

The Heat's On!

Planning for Extreme Temperature Events



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Slow-onset disasters are insidious – they frequently start off so slowly that it's hard to realize you're facing a crisis until you're stuck in the middle of it. This is the result of the human tendency to normalize events – that is, to see them as routine occurrences that resemble previous, non-threatening experiences. One of the most common slow-onset events faced by emergency managers is the extreme temperature event.

According to the NOAA, this past January - June had the warmest worldwide temperature average (57.5°F/ 12.2°C) ever recorded. At this writing, the United States and Canada have been enduring a heat wave that saw temperatures of over 100°F in many major cities on the East Coast, with New York City hitting 103°F for the first time since 2001. Europe is also experiencing a heat wave that has produced temperatures in the mid 90's. China is seeing temperatures of 104°F.

Extreme temperature events can have far reaching impacts that are beyond the purview of the local emergency manager. For example, drought caused by high temperatures in the current heat wave has

destroyed almost 25 million acres of crops in Europe. Germany's potato industry is expecting a loss of 30% of its harvest this year. Wildfires in Russia have destroyed 64,000 acres of forest. (Nowak, 2010)

Yet extreme temperature events are predictable and the effects, particularly to people, can be mitigated. So how do we decide when an extreme temperature event crosses the line from routine to crisis and how do we respond?

Social Vulnerability

In assessing any potential emergency management issue, I always start with an assessment of the hazard and the basic question, "what's the real problem here?"

For extreme temperature events, the single most important factor to consider in your risk analysis is social vulnerability. One of the unique differences between extreme temperature events when compared to other disasters is that their impact is closely tied to community social problems.

While all disasters have a disproportionate impact on those most vulnerable, there are physical, social and economic factors that can place certain segments of a population at higher risk

from extreme temperatures. Some of these factors are readily apparent: the homeless, the poor, the elderly, infants, etc. Some, however, are not so obvious, such as the socially isolated.

In *Heat Wave: A Social Autopsy of Disaster in Chicago* (Klineberg, 2002), sociologist Eric Klineberg shows how changing demographics in selected communities led to social isolation of the elderly during the heat wave in 1995. Many of those who died during the event were either afraid to leave their homes to seek help or had no one to check on them and make sure they were alright.

This concept of social vulnerability is the key to understanding the impact of extreme temperature events. From the response perspective, extreme temperature emergency plans are contingency plans in the sense that the event and its potential impact can be clearly defined and a response pre-planned. However, the social vulnerability aspects of these types of events cannot be addressed through traditional response mechanisms.

Outreach

Once we accept that extreme temperature events pose a social problem rather than a traditional response problem, our planning takes on a new dimension. Traditionally, we respond to extreme temperature events by identifying cooling or warming centers and notifying the public through the media about the availability of these centers.

The problem is that those segments of the population who are social isolated or have cognitive or physical disabilities that limit mobility will not respond to our traditional media messages and will not take advantage of these centers. Consequently, our plans must

allow for specific, direct outreach to those most vulnerable to extreme temperatures. This means that our planning team must include the social services agencies, both public and private, that normally provide services to vulnerable populations.

Given that outreach to vulnerable populations will depend on direct contact rather than mass media messaging, we can identify two levels of outreach that will be necessary. The first is in the area of seasonal preparedness and involves social workers providing preparedness information to clients and care givers and identifying at-risk clients who may need to be directly contacted during an event. The second level of outreach is the direct contact that will need to take place during the actual event.

Once we have identified these two levels of outreach, we can develop plans that allow us to craft an effective seasonal safety message and means to deliver them directly to vulnerable populations. We can also recognize the need for additional outreach workers during an extreme temperature event and develop plans to mobilize these resources.

This second task is one that is often overlooked. Again, we spend our time identifying and planning for heating or cooling centers, which is certainly appropriate, but few plans recognize the need for one-on-one outreach and address the need for mobilizing additional outreach workers. As a corollary to this, one of the points that Klineberg notes is that jurisdictions fail to plan for the additional mobilization of medical transport assets or to prepare emergency room personnel to recognize the symptoms of extreme temperature medical issues.

