Westbrook High School	Limited Capacity	None
Windham	Windham High School	Limited Capacity	Yes

Transportation

Transportation is coordinated through local EMA directors, who inform and update CCEMA. Existing transportation options are more informal or "as available", and often on a town-by-town basis. CCEMA communicates with a variety of public and private transportation options but they only have "soft" agreements regarding availability to respond to a heat emergency.

Social service agencies can help streamline municipal transportation systems by compiling an ongoing list of community members likely to need transportation to cooling centers should a heat emergency arise. A key question to consider before transporting people is whether it is better (and possible) to deliver an air conditioning unit to them rather than move them out of their homes.

CCEMA will communicate regularly with the Response Team, partners and stakeholders as transportation needs and resources change.

Shelter in Place

There may be situations during a heat emergency when it's best for individuals to stay where they are and avoid the uncertainties of moving to other locations. This is called "sheltering in place". During this time, radio and TV broadcasts should be monitored for up-to-date information. During extended periods of sheltering, water and food supplies will need to be managed.

During a high heat event, the Cumberland District Response Team, in collaboration with public safety and emergency management agencies may recommend sheltering in place. Partners and stakeholders will be immediately informed so information and procedures can be shared with the public.

Power Outage Protocols

Losing power in the midst of a high heat event will certainly intensify the challenges of keeping the public safe. Air conditioning systems will fail without generators, refrigerated food could spoil, there could be both water and sewer pumping issues, and cellular communications could be lost.

At best a power outage could mean a loss of comfort but at worst it could exacerbate pre-existing conditions and lead to heat injury or death, especially among vulnerable populations. CCEMA, on behalf of local municipalities, closely coordinates with Central Maine Power to address power outages, including establishing priorities for power restoration. These priorities include hospitals, long term care facilities, regional shelters, local shelters, cooling centers and other locations that local emergency managers, public utilities and industry identify. Central Maine Power takes these priorities into consideration as it works to bring power back on line.

Vulnerable Populations

Identifying high-risk groups in given locations allows public health officials to develop and implement targeted notification and response actions that focus surveillance and relief efforts on those at greatest risk. Cumberland District social service agencies have an important role to play in ensuring vulnerable populations remain safe and healthy during a heat emergency. They are often on the front lines of contact with isolated individuals and may have the best understanding of how at risk the person or household might be.

All social service agencies in the district are encouraged to put heat response protocols in place *(see Appendix Eleven for a Heat Emergency Preparedness Plan template*), including the use of a heat illness checklist (*see Appendix Twelve for a Heat Illness Checklist template*) and the preparation of a heat illness factsheet (*see Appendix Thirteen for a Heat Illness Factsheet template*). Southern Maine Area Agency on Aging's Meals on Wheels program, the Visiting Nurse Association (VNA), and senior low-income housing sites are particularly important partners in helping to identify vulnerable populations. When the Cumberland District Response Team moves to the "Take Action" phase, the District Liaison will proactively contact social service agencies in the district and ask them to begin using their heat illness checklist as part of their client contacts.

Vulnerable populations should be fully informed regarding high heat events in order to help ensure their health and safety, including relocation, if necessary. The Maine CDC has included activation of the Vulnerable Populations Communications Plan (*see Appendix Nine)* as part of their statewide Heat Response Plan. In the event of an extreme heat event, those participating social service agencies will receive a public health heat alert message that is tailored specifically to vulnerable populations, including low literacy and selected translations. The social service agencies will in turn disseminate the heat message to the population they serve by whatever method(s) they find optimal to communicate with their constituents. The message will include important heat information including actions to take to prevent overheating as well as the signs and symptoms of heat illness.

Individual Actions in Response to High Heat

Heat-related illness is preventable. Ensuring individuals are aware of the risks and take action before the onset of symptoms is essential to reducing heat-related morbidity and mortality. Those who are at risk or who care for people at risk should take extra steps to ensure they are protected from heat exposure.

According to the Centers for Disease Control (CDC), the most effective way to prevent heat-related illness is to use air conditioning or find a facility that has air conditioning, such as shopping malls, movie theatres, or public libraries. The Maine Indoor Air Quality Council advises that when air conditioning is not available, moving to a cooler part of the building, lowering shades to block heat from the sun, and using fans when the air temperature is lower than skin temperature (below 95°) can help reduce heat stress. The CDC also recommends increasing fluid intake of non-alcoholic beverages, wearing loose and lightweight clothing, reducing activity levels, and limiting sun exposure. It is extremely important during high heat events not to leave infants, children, or pets in a parked car.

Individuals who have no ready access to a cool environment - particularly vulnerable populations who are most at risk for heat-related illness - should use cooling centers during a heat wave.

In the case of heat exhaustion or heat stroke symptoms, medical treatment should be sought (*see Appendix One for a chart of the recommended responses to medical conditions directly attributable to excessive heat exposure*).

Health Care Services

The Cumberland District Heat Response Plan is integrated with existing emergency management plans and protocols that each hospital in the region already has in place. When the NWS issues a "Heat Wave" advisory and the district "Active Communications" phase begins, Maine CDC will alert MEMA, District Liaisons, Medical Reserve Corps and the Southern Maine Regional Resource Center (SMRRC). SMRRC will alert emergency preparedness teams in all hospitals. Members of the District Response Team will maintain active communications with SMRRC and hospitals, and will share information with partners, stakeholders, and the public as the situation evolves.

Recovery

Recovery involves the demobilization of people and equipment as temperatures return to normal. If the NWS is no longer issuing heat advisories or warnings, and temperatures and heat indices have dropped below levels of concern, the recovery phase begins. The District Response Team will start by conducting its own after-action assessment. Then the Team will convene partners and stakeholders and conduct a comprehensive after-action review. Adjustments to the Cumberland District Response Plan and protocols will be made based on the after-action review and assessment.

Rationale for Response Plan Thresholds

In designing the Cumberland District Heat Response Plan, partners agreed that the plan needed to provide a simple, realistic overlay onto what would already be happening among public health, public safety, emergency management, social service, public communications, and municipal entities. The planning team strived to maintain flexibility and local control, while ensuring enhanced collaboration, coordination, and communication that would best protect the public health and safety. And while it was a relatively straight-forward task to inventory assets, identify gaps, and work together to develop needed systems and protocols, the biggest challenge in the planning process was determining at what points the response phases would be triggered.

Put another way, at what heat index is it simply "hot" and at what index does that heat become dangerous? The answer is different for different people. The fact is, there is no clearly defined threshold above known comfort levels (which is approximately 68°F, or 20°C) where increases in heat-related morbidity and mortality begin to occur (*see Appendix Four, Slide #1)*.

County and local emergency management agencies generally start initial heat planning activities when the National Weather Service forecasts a Heat Wave, defined as three or more days when maximum temperatures exceed 90°F (32.2°C) for two or more hours each day. Guidance from the NWS doesn't come again until they issue a Heat Advisory, which is triggered when a daytime heat index of 100ºF (37.8°C) or higher is predicted (for two or more hours each day).

The Maine CDC is concerned that this second threshold may be too high, based initially on a study by Metzger et al. on summer heat waves in New York City. As a result of the Metzger analysis, the New York City Health Department urged the National Weather Service in New York City to add an additional Heat Advisory threshold when the maximum heat index exceeds 95°F (35°C) for two or more days (for two or more hours on a single day).

Several initial analyses conducted in Maine support this modified NWS heat advisory level. An analysis of the relationships between heat indices and emergency department visits for heat-related illness show a strong relationship between the number of summer days with a heat index above 95°F and the frequency of Emergency Department visits (*see Appendix Four, Slide #2*). Further analysis shows this relationship holds for days in which the heat index is between 95°F and 100°F, indicating that there is increased heat-related morbidity even when the current NWS Heat Advisory threshold is not reached (*see Slides #3 and #4*).

Weather data from stations throughout Maine indicate that there are many counties in Maine that never exceeded the 100°F heat index threshold during 2000-2010, yet all have heat-related illness emergency department visits in every year. Similarly, counties such as Cumberland County have heat-related illness emergency department visits even during summers when the heat index doesn't exceed 100°F (*see Slides #5 and #6*).

The Maine CDC has provisionally adopted the New York City Heat Advisory threshold and is working with other states in the region, the federal CDC, and the National Weather Service towards a universal adoption of that Heat Advisory threshold throughout the northeastern United States. For these reasons, the Cumberland District Heat Response Plan has also adopted a 95°F threshold for the shift in phases from "Active Communications" to "Active Monitoring and Assessment" - the latter allowing for a move to the "Take Action" phase at 100°F or whenever the District Response Team deems it appropriate based on situational awareness data.

Organization and Assignment of Responsibilities

The Maine CDC, MEMA, CCEMA, District Liaison, municipalities, 211 and other community response partners will work collaboratively to support the health and safety of the people of Cumberland District in a high heat emergency.

Coordinating Organizations

STATE LEVEL COORDINATING ORGANIZATIONS

- **Maine Center for Disease Control and Prevention (Maine CDC)** will lead the state-level response; engage its networks; inform the public via HANs as well as traditional and social media outlets; assist in a situational assessment of clinical and anecdotal data; provide public health guidance and expertise; and be an active participant in the Cumberland District Response Team
- **Maine Emergency Management Agency (MEMA)** will support the response; engage its networks; inform the public via traditional and social media outlets; provide emergency management expertise; and be an active participant in the Cumberland District Response Team

DISTRICT-LEVEL COORDINATING ORGANIZATIONS

- **District Liaison, Cumberland District Public Health Unit, Maine CDC** will engage its networks; collect and disseminate information; provide public and community health expertise; respond to local needs; assess clinical and anecdotal situational data; and be an active participant in the Cumberland District Response Team
- **Cumberland County Emergency Management Agency (CCEMA)** will engage its networks; collect and disseminate information; provide county emergency management expertise; respond to local needs; assist towns in establishing cooling centers and regional shelters; assess clinical and anecdotal situational data; and be an active participant in the Cumberland District Response Team

Partner Organizations

STATE-LEVEL PARTNER ORGANIZATIONS

- **211 Maine** will engage in active communications with coordinating organizations and provide information to the public that is accurate and up-to-date
- **Red Cross** will assist MEMA and CCEMA in setting up regional shelters and will consider providing assistance for cooling centers on a case-by-case basis
- **Maine Department of Environmental Protection (DEP)** will communicate closely with the Maine CDC and provide air quality expertise

DISTRICT-LEVEL PARTNER ORGANIZATIONS

- **Local Emergency Management (EMA) Directors** will collect and disseminate information to the public and to CCEMA; assist municipalities in setting up cooling centers; implement emergency management protocols; and support local needs as they arise

- **Local Public Health Officers** will collect and disseminate information to municipalities and the District Liaison and support local needs as they arise
- **Cumberland District Public Health Council** will engage their networks in information collection and dissemination and advise the District Liaison
- **Local Public Safety, including PSAP (Public Safety Answering Point)** will collect and disseminate information to the public and to CCEMA; provide local safety expertise; implement public safety protocols; and support local needs as they arise
- **Municipalities** will collect and disseminate information through their networks; reinforce public communications; open daytime cooling centers; and support local needs as they arise
- **Portland Public Health** will collect and disseminate information through their networks; assist in syndromic surveillance; reinforce public communications; provide public health expertise; and support local needs as they arise
- **Southern Maine Regional Resource Center (SMRCC)** will collect and disseminate information to health care providers and the District Response Team and assist in the situational assessment of clinical and anecdotal data
- **Hospitals** will collect and disseminate information to SMRCC and the Maine CDC; assist in the situational assessment of clinical and anecdotal data; and provide health care as needed
- **VNAs (Visiting Nurse Associations)** will collect and disseminate information to their clients and the District Response Team and implement their heat preparedness plan, including using their heat checklist with clients
- **Southern Maine Area Agency on Aging** will collect and disseminate information to their clients and the District Response Team and implement their heat preparedness plan, including using their heat checklist with clients
- **Other health and social service agencies** will collect and disseminate information to clients, patients and the District Response Team; provide health care services as appropriate; and implement their heat preparedness plan, including using their heat checklist with clients

Cooperation Agreement

Partners in the Cumberland District Coordinated Heat Response Plan acknowledge that this is a jointly-owned plan and that no one partner is solely responsible for its implementation. Partners recognize that the authority to act in a public health emergency in Maine rests at the state and local levels and that the role of the district level is to coordinate and cooperate. Partners express their shared commitment to this collaborative process of mitigation, preparation, response and recovery from a high heat emergency.

Plan Development and Maintenance

Development

The Cumberland District Heat Response Plan was developed collaboratively with public health, public safety, emergency management, and community partners. Participants included:

- Adam Hartwig, Maine CDC, York District Public Health Liaison
- Amelia Lundkvist, Cumberland District Public Health Intern
- Anne Hill, Southern Maine Regional Resource Center (SMRRC)
- Anne Tricomi Lang, Healthy Casco Bay
- Anne-Marie Brett, Cumberland County Emergency Management Agency (CCEMA)
- Becca Matusovich, Maine CDC, Cumberland District Public Health Liaison
- Dan Lauze, 211 Maine
- Jane Coolidge, Maine CDC, Public Health Emergency Preparedness (PHEP)
- Jim Budway, Cumberland County Emergency Management Agency (CCEMA)
- Karen Turgeon, 211 Maine
- LeighAnn Howard, VNA Home Health & Hospice
- Margaret Cushing, Cumberland County Emergency Management Agency (CCEMA)
- Norman Anderson, Maine CDC
- Paul Clark, Red Cross
- Paul Rollins, Alpha One
- Ron Jones, Cumberland County Emergency Management Agency (CCEMA)
- Steve Fox, South Portland Fire Department
- Ted Trainer, Southern Maine Area Agency on Aging (SMAAA)
- Terry Walsh, Portland Fire Department

The planning and drafting process was facilitated by Carol Kelly, Pivot Point Inc. Decisions were made by group consensus and every effort has been made to integrate the feedback and suggestions of all available stakeholders into the final version of the plan.

Maintenance

Members of the Cumberland District Response Team will convene at least quarterly to discuss ongoing research, planning, and implementation issues and concerns. The Response Team will explore opportunities to conduct exercises and make recommendations to partners and stakeholders. Response Team members will maintain regular communication and coordination with partners and municipalities to ensure readiness.

The District Liaison and CCEMA will collaborate to update the plan annually, based on assessments from partners and stakeholders as well as lessons learned from research, exercises, or real events.

Authorities, References and Resources

Authorities

Authority to act on the Cumberland District Heat Response Plan rests at the state level. At the regional and local levels, this plan is designed to foster cooperation and coordination. Partner organizations operate under their own authorities.

References in Document

- American Lung Association, "Ozone", http://www.lung.org/healthy-air/outdoor/resources/ozone.html
- Centers for Disease Control, "Extreme Heat: A Prevention Guide", http://www.bt.cdc.gov/disasters/extremeheat/heat_guide.asp
- Maine CDC/DHHS District-State-US Health Indicator Comparison Tables, 2010 Maine Public Health District Health Indicator Tables, http://www.maine.gov/dhhs/mecdc/health-indicator-comparison.htm
- Maine Indoor Air Quality Council, "Managing Indoor Environments During High Heat Events", http://www.maineindoorair.org/best-practices/166-managing-indoor-environments-during-high-heat-events
- Metzger, K., et al., 2010 "Summer Heat and Mortality in New York City: How Hot is Too Hot," Environmental Health Perspectives, Vol. 118, pp. 80-91.
- National Oceanic and Atmospheric Administration, "Heat Wave: A Major Summer Killer", http://www.noaawatch.gov/themes/heat.php
- National Oceanic and Atmospheric Administration, National Climatic Data Center, http://www.ncdc.noaa.gov/
- National Oceanic and Atmospheric Administration, Office of Climate, Water, and Weather Services, "National Hazard Statistics", http://www.nws.noaa.gov/om/hazstats.shtml
- Ready.gov, "Sheltering in Place", http://www.ready.gov/shelter
- University of Maine, Climate Change Institute, "Climate Reanalyzer", http://cci-reanalyzer.org/
- University of Maine, Climate Change Institute, "Maine's Climate Future", http://climatechange.umaine.edu/research/publications/climate-future

Additional Resources for Responding to Excessive Heat Conditions

- American Academy of Pediatrics (AAP) Policy Statement: http://aappolicy.aappublications.org/cgi/content/full/pediatrics;106/1/158
- Canadian Center for Occupational Health and Safety Glossary of Terms: http://www.ccohs.ca/oshanswers/phys_agents/heat_health.html#_1_7
- Federal Emergency Management Agency: http://www.fema.gov/hazard/heat/background.shtm
- Humane Society of the United States, advise for pet owners during heat wave: http://www.humanesociety.org/news/press_releases/2010/06/protect_pets_from_heat_062310.html
- Mayo Clinic: http://www.mayoclinic.com/health/dehydration/SM00037
- NAMI Heat and Mental Illness: http://www.nami.org/Template.cfm?Section=20065&Template=/ContentManagement/ContentDisplay.cfm&ContentID=35581
- NATA (National Athletic Trainers Association) Position Statement: Exertional Heat Illnesses: http://www.nata.org/sites/default/files/ExternalHeatIllnesses.pdf
- National Weather Service Heat Index Chart: http://www.weather.gov/om/heat/index.shtml
- National Weather Service Heat Wave Guide: http://www.nws.noaa.gov/om/brochures/heat_wave.shtml
- National Weather Service three-day forecast for heat index can be found at: http://www.hpc.ncep.noaa.gov/heat_index_MAX/hiprob95_day3.html

- National Weather Service Weather Fatalities: http://www.nws.noaa.gov/om/hazstats.shtml
- OSHA Protecting Workers in Heat Stress: http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=FACT_SHEETS&p_id=167
- Symptoms and Stages of Heat-Related Illness: http://www.bt.cdc.gov/disasters/extremeheat/faq.asp
- Symptoms of heat-related illness may be reviewed at the Centers for Disease Control's FAQ on extreme heat found at http://emergency.cdc.gov/disasters/extremeheat/heat_guide.asp
- US CDC Extreme Heat Prevention Guide: http://emergency.cdc.gov/disasters/extremeheat/heat_guide.asp
- US CDC Heat Stress in the Elderly: http://www.bt.cdc.gov/disasters/extremeheat/elderlyheat.asp
- US CDC Impact on specific populations: http://emergency.cdc.gov/disasters/extremeheat/specificgroups.asp
- US CDC/NIOSH Protecting Workers in Heat Events: http://www.cdc.gov/niosh/topics/heatstress/
- US EPA Heat Events Guidebook for Communities: http://www.epa.gov/heatisland/about/heatguidebook.html

Appendices

APPENDIX ONE: Medical conditions and recommended responses

Table 1. Medical conditions directly attributable to excessive heat exposure, along with recommended responses

Medical Condition	Symptoms	Responses
Heat cramps	Painful muscle cramps and spasms, usually in muscles of legs and abdomen. Heavy sweating.	Apply firm pressure on cramping muscles or gently massage to relieve spasm. Give sips of water; if nausea occurs, discontinue water intake. Consult with a clinician or physician if individual has fluid restrictions (e.g., dialysis patients).
Heat Exhaustion	Heavy sweating, weakness, cool skin, pale, and clammy. Weak pulse. Normal temperature possible. Possible muscle cramps, dizziness, fainting, nausea, and vomiting.	Move individual out of sun, lay him or her down, and loosen clothing. Apply cool, wet cloths. Fan or move individual to air-conditioned room. Give sips of water; if nausea occurs, discontinue water intake. If vomiting continues, seek immediate medical attention. Consult with a clinician or physician if individual has fluid restrictions (e.g., dialysis patients).
Heat stroke/ sunstroke	Altered mental state. Possible throbbing headache, confusion, nausea, and dizziness. High body temperature (106°F or higher). Rapid and strong pulse. Possible unconsciousness. Skin may be hot and dry, or patient may be sweating. Sweating likely especially if patient was previously involved in vigorous activity.	Heat stroke is a severe medical emergency. Summon emergency medical assistance or get the individual to a hospital immediately. Delay can be fatal. Move individual to a cooler, preferably air-conditioned, environment. Reduce body temperature with a water mister and fan or sponging. Use air conditioners. Use fans if heat index temperatures are below the high 90s. Use extreme caution. Remove clothing. If temperature rises again, repeat process. Do not give fluids.