Identifying the Crisis

Many of the extreme temperature event plans that I have reviewed are what I call “all or nothing” plans. Essentially, the event serves as an on/off switch for the plan elements. However, while we can define the broad parameters of an extreme temperature event, there are sufficient unknowns that we cannot plan for every possibility. What we need is not an on/off switch but a rheostat. We need to assess the event and decide which plan elements need to be implemented.

Extreme temperature event plans have traditionally used weather forecasts as the basis for implementing plan elements. However, temperature alone, while a significant indicator, is not a sufficient measure of risk. For example, a single day of extreme hot temperatures does not mean a crisis. However, successive days with of moderately high temperatures with no night time cooling might. Similar, seasonally normal cold temperatures occurring during a shortage of heating oil could pose a significant risk to vulnerable populations.

Our plans, therefore, should provide for the identification and monitoring of risk factors. They should also identify who makes the call to implement the plan. This is not as simple as it sounds. There is usually no single agency that monitors all potential risk indicators all the time. Further, agencies differ in perspective as to what constitutes a crisis. In practice, you might find the need to take a team approach, with various agencies monitoring different indicators and the team convening via conference call or web meeting to review indicators and make a recommendation to the decision making authority.

An important part of this recommendation is the determination of what plan elements will actually be needed. This is where the Emergency Management Principle of Flexibility comes into play – not all plan elements are needed all the time. Resources must match risk.

Operational Flow

Most extreme temperature event plans recognize three main phases:

- Seasonal awareness – This is usually characterized by increased monitoring of appropriate indicators and the provision of a general safety and messages through the mass media and through normal social welfare visits.
- Preparedness – This will normally begin when risk indicators suggest that an extreme temperature event is likely to occur. This phase is characterized by a ramping up of resources that might be needed to respond to an event. For example, you may convene a task force or activate an emergency operations center at a low level, develop schedules for increased staffing, identify potential cooling or warming centers, etc.
- Response – During this phase, an extreme temperature event is occurring and resources are deployed and managed as we would for any event.

This is a fairly good approach. However, the devil, as always, is in the details. As I noted earlier, the key to a successful plan is to understand that an extreme temperature emergency is a social problem, not a response problem. Therefore, the three phases must specifically and deliberately target those

populations most vulnerable to extreme temperatures.

Understand that I am not advocating focusing exclusively on at risk populations. Extreme temperatures certainly have an impact on the population at large. For example, in June Russia had over 1200 drowning deaths attributed to hot temperatures and drinking (McLaughlin, 2010). However, my experience is that we do not specifically target our outreach efforts to those who most need it.

A good example of this is our seasonal safety messages. We generally rely on pamphlets and mass media public service announcements. However, we do not always provide tools to social workers or outreach workers or provide any in-service training for them to pass on to their clients.

During preparedness, we're good at identifying potential cooling and warming sites and preparing press releases. However, we don't always plan for increasing the number of available medical transport resources or for increasing the number of outreach contacts by extending shifts, recalling personnel, or cancelling leaves.

In responding to an extreme temperature emergency, we tend to apply resources for those things we do well, i.e. public warning and the establishment of fixed facilities. Since, as emergency managers, we seldom work at the micro-level of one-on-one contact, we don't always consider this tool.

Improving Your Plan

So how do we establish an effective plan for extreme temperature emergencies?

1. Understand the true nature of the problem. Recall that the impact of an event is factor not only of the magnitude (i.e. temperature) but also of the vulnerability of the population affected. A good place to start is the Excessive Heat Events Guidebook published by the Environmental Protection Agency.
2. Understand the unique factors of your community. Urban communities can magnify the effects of high temperatures by serving as heat sinks. Rural communities may be more affected by cold temperatures because of isolation and the impact on agriculture. What specific vulnerabilities are posed by your community's physical infrastructure and cultural values?
3. Include social services agencies on your planning team
4. Identify and plan for monitoring appropriate risk indicators. Determine who will decide when those indicators indicate a crisis is imminent or occurring.
5. Plan for a flexible response.
6. Plan for increased outreach to vulnerable populations
7. Plan for additional outreach staff and transportation assets

Extreme temperature events are foreseeable and an effective plan for dealing with them can be developed. The key is to focus on the real problem associated with them: social vulnerability.

Works Cited

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