Sources: CDC, 2004a; Kunihiro and Foster, 2004; NWS, 2004.

Table 2. Less severe heat-related conditions attributable to heat or sun exposure

Medical Condition	Symptoms	Responses
Heat rash (prickly heat)	A skin irritation caused by excessive sweating during hot humid weather. Most common in young children, although can occur at any age. The rash looks like a red cluster of pimples or small blisters and is most common in the neck and upper chest, in the groin, under the breasts, and in elbow creases.	Move individual to a cooler place and keep the affected area dry. Use a dusting of talcum powder to increase comfort. Usually does not require medical assistance.
Sunburn	Damage to the skin caused by too much sun exposure. The skin becomes red, painful, and warm. Blisters may develop.	Medical attention should be sought if the sunburn affects an infant or if there is fever, fluid-filled blisters, or severe pain. Otherwise, the person should avoid sun exposure, apply cold compresses or immerse the burned skin in cool water, apply moisturizing lotion to the burn, and avoid breaking the blisters.

APPENDIX TWO: Heat Index and Health Effects Charts

The Heat Index is a measure that combines temperature and humidity to approximate how hot it "feels" outside (*see Chart 2 and Table 1 under Heat Index below*). As relative humidity increases, the air seems warmer than it actually is because the body is less able to cool itself via evaporation of perspiration.

The National Oceanic and Atmospheric Administration *(*NOAA*)* is a federal agency focused on the condition of the oceans and the atmosphere. The following NOAA charts show the health risks as temperature and relative humidity increase:

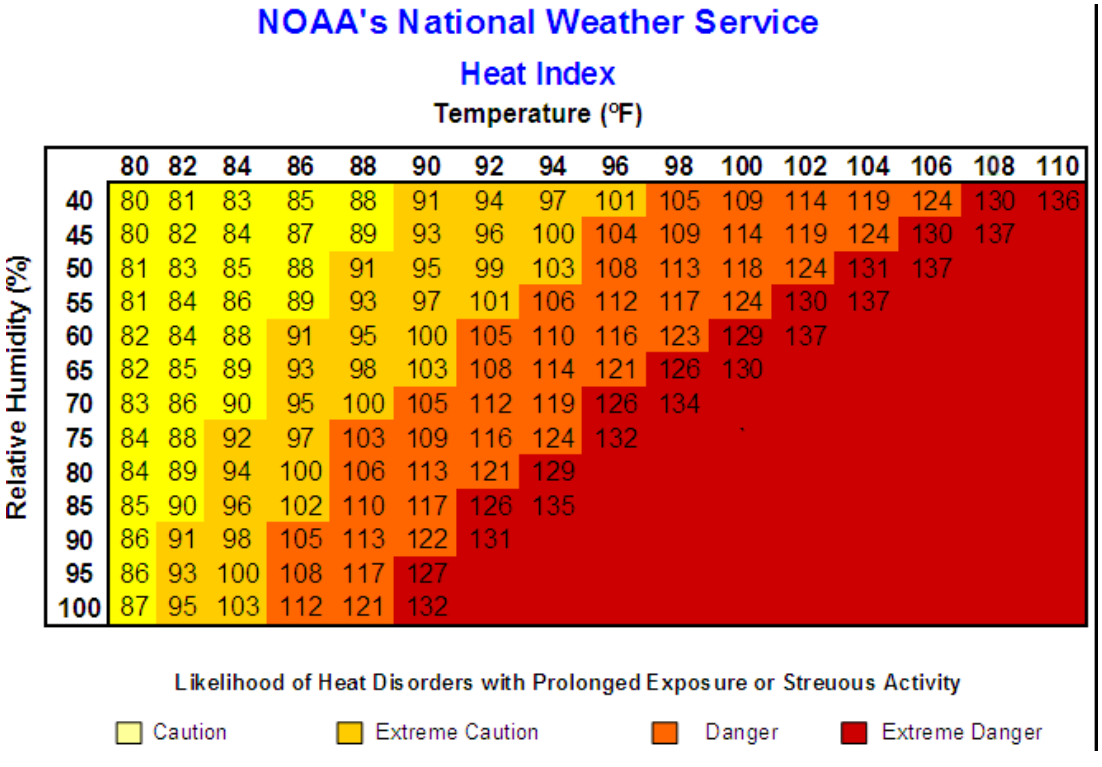


Table 1: Heat Index Results Chart

Celsius	Fahrenheit	Notes
27–32 °C	80–90 °F	Caution — fatigue is possible with prolonged exposure and activity. Continuing activity could result in heat cramps
32–41 °C	90–105 °F	Extreme caution — heat cramps, and heat exhaustion are possible. Continuing activity could result in heat stroke
41–54 °C	105–130 °F	Danger — heat cramps, and heat exhaustion are likely; heat stroke is probable with continued activity
> 54 °C	>130 °F	Extreme danger — heat stroke is imminent
Note: exposure to full sunshine can increase Heat Index values by up to 8°C (14°F).		

APPENDIX THREE: Cumberland District Assets and Gap Analysis

Conducted by Cumberland District Liaison, July 2013

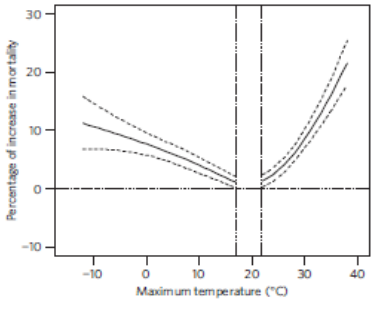
Survey Results

- 19 responses from Emergency Management Agency and public health partners (about 50/50)
- 7 of 19 respondents said they had plans in place (6 said they were all-hazard or all-weather plans)
- 17 named specific actions they are prepared for and would be likely to take
- 11 said there was more they could do with some planning/preparation
- Information desired
    - Prevention messaging translated
    - Cooling center locations
    - Regional shelters for functional needs, pets, etc.
    - Transportation options, especially ADA accessible
    - Number of municipal emergency transportation vehicles that have air conditioning (school buses, etc)
    - Weather bulletins; situational awareness (especially if thunderstorms)
    - Trigger point communications alerting all when to implement plan
    - Public information through 211
    - Resource list of supplies needed for cooling centers
    - Availability of mobile generators (need electrical specifications in advance)
    - Public swimming areas as an alternative cooling option
    - Options on who can administer IV fluids and other triage treatment to keep people out of the Emergency Department
    - At what point should we worry about drinking water, sewage, etc?
    - Is there increased disease risk with prolonged heat, especially if there is a power outage?
- Other gaps/concerns
    - Contingency plans for power outages, particularly for long-term care and medical facilities that may lack back-up power for air conditioning
    - Preparing public safety/EMS for increased calls
    - Need to remember to keep public safety and other response staff well-hydrated
    - At what point should water/power utilities consider suspending routine water/power shut-offs for maintenance? Who decides?
    - At what point should outdoor recreation activities be cancelled or rescheduled? What are recommendations for summer camps, sports leagues, outdoor-based employers, etc?

APPENDIX FOUR: Maine CDC Syndromic Surveillance Analysis

Slide 1

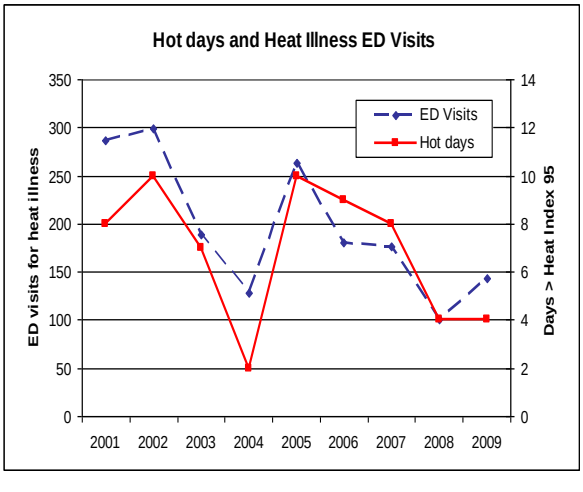
Exposure Response Curve for Temperature Related Mortality



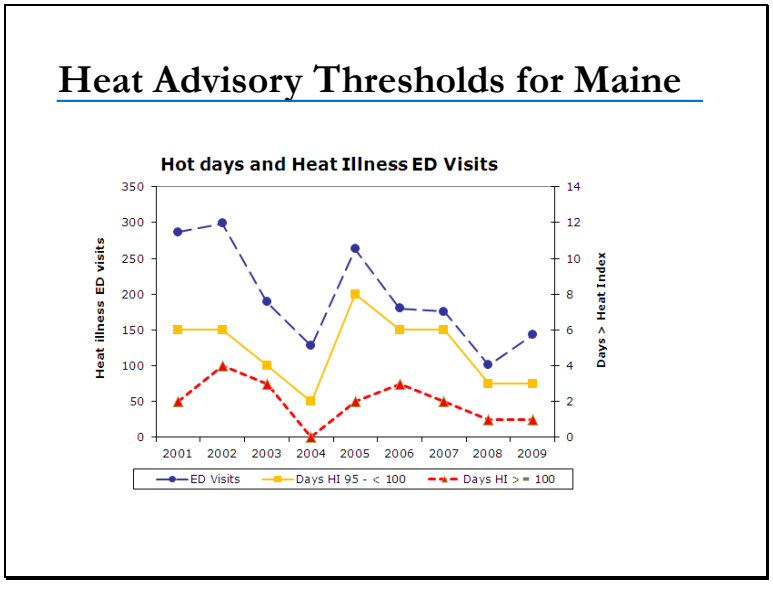
Li et al, 2013, Projections of seasonal patterns in temperature-related deaths for Manhattan, New York, Nature Climate Change

Slide 2

Heat-related health effects in Maine

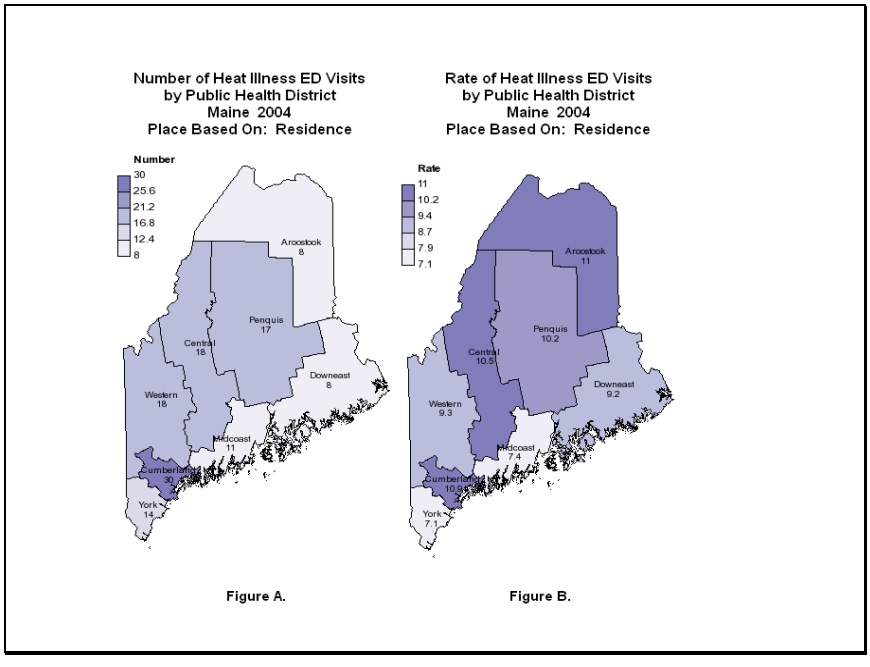


Slide 3



But simple descriptive plots suggest that we can clearly see increases in ED visits when the Heat Index is between 95 and 100.

Slide 4

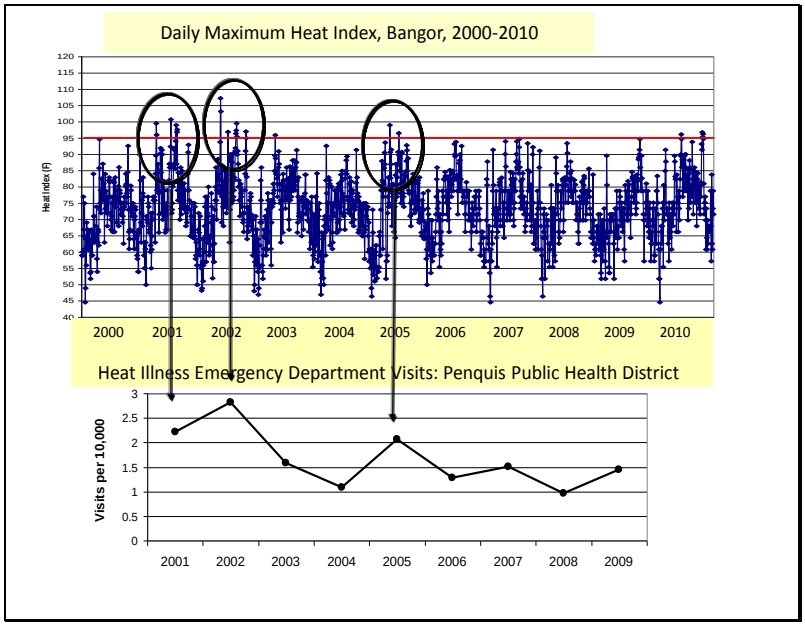


Slide 5

Number of days above HX=100° F

Station	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2000-2010
Auburn-Lewiston	0	0	2	0	0	0	0	1	0	0	0	3
Augusta	0	0	2	0	0	0	0	0	0	0	1	3
Bangor	0	1	2	0	0	0	0	0	0	0	0	3
Bar Harbor	0	0	0	0	0	0	0	0	0	0	0	0
Brunswick	0	1	2	0	0	0	1	0	0	0	---	4
Caribou	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Lake	---	0	0	0	0	0	0	---	---	0	0	0
Cutler	---	---	---	---	---	---	---	---	---	0	0	0
Eastport	0	0	0	0	---	0	0	0	0	0	0	0
Fryeburg	0	0	2	3	0	0	0	1	1	0	1	8
Greenville	0	0	0	0	0	0	0	0	0	0	0	0
Houlton	0	0	0	0	0	0	0	0	0	0	0	0
Matinicus Rock	---	---	0	0	0	0	0	0	0	1	---	1
Millinocket	0	0	3	0	0	0	0	0	0	0	1	4
Mt Desert Rock	---	0	0	0	0	0	0	0	0	0	0	0
N Aroostook	0	0	0	0	0	0	0	0	0	0	0	0
Portland	**0**	**1**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**5**
Presque Isle	0	0	0	0	0	0	0	0	0	0	0	0
Rockland	0	0	0	0	0	0	0	0	0	0	0	0
Sanford	0	0	3	0	0	2	3	2	1	0	1	12
Waterville	0	2	4	0	0	0	0	0	0	0	0	6
Wells	---	---	---	---	---	---	0	0	0	0	0	0
Wiscasset	0	0	1	0	0	0	1	0	0	0	1	3

Slide 6



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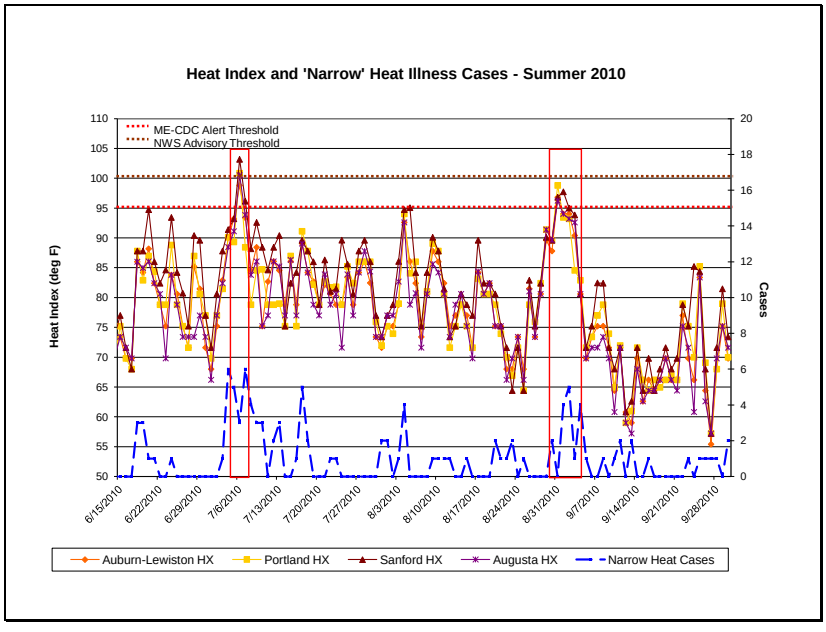

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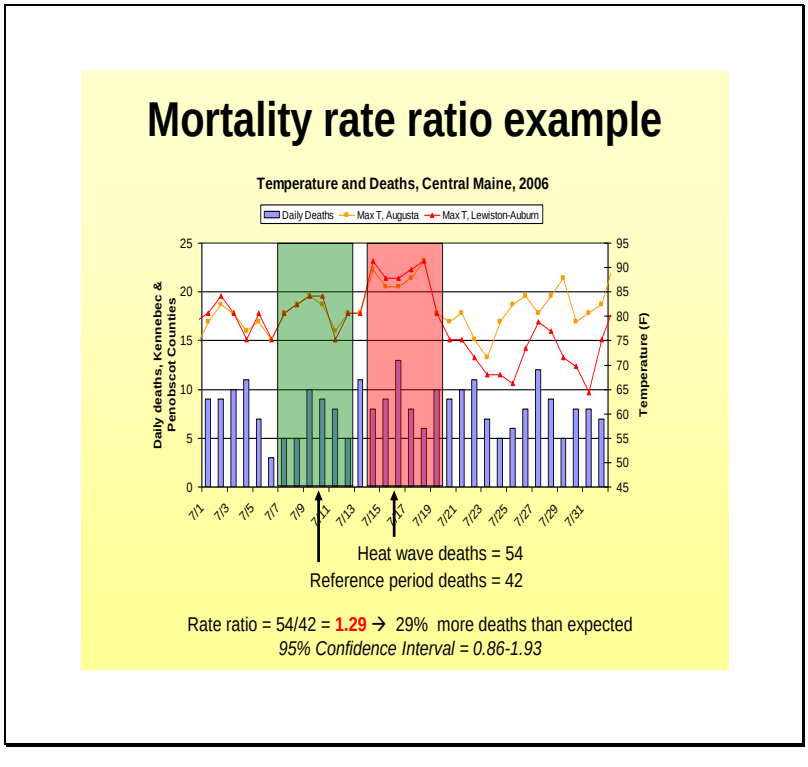

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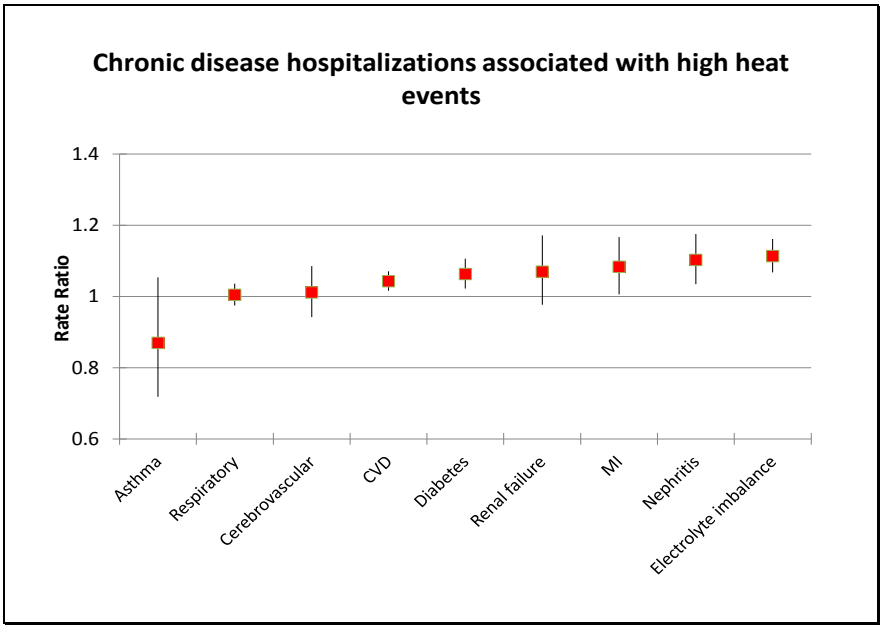


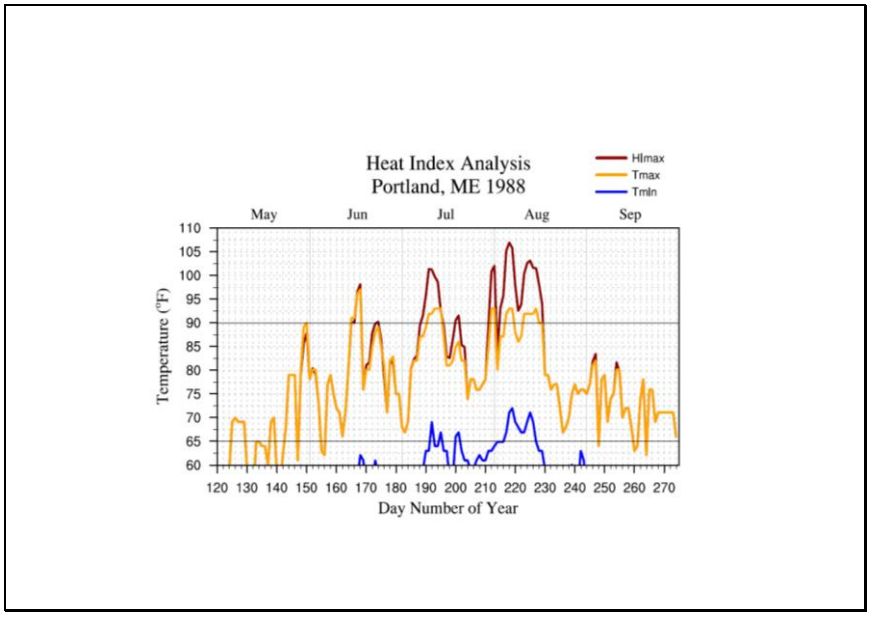
Associations with asthma, respiratory disease, and cerebrovascular disease were not significant, and rate ratios were very close to 1. However, two groups of outcomes stand out: rate ratios for cardiovascular disease and myocardial infarction were significantly elevated, as were rate ratios for renal failure and nephritis – so, heart disease and kidney disease were clearly exacerbated on hot days, as was diabetes and electrolyte imbalance, which was also significantly associated with heat.

Slide 10

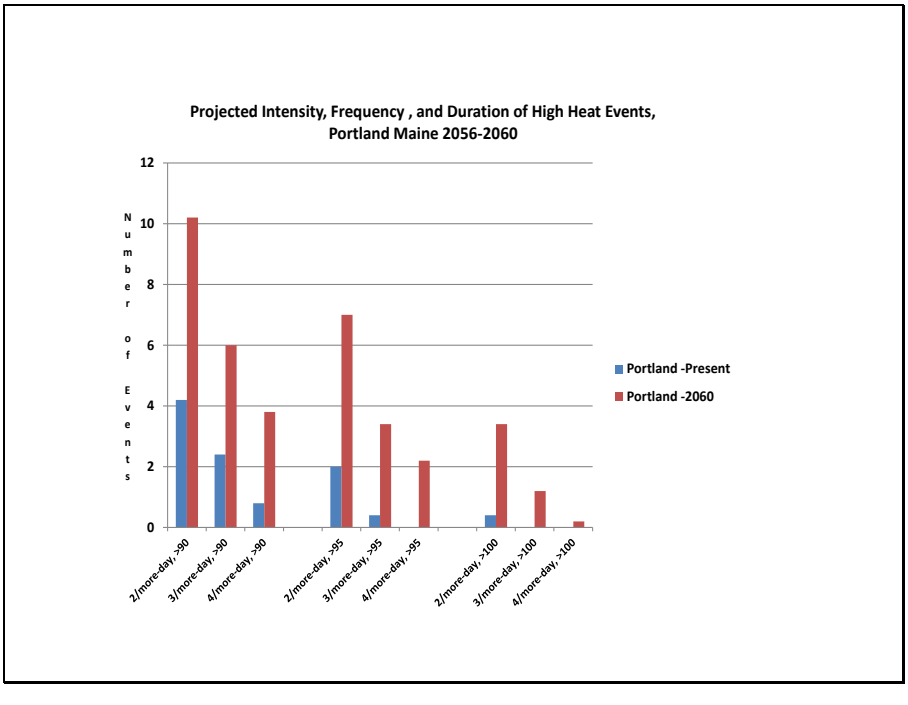
Health care costs

Health Outcome	Number of Cases	Health Care Cost per Case	Total Health Care Cost
2001-2009, Measured			
Heat Illness hospitalizations	144	$6,200	$892,800
Heat illness ED visits	1,766	$542	$957,172
TOTAL			**$1,849,972**
2001-2007, Modeled			
Heart disease hospitalizations	646	$10,800	$6,976,800
Diabetes hospitalizations	323	$10,937	$3,532,651
Electrolyte imbalance (salt depletion/ dehydration) hospitalizations	361	$5,322	$1,921,242
Nephritis (kidney inflammation) hospitalizations	145	$16,315	$2,365,675
TOTAL			**$14,796,368**

Slide 11



Slide 12



APPENDIX FIVE: Maine CDC Heat Emergency Response Plan Phases

The most appropriate level of response to a heat emergency in Maine will be carried out by Maine CDC using the thresholds and phases outlined below. If additional assistance is needed, the State Emergency Operations Center (SEOC) will be opened.

- Phase 1 - Readiness
- Phase 2 - Heat Alert
- Phase 3 - Heat Emergency
- Phase 4 - Recovery

Phase 1 - Readiness

The Maine Department of Environmental Protection (MDEP) will monitor weather forecasts. If the National Weather Service (NWS) predicts a Heat Wave (90^{o} for 3+ days), MDEP will inform the Maine CDC Public Health Emergency Preparedness (PHEP) Director, who will initiate a Readiness Phase and take actions accordingly.

Phase 2 - Heat Alert

If the NWS predicts heat indices of at least 95^{o} for 2+ days, the MDEP will inform the Maine CDC PHEP Director, who will issue a Heat Alert, notify the Maine CDC Director (or designee), and take actions accordingly.

Phase 3 - Heat Emergency

If the NWS issues a Heat Advisory (100^{o} for 1+ days), the MDEP will inform the Maine CDC PHEP Director, who will declare a Heat Emergency, notify the Maine CDC Director (or designee), and take actions accordingly:

Phase 4 – Recovery

If the NWS is no longer issuing heat advisories or warnings, and temperatures and heat indices have returned to normal, the Maine CDC PHEP will initiate a Recovery Phase and take actions accordingly.

APPENDIX SIX: Community and individual strategies responding to excessive heat conditions

(Source: Maine CDC Excessive Heat Plan, Attachment #5)

Community Strategies for Local Response

The strategies outlined below can help reduce the impact of excessive heat conditions on citizens, and should be considered if the heat index is 95 or above

- Extend the hours of public places that provide an opportunity to cool, such as pools and beaches.
- Make sure public events have as much shade, beverages, and other cooling measures available as possible.
- Work with your Public Health Region officials to identify and promote cooling centers.
- Check on people living alone and/or who are more vulnerable to heat's effects.
- Use communication channels to provide advice to individuals on addressing the heat.
- Open cooling centers, if heat index has risen beyond a heat advisory
- If cooling centers have opened, ensure that center locations are posted on the DHHS/CDC website and in local businesses and facilities, including grocery stores, hospitals, community centers, doctors' offices and homeless shelters

Tips for Responding to Excessive Heat Events

There are measures that people can take to help prevent heat-related illness and to reduce the impact of excessive heat conditions. The following provides tips for all individuals, as well as information for specific groups – the elderly; infants, children and youth; and people with mental illness.

1) All Individuals

- **Keep Cool**
  - Use air conditioning to cool down or go to an air-conditioned building such as a store, a library, or a cooling center.
  - If you don't have air conditioning in your home, open windows and shades on the shady side and close them on the sunny side to try to cool it down.
  - An electric fan can be beneficial but not reliable to cool off once the temperatures hit above the mid-90s (near or above body temperature of 98.6°F).
  - Take a cool shower or bath.
  - Wear loose, lightweight, light-colored clothing to help keep cool.
  - Stay out of the sun as much as possible.
  - Never leave children, pets or those with special needs in a parked car, even briefly. Temperatures in the car can become dangerous within a few minutes. Even with the windows rolled down two inches, it only takes 10 minutes for the inside of a vehicle to reach deadly temperatures on a hot summer day.

- **Drink Fluids**
  - Drink more fluids regardless of your activity level.
  - Avoid alcohol, caffeine and sugary drinks, since these actually cause you to lose more body fluid.
  - If you are on fluid restrictions or on diuretics, ask your doctor how much fluid you should drink.

- **Rest Frequently**
  - Take regular breaks from physical activity, at least every hour.
  - Avoid strenuous activity during the hottest part of the day (between 11 a.m. and 4 p.m.).

- **If you must be out in the heat**
  - Try to limit your outdoor activity to morning and evening hours.
  - Cut down on exercise. If you must exercise, drink two to four glasses of cool, nonalcoholic fluids each hour. A sports beverage can replace the salt and minerals you lose in sweat. If you are on a low-salt diet, talk with your doctor before drinking a sports beverage.
  - Rest often in shady areas, at least every hour.
  - Protect yourself from the sun by wearing a ventilated wide-brimmed hat (e.g., straw or mesh) and sunglasses, and by putting on sunscreen of SPF 15 or higher (the most effective products say "broad spectrum" or "UVA/UVB protection" on their labels).

2) The Elderly

Studies from heat waves show the highest risk factors for death and hospitalization are older age, living alone, lack of access to an air conditioner, and underlying medical conditions. Factors contributing to increased risk for the elderly include:

- Because of their physiology, elderly people do not adjust as well as young people to sudden changes in temperature. They tend to have a decreased thirst sensation and do not feel the urge to drink as often as younger people, and they may have physical conditions that make it difficult to drink.
- The elderly are more likely to have a chronic medical condition that upsets normal body responses to heat.
- The elderly are more likely to take prescription medicines, such as diuretics and anti-cholinergic medications, that impair the body's ability to regulate its temperature or that inhibit perspiration.

In addition to the tips for all individuals listed above, additional tips are listed below for caregivers, friends and neighbors of elderly citizens.

Caregivers, friends and neighbors of the elderly should consider the following*:*

- Visit, or have contact with, older adults at risk at least twice a day and watch them for signs of heat exhaustion or heat stroke.
- Provide access to an air conditioner, and if none is in the residence, transport the person to a store, public library, restaurant, senior center, or cooling center.
- Make sure older adults have access to an electric fan, though this is not reliable once the temperatures are above the mid-90s.
- Assure adequate fluid intake, avoiding those that contain caffeine, alcohol, or large amounts of sugar, as these can cause more loss of body fluid.
- Make sure the person has clothing that is loose and lightweight.
- Assure access to cooling water (bath, shower, wet towels).

3) Infants / Children / Youth

Children are more sensitive to heat and dehydration than adults, and dehydration can occur quickly in them. Factors contributing to increased risk for infants, children, and youth include:

- Children produce more heat because of a greater surface area-to-body mass ratio than adults.
- Children sweat less than adults.
- Children are less likely to drink adequate fluids during exercise and heat.
- Infants, and especially newborns, are at higher risk.

- Children who rarely exercise, are overweight or obese, have had a previous heat-related illness, drink caffeinated beverages, are developmentally delayed or have cognitive disabilities, or have underlying medical conditions (diabetes) are at higher risk.

In addition to the tips for all individuals listed above, additional tips are listed below for parents, caregivers, coaches and teachers.

Parents and caregivers of infants and young children should consider the following:

- Make sure infants and young children have access to air conditioning, lightweight clothing, adequate fluids, and cooling water. Infants and children up to 4 years of age are especially sensitive to the effects of high temperatures and rely on others to regulate their environments and provide adequate liquids.
- Monitor for and recognize the signs and symptoms of heat-related illnesses and dehydration in children. Dehydration in young children early on can present as: decreased urine output, dry or sticky mouth, irritability, and fatigue.

Coaches, parents and teachers should consider the following for children and youth involved in physical activity:

- Reduce the intensity of physical activity lasting more than 15 minutes, especially if heat and humidity are both high.
- Realize that conditioned athletes may be more susceptible to heat stroke because they have a larger body mass.
- Require young athletes to take fluid breaks before practice and every 15 – 60 minutes during practice, even if they are not thirsty.
- Require young athletes to take regular shade and rest breaks, and encourage them to take additional rest and fluid breaks anytime they feel the need to do so.
- Recognize signs of heat illness and dehydration in children. Dehydration early on can present as: dry or sticky mouth, thirst, headache, dizziness, cramps, and excessive fatigue.

4) People with Mental Illness

Factors contributing to increased risk for those with mental illness include:

- Some medications used to treat mental illness, such as anti-psychotics, inhibit the body's ability to regulate its temperature, leaving it more susceptible to heat stroke.
- People with mental illnesses often live in impoverished conditions and without air conditioning, further increasing their risk.

In addition to the tips for all individuals listed above, additional tips are listed below for caregivers, friends and neighbors of people with mental illness.

Caregivers, friends and neighbors of those with mental illness should consider the following*:*

- Visit or have daily contact with those people with mental illness, and especially those taking anti-psychotic medications.
- Provide access to an air conditioner, or transport the person to an air-conditioned building or cooling center.
- Make sure the person is drinking adequate fluids, and avoiding those that contain caffeine, alcohol, or large amounts of sugar, as these can cause more loss of body fluid.
- Make sure the person is wearing lightweight and loose-fitting clothing.
- A fan can be beneficial but not reliable to cool one off once the temperatures hit the high 90s.
- Have the person take a cool shower or bath.

APPENDIX SEVEN: Cumberland County Emergency Management Agency (CCEMA) Network List

Following are the organizations and groups with whom CCEMA gets and shares information:

Tier One: organizations, agencies, and groups that are always in regular communication with CCEMA

- 211
- Civic Center
- Coast Guard
- Colleges
- County Jail
- County offices
- District Public Health Liaison
- EMA Directors for each town and their second contacts; then town EMA Directors send to:
    - Town government
    - Department Heads
    - Local Public Health Officer
    - Police
    - Fire
    - Selectmen
- Hospitals (5 in Cumberland County)
- Local Emergency Planning Committee (LEPC) – works with public safety, fire departments, Hazmat, and industries with hazardous materials to ensure they have a plan and communicate it
- Portland Public Health
- Portland Water District
- Public Safety Answering Points (PSAP) – where 911 calls go)
    - 6 PSAP's
    - 8 dispatches
- Red Cross
- School superintendents
- Social service agencies
    - Christopher Aaron Counseling Center
    - Day One
    - Easter Seals Maine
    - Family Crisis Services
    - Freeport Community Services
    - G.E.A.R. Parent network
    - Home Instead Senior Care
    - KidsPeace
    - Maine Center on Deafness
    - Preble Street
    - The Root Cellar
    - Southern Maine Area Agency on Aging (SMAAA)
    - Spurwink Services
    - Sweetser
    - Tedford Housing
    - Woodford's Family Services
    - YMCA of Southern Maine
- Southern Maine Regional Resource Center (SMRRC) - helps coordinate medical issues
- Teams (all volunteers; each has team leader)
    - 4 HAZMAT
    - 2 HAM radio
    - 1 Medical Reserve Corps

    - 1 Animal Response
    - 1 IMAT (Incident Management Assistance Team
    - 1 VOAD (Voluntary Organizations Active in Disaster – works closely with Red Cross)
    - 1 COAD (Community Organizations Active in Disaster – help with reception centers for volunteers)
- Utilities
    - Central Maine Power (5 offices in 5 CMP districts)
    - Fairpoint
    - Water districts
    - Time Warner Cable
    - Unitil

Tier Two: organizations, agencies, and groups who MAY receive and share information with CCEMA

- Child care
- Churches
- Federal law enforcement – FBI, DEA
- Ferry lines
- Food pantries
- General contractors
- Harbormasters
- Home health, visiting nurses and VNA at Maine Medical Center
- Hotels
- Marinas/boat yards
- Mass transit – bus/taxi/limo
- Mental health
- National Transportation Safety Board (NTSB) and airlines
- Portland Pipe Line Corporation
- Public health
- Railroad
- Residential care/long-term care
- Watershed management (dams, rivers, lake levels)

APPENDIX EIGHT: Cumberland Public Health District Liaison Network List

Following are the types of organizations that have been members (past and present) of the Cumberland District Public Health Council and with whom the District Liaison regularly communicates:

- Area Agency on Aging
- City health departments
- Community Action Agency
- County government
- Disability services
- Emergency management agencies
- Emergency medical services
- Environmental health organizations
- Family planning organizations
- Health policy services
- Health systems
- Healthy Maine Partnerships
- Home health providers
- Hospitals, clinics and community health centers
- Immigrant/refugee organizations
- Universities, colleges, and other institutions of higher education
- Local health officers
- Maine Center for Disease Control and Prevention
- Mental health and substance abuse treatment providers
- Municipal governments
- Other community-based organizations
- Physicians and other health care providers
- School districts
- Water District

APPENDIX NINE: Communications Plan for Reaching Vulnerable Populations in Maine

(Source: Maine CDC Vulnerable Populations Communications Plan: In Brief, August 19, 2014)

Overview

Maine CDC and MEMA have a shared responsibility for ensuring that all residents of the state of Maine are fully informed regarding public health and emergency management preparedness for, response to, and recovery from disaster events.

The purpose of this initiative is to develop a process and infrastructure for the targeted distribution of all important public health and emergency management messages to the most vulnerable persons within the state of Maine.

The overarching goal is to make sure that all vulnerable populations have timely, accurate, clear, concise, consistent information regarding pre-disaster, disaster response and disaster recovery situations in a format they can understand in order to take appropriate actions to ensure their health and safety.

The initial focus of the initiative will be to reach vulnerable persons who experience known communication barriers. People experience barriers to receiving communications for a variety of reasons: hearing or visual impairment, illiteracy, non-English speaking, social, cultural or geographic isolation, cognition impairment, mental illness, poverty, etc. A broad brush, inclusive approach was used to define the populations for inclusion in this initiative. The groups currently being targeted for inclusion include:

- Deaf, hearing impairment
- Blind, visual impairment
- Financially vulnerable
- Homeless
- Homebound
- Frail elderly
- Physically disabled
- Medically frail
- Cognitively impaired/developmentally disabled
- Mentally ill
- Group home residents
- Adult day care participants
- Native Americans
- Immigrants
- Undocumented immigrants
- Migrants
- Refugees
- Non-English speaking

Foundational Assumptions

1. Various advocacy, service and support organizations and agencies and trusted leaders have established mechanisms in place to communicate directly with their constituents/ populations served.
2. The various advocacy, service and support organizations and agencies, and trusted leaders will be willing to receive the messages distributed from the Maine CDC, and to then distribute the messages to their constituents/populations served in a timely manner using their own established, population specific methods of communication.
3. Those vulnerable persons in the community who receive the timely and accurate public health and emergency management messages from a trusted messenger will be more likely to take actions to protect their health and safety of themselves and their families that will result in a more favorable outcome from a disaster event.

Process in Brief

This initiative is designed to be implemented in close partnership with numerous state and local organizations and agencies, and community partners that support and /or serve the most vulnerable people of Maine. Maine CDC and MEMA will prepare the public health and emergency management messages. Maine CDC will then push the messages out by way of the Health Alert Network (HAN) to participating organizations, agencies and community partners that will in turn, employ their own established and population appropriate methods of communications to distribute the messages to their constituents in a timely fashion.

Method: The HAN

The Health Alert Network (HAN) is a software system that resides within the Maine CDC, Public Health Emergency Preparedness. The HAN will serve as the method to distribute the messages generated by Maine CDC and MEMA to participating organizations, agencies and community partners for further distribution to their constituents/ members.

System Development

<u>The Partners</u>

Maine CDC will conduct outreach to:

- Identify statewide organizations, local service organizations/agencies and trusted leaders that interface with vulnerable populations, with initial focus on those persons with identified barriers to receiving important public communications.
- Identify an administrative point of contact for each organizations and agencies, including current contact information.
- Enlist those agencies and organizations, and trusted leaders to actively participate in the process by agreeing to distribute the public messages to the populations served in a timely fashion using an appropriate method of their choosing.
- Solidify that commitment by requesting those organizations and agencies, and trusted leaders to sign a Memorandum of Agreement (MOA) to participate in the process. (An MOA is not legally binding.

- Identify a second contact person (with contact information) within each organization/ agency, trusted person that will be responsible to receive the messages and to activate the message distribution process.

The Messages

Maine CDC and MEMA will collaborate and coordinate to prepare timely, accurate, clear, concise, low literacy, consistent public health and emergency management messages. Public messages will be developed proactively pre-disaster for predictable events. Translations will be obtained proactively in selected languages for those messages developed pre-disaster for predictable events. (A noted challenge: to provide urgent translations for unanticipated disaster events.)

The HAN

The Maine CDC HAN Coordinator will create the "Vulnerable Populations Group" of participating state and local organizations within the HAN system**.**

Once the "VP Group" is established, the HAN Coordinator will provide instructions to the organizations and agencies as how to sign up for HAN membership.

System Maintenance

Maine CDC will:

- Reaffirm the Memorandum of Agreement annually.
- Update partner organization/agency point of contact information annually.
- Test or exercise the system quarterly.
- Continue to prepare pre-disaster messages, and obtain translations as indicated.
- Update the plan post-disaster or post-exercise based on lessons learned, and participant feedback in the spirit of continuous improvement.

Preparedness

The more prepared Maine residents are for a disaster, the better the outcome. Agencies and organizations supporting the vulnerable will be encouraged to integrate preparedness messaging into their contacts with their constituents/ members. Maine CDC and MEMA are resources for preparedness messages.

For people to act,
They must receive the message,
Understand the message,
Believe the messenger is credible and trustworthy,
And have the capacity to respond.

APPENDIX TEN: Assessing the impact of heat illness

(Source: Maine CDC, July 2014)

The most direct way to assess the impact of high heat stress is through those medical diagnosis codes specifically related to the effects of heat and light (IC9 code 992),

- 992.0 Heat stroke and sunstroke
- 992.1 Heat syncope
- 992.2 Heat cramps
- 992.3 Heat exhaustion, anhidrotic
- 992.4 Heat exhaustion due to salt depletion
- 992.5 Heat exhaustion, unspecified
- 992.6 Heat fatigue, transient
- 992.7 Heat edema
- 992.8 Other specified heat effects
- 992.9 Unspecified effects of heat and light

or external causes of injury codes (e-codes) related to:

- E900.0 Heat injury due to weather
- E900.9 Accidents due to excessive heat of unspecified origin

In addition, studies around the country have shown evidence of elevated deaths, hospitalizations, and Emergency Department (ED) visits during and shortly after excessive heat events for specific health outcomes. One such study in California identified a set of health conditions that were significantly elevated during a heat wave affecting most of the state in July 2006. The following health outcomes were identified as potentially affected by heat:

- Diabetes (ICD-9 code 250)
- Electrolyte Imbalances (ICD-9 code 276)
- Cardiovascular Diseases (ICD-9 codes 390-398, 402, 404-429, 440-448)
- Acute Myocardial Infarction (ICD-9 code 410)
- Cerebrovascular Diseases (ICD-9 codes 430-438)
- Respiratory Illness (ICD-9 codes 460-519)
- Nephritis and Nephrotic Syndrome (ICD-9 codes 580-589)
- Acute Renal Failure (ICD-9 code 584)
- Heat-related illness (ICD-9 code 992)

APPENDIX ELEVEN: Heat Emergency Preparedness Plan Template for Social Service Agencies

Heat Emergency Preparedness Plan
for Frail Elderly Shut-ins at
Southern Maine Agency on Aging

Emergency Response Administrator: Edward S. Trainer, Director of Healthy Aging
Alternate Administrator: JoAnn McPhee, Manager, Nutrition Program

I. Preparation:

1. Scarborough Nutrition staff maintain up to date list of contacts numbers, regular and emergency, for all Nutrition Program personnel
2. Meal Site Coordinators maintain up to date electronic access to phone numbers of MoW clients and/or phone numbers of the emergency contacts.
3. All Drivers are alerted to being asked to deliver Health Emergency messages to their clients during their regular visits, if requested.

II. Receipt of Alert and Accompanying Message during Working Hours when Meal Site Coordinators are On Duty (8-1 PM: M,T,Th,F).

1. Receive Call: Ted Trainer, or Joann McPhee in his absence.
2. If Alert comes before Drivers are out, they will be asked to deliver the Message to every client.
3. Upon return from their routes they notify Meal Site Coordinator of missed visits; MSCs deliver Message by telephone to those missed clients or their Emergency Contacts.
4. If Alert comes after the Drivers have returned from their routes, the MSCs will endeavor to contact all of their clients or their Emergency Contacts by telephone. The urgency of these calls would depend on the Alert message.

III. Receipt of Alert and Accompanying Message outside Working Hours.

Note: The Response process would be dictated by the urgency of the Alert Message. If possible, the client contact process would be done during working hours as described above. If the Alert Message requires immediate action, then the following emergency contact process would come into effect:

1. MSC's would be responsible for contacting all their clients or their Emergency Contacts ASAP. SMAA would reimburse hourly staff for their overtime hours. If a MSC cannot be contacted to make these calls, the Nutrition Management staff would assume that responsibility.
2. It is to be understood that SMAA will be unable be able to reach all clients or their contacts by telephone.
3. It is to be understood that SMAA staff cannot take responsibility for physically visiting the clients.

New York City Heat Wave Preparedness Checklists for Mental Health Service Providers

Make Plans for Outreach During Heat Waves

During the spring, before it gets hot, flag consumers at highest risk for heat-related illnesses based on lack of access to or unwillingness to use air conditioning, health risks, current medications, ability to express thirst and obtain water for themselves, and ability to communicate being hot or uncomfortable. Direct staff to assess and record:

Check those that apply	Essential Questions	What to Do
	Is there a working AC in the dwelling unit?	If yes, encourage consumer to use it during hot weather. If he/she does not like using AC, suggest a setting of 78°F (or low cool) to provide a comfortable but not cold environment. If not working (does not provide cooling to at least 78°F), or no AC at all, help resident to procure working AC if possible. If AC cannot be procured, help the consumer plan for where to go to stay cool on very hot days If possible, encourage consumer's family and/or contacts to plan to check in on them during heat emergencies.
	Has the consumer received copies of Keep Cool or Beat the Heat brochures?	If not, provide a copy (call 311 or search "Beat the Heat" or "Keep Cool" on NYC.GOV for more info).

NYC Health

Monitor Vulnerable People During Heat Waves

During heat emergencies, check on at-risk consumers. Direct staff to maintain:

- A schedule for monitoring consumers
- A check list to document outreach and reinforce heat safety. Essential items for the checklist include:

Check those that apply	Essential Questions	What to Do
	Is the consumer using his/her air conditioner? (See below if no AC in dwelling unit)	If not, assess reason and provide assistance, (e.g. explain importance, demonstrate how to use it). Note: If the person is using a fan, put it in or next to an open window. **Do not use a fan in a room with closed windows**. Warn consumer that fans may not provide enough protection in very hot weather.
	If no air conditioning in room or apartment, is the consumer able to spend some portion of the day in an air conditioned space (e.g. common room in building, cooling center nearby, other public place)?	Remind and encourage consumer to visit alternative location, especially during the hottest times of the day.
	Is there enough water to drink?	Provide water and encourage the person to drink.
	Is the person wearing too many clothes?	Encourage the person to remove excess layers of clothing.

NYC Health

Check for Signs of Heat Stress During Heat Waves

Check those that apply	Serious Signs	What to Do
	Hot, dry skin OR cold, clammy skin (no sweating)	Call 911. This is a medical emergency. While waiting for help, move the person to a cool area. Remove extra clothes. Use water and a fan to cool the person externally. Do not give the victim fluids to drink.
	Weakness, dizziness	
	Nausea and/or vomiting	
	Change in mental status including: confusion, hallucinations, disorientation	
	Trouble breathing	
	Rapid, strong pulse	
	Unconscious or unresponsive	

Check those that apply	Warning Signs	What to Do
	Headache	Get the person to a cool place, encourage removal of extra clothes. Give the person water.
	Decreased energy	
	Loss of appetite, nausea	
	Lightheadedness, feeling faint	
	Heavy sweating	
	Muscle cramps	

NYC Health

Help Consumers Prepare for Extreme Heat

During routine contacts, provide information and help consumers plan for hot weather. Involve family and friends in preparation:

- If an at-risk individual has an air conditioner, encourage them to USE IT during periods of extreme heat. Many people prefer not to use their air conditioners, either to save money or because they do not like cold air. Suggest tips to conserve energy, such as using air conditioning in the room consumers spend the most time in, closing off other rooms, and cutting down on light and other electronics use. Advise consumers to set the air conditioner's temperature at 78ºF. Check the air conditioner to make sure it is in good working condition, clean the filter if needed, and insulate any spaces between the air conditioner and window to make sure there is a tight fit.
- If an at-risk individual does not have an air conditioner or access to a common room on-site with air conditioning, discuss any other options they may have during periods of extreme heat. Spending even a few hours in an air conditioned environment can be beneficial. Help them identify public spaces nearby that they can go to sit in air conditioning. Help them make a plan for how they will get to a friend, neighbor or relative's house, a library, shopping mall, or a Cooling Center in their neighborhood (call 311, TTY: 212-504-4115, or visit www.nyc.gov/oem for more information).
- Advise consumers to wear light, loose-fitting clothing. Bathing or showering with cool (not cold) water can be helpful for those able to do so safely.
- Discuss medical conditions or medications that could increase risk during hot weather. Many people do not realize they have a high risk of heat illness. If necessary, check with the consumer's doctor or advise consumers to do so concerning precautions they should take during hot weather and whether self- monitoring hydration (e.g. using bodyweight measurement to ensure they are getting enough water) is recommended.
- Remind consumers to drink plenty of water both outdoors and indoors, even if they don't feel thirsty, during hot weather, and to avoid strenuous activity. If they are unable to communicate thirst, make sure they are given water at regular intervals throughout the day.
- Advise consumers that during periods of extreme heat, a fan alone may not be enough to keep them cool. When the room temperature is in the high 90s or above, fans will not prevent heat-related illness because they just blow the hot air around. Fans may be useful when used in conjunction with an air conditioner or at night to help circulate cooler air from open windows if air conditioning is not used.
- Educate family and friends about symptoms of heat illness and prevention tips. Encourage consumers to check in on family/friends/neighbors who may also need help at least daily during heat waves.
- Distribute the City's "Beat the Heat" and "Keep Cool" brochures. Call 311 or search "Beat the Heat" or "Keep Cool" on NYC.gov for more information.

Updated April 2013

NYC Health

Source: http://nyc.gov/html/doh/downloads/pdf/ehs/mh-provider-heat-checklists.pdf

Community Care During Extreme Heat

Heat Illness: Prevention and Preliminary Care

This fact sheet is for Health Care Workers working outside of facilities in the community and in patient/client homes.

Heat Illness and High Risk Individuals

Recognizing Risk

Populations most at risk for heat illness and death during extreme heat:

- People who are confined to bed, or have reduced ability for self care
- People with pre-existing conditions have greater risk of heat illnesses. These include cardiovascular, pulmonary, renal and psychiatric conditions.
- People who are alone without a social support network in hot home environments.

Planning for the Summer and Extreme Heat

Knowledge Check and Action Plan for Management and Staff

- Ensure your organization has an updated extreme heat emergency plan.
- Plan to coordinate with other agencies.
- Know your partners and maintain coordination plan with other services during extreme heat.
- Educate and train staff on extreme heat and heat illnesses in the early spring.
- Inform staff about extreme heat emergency plans (e.g. staffing, response to client needs).
- Increase staff awareness of public cooling options (e.g. pools, splash pads, shaded green space, libraries, shopping centres).
- During extreme heat, review key fact sheet information with volunteers and staff.
- During extreme heat, review clinical management of patients and residents most at risk either due to reduced mobility, chronic illnesses (pulmonary, cardiovascular, renal), or certain medications. (*Refer to Health Canada's Acute Care Fact Sheet.)*

Community Care – Assessing for and Educating on Heat Illnesses

Checklist when Visiting Client

URGENT: If client does not answer the door for a scheduled visit:

- ❏ Notify your office / supervisor
- ❏ Attempt to call the client, if there is no answer:
  - ❏ Call the client's emergency contacts to request they check on the client
  - ❏ Follow any other steps required by your organization

On entering client's home, check how they are coping with the heat.

- ❏ Observe home environment
- ❏ Do they show physical signs of being in distress?
  - ❏ Slower than usual response to answer the door
  - ❏ Appearing unwell or complaining of not feeling well
  - ❏ Appearing disoriented

9 1 1 **If client is unusually confused and very hot, call 911. This may be heat stroke and is a medical emergency.**

Canada

Community Care During Extreme Heat

Heat Illness: Prevention and Preliminary Care

Community Care – Assessing for and Educating on Heat Illnesses (Continued)

If client is not in distress, check further on how they are coping with the heat.

- ❑ Is client uncomfortable because of the heat?
- ❑ Does the client have access to fan, air conditioning, fridge, phone, social support?
- ❑ Is client at risk from exposure to extreme heat?
  - ❑ Client has mobility, mental and/or physical health issues
  - ❑ Client does not have physical and/or mental capability to escape the heat
  - ❑ Client lacks access to transportation
  - ❑ Client needs help to keep their environment cool, or move to a cooler place?

Is client showing signs of heat illness:

- ❑ extreme thirst
- ❑ unusual skin colouring
- ❑ tiredness
- ❑ weakness
- ❑ dizziness
- ❑ headache
- ❑ fainting
- ❑ nausea
- ❑ vomiting
- ❑ rapid breathing and heartbeat
- ❑ muscle cramps
- ❑ decreased urination with unusually dark yellow urine colour

Actions to Help Clients Avoid Heat Illnesses

- ❑ Provide care (or help to coordinate care)
- ❑ Educate client (and caregivers) on how to cool themselves
- ❑ Inform client of local cooling options and community services to help support the needs of the client
- ❑ Provide client with appropriate Health Canada Heat-Health Fact Sheet (for Older Adults, Physically Active and Young Children)

Keeping the Person Cool

- ❑ Use cool water to:
  - ❑ Sponge or bathe
  - ❑ Soak hands, forearms, and/or feet
  - ❑ Spray skin while fanning
  - ❑ Wet a cloth to put on neck and/or armpits.
- ❑ Have Patient/Client:
  - ❑ Dress in loose fitting, light-coloured clothing made from breathable fabric (e.g. cotton).
  - ❑ Drink liquid (especially water) regularly, even when not thirsty.
  - ❑ Eat fruits and vegetables which are high in water content.
  - ❑ Have a glass of water in reach – ensure it is beside them before leaving.

Keeping the Home Cool and Food Safe

- ❑ Close windows, blinds and curtains during the hottest part of the day.
- ❑ Open windows, blinds and curtains when temperature is cooler in the evening.
- ❑ Use electric fans, air conditioning, to cool or circulate air.
- ❑ If home gets too hot, have client go to public place to cool down (e.g. pool, shaded green space, library, shopping centre). Ideal temperature range is assessed on a case by case basis.
- ❑ Do not use the oven. Instead use the stove top or microwave to heat food, or have meals that do not require heating.
- ❑ Ensure that food is properly stored as soon as eating has finished, and discard spoiled food. This is particularly important following a power outage.

For additional information refer to Health Canada's Extreme Heat Events Guidelines: Technical Guide for Health Care Workers

For further information email: Climatinfo@hc-sc.gc.ca

For more information in your region:

HC Pub.: 110063 Cat.: H128-1/11-645E ISBN: 978-1-100-18177-6

APPENDIX THIRTEEN: Heat Illness Factsheet for Social Service Providers

(Sources: http://www.nlm.nih.gov/medlineplus/ency/article/000056.htm http://www.bt.cdc.gov/disasters/extremeheat/heat_guide-page-3.asp)

Heat Illness Factsheet

Heat illnesses are preventable by taking precautions in hot weather. Children, elderly, and obese people have a higher risk of developing heat illness. People taking certain medications or drinking alcohol also have a higher risk. However, even a top athlete in superb condition can succumb to heat illness if he or she ignores the warning signs.

Heat exhaustion is a milder form of heat-related illness that can develop after several days of high temperatures. Heat stroke occurs when the body is unable to regulate its temperature. The body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. Body temperature may rise to dangerous levels within minutes. Heat stroke can cause death or permanent disability if emergency treatment is not provided.

Symptoms

The early symptoms of heat illness include:

- ☐ Profuse sweating
- ☐ Fatigue
- ☐ Thirst
- ☐ Muscle cramps

Later symptoms of heat exhaustion include:

- ☐ Headache
- ☐ Dizziness and lightheadedness
- ☐ Weakness
- ☐ Nausea and vomiting
- ☐ Cool, moist skin
- ☐ Heavy sweating
- ☐ Dark urine
- ☐ Paleness
- ☐ Muscle cramps

The symptoms of heatstroke include:

- ☐ Fever (temperature above 103 °F)
- ☐ Irrational behavior, Confusion
- ☐ Dizziness
- ☐ Nausea
- ☐ Throbbing headache
- ☐ Dry, hot, and red skin (lack of sweating)
- ☐ Rapid, shallow breathing
- ☐ Rapid pulse
- ☐ Seizures
- ☐ Unconsciousness

Call 911 if:

- The person loses consciousness at any time.
- There is any other change in the person's alertness (for example, confusion or seizures).
- The person has a fever over 102 °F with other symptoms of heatstroke such as rapid pulse or rapid breathing.
- The person has heart problems or high blood pressure and is experiencing heat illness symptoms
- The person's condition does not improve within an hour, or worsens despite first aid treatment.

First Aid

1. Have the person lie down in a cool place. Raise the person's feet about 12 inches. Loosen any tight or heavy clothing.
2. Apply cool, wet cloths (or cool water directly) to the person's skin and use a fan to lower body temperature. Place cold compresses on the person's neck and armpits.
3. If alert, give the person beverages to sip, such as Gatorade or water. Give a half cup every 15 minutes. Cool water will do if sport drinks are not available.
4. For muscle cramps, give beverages as above and massage affected muscles gently, but firmly, until they relax.
5. If the person shows signs of shock (bluish lips and fingernails and decreased alertness), starts having seizures, or loses consciousness, call 911 and give first aid as directed.

DO NOT

- Do NOT underestimate the seriousness of heat illness, especially if the person is a child, elderly, or injured.
- Do NOT give the person medications that are used to treat fever (such as aspirin or acetaminophen). They will not help, and they may be harmful.
- Do NOT give the person salt tablets.
- Do NOT give the person liquids that contain alcohol or caffeine. They will interfere with the body's ability to control its internal temperature.
- Do NOT use alcohol rubs on the person's skin.
- Do NOT give the person anything by mouth (not even water) if the person is vomiting or unconscious.

Prevention

- Wear loose-fitting, lightweight clothing in hot weather.
- Drink plenty of fluids every day. Drink more fluids before, during, and after physical activity. Limit or avoid beverages with alcohol and caffeine.
- Keep several gallons of water on hand in case of power outages.
- Be especially careful to avoid overheating if you are taking drugs that impair heat regulation, or if you are overweight or elderly.
- Rest frequently and seek shade when possible.
- Avoid exercise or strenuous physical activity outside during hot or humid weather.
- Be careful of hot cars in the summer. Allow the car to cool off before getting in.
- If living conditions are too hot, visit a place with air conditioning for several hours, especially during the hottest part of the day (public library, movie theater, mall, other public cooling centers).
- Dial 2-1-1 to find out where local cooling centers are in your area.