

VANCOUVER

Protecting vulnerable populations
during extreme heat events

By Peter Berry

Source: Adobe Stock Photo

THE SCIENCE

Extreme heat events can affect the health of all Canadians, but certain populations are at higher risk. People who are more vulnerable include: older adults, infants and young children, people with chronic illnesses or who are physically impaired, socially disadvantaged individuals, transient populations, certain occupational groups, and the physically active.

Although the homeless population is not usually discussed as a separate group in the literature, a number of risk factors that increase susceptibility to heat-related illness and death are found to be more common in individuals who are homeless. Such factors include cognitive impairment, higher rates of chronic diseases, and non-adherence to therapy to reduce illness, for example for conditions such as diabetes, high cholesterol, and hypertension. Due to increased exposure, people who live in shelters and out of doors are at higher risk of suffering from heat-health conditions during extreme heat events. They often reside in inner urban areas which tend to be subject to hotter conditions due to the urban heat island effect. Many of these people have limited access to air conditioning, transportation to local shelters, and options for hydration.

To be effective in reducing risks, public health interventions must address the specific constraints and barriers faced by each population group when devising strategies to protect health. For example, while directing seniors or people with low incomes in high-rise buildings to community cooling centres to get respite from the heat may seem a reasonable solution, it may not reduce risks to seniors with limited or no mobility. Further, it does not address the challenges faced by people with little money in their efforts to get to the centres.

THE TRIGGER

Many communities across Canada are expected to experience an increase in the length, frequency, and/or intensity of warm spells or extreme heat events. In Vancouver, the average annual temperature is expected to increase by 1.7°C by the 2050s and 2.7°C by the 2080s. Similarly, by the 2050s an extreme heat event that occurred once every 25 years in the past is expected to occur over three times as frequently (City of Vancouver Climate Adaptation Strategy, 2012). Extreme heat currently poses significant risks to health for some populations in British Columbia. In 2009, an extreme heat event in the lower mainland area of the province contributed to 156 deaths. One study suggests that heat-related mortality in Vancouver is predicted to increase to 1.72/100,000 (an increase of 325%) from the baseline of 0.53/100,000 for the period between 2013 and 2050.

THE APPROACH

In September 2009, Vancouver City Council approved a motion that “staff undertake a review of existing extreme weather emergency services offered by the city and



Figure 6: Four types of response activities identified by the City of Vancouver
(Source: ICLR)

make recommendations on the services that would further reduce the risk for street homeless and other vulnerable populations, such as homebound senior citizens, in the event of extreme heat events." This led to the development of the city's Extreme Heat Initial Response Guideline. The Initial Response Guideline highlights functions that the city's business units and key external partners agree to undertake in response to extreme heat event emergencies. This plan was developed by staff from various city departments and was led initially by the Community Services Department. The city's Office of Emergency Management, a key participant from the start, took over in Phase II of the planning process, continuing management of extreme heat responses.

Other key external partners supporting the city's extreme heat response are the Environment and Climate Change Canada's Regional Warning Preparedness Meteorologist, the Metro Vancouver Air Quality Division and Vancouver Coastal Health (the latter also supported the development of the city's plan).

THE OUTCOME

During the initial development of the plan, there was a heavy focus on researching best practices and lessons learned from other municipalities. Following this research phase, the city's Extreme Heat Planning Committee then focused on developing

response priorities, working with partners such as Vancouver Coastal Health and experts from Health Canada, who provided support and shared experiences about best practices on heat mitigation. Four types of response activities, all focusing on vulnerable populations, were identified by the Committee (see Figure 6).

Increasing access to drinking water includes actions such as the pre-positioning of water fountains prior to the beginning of summer; deploying additional portable fountains based on risk assessment outcomes and advising staff at Park Board facilities to open up kitchens so that clients can fill water bottles. Opening cooling centres implies actions like posting “Cooling Centre” signage and posters at community centres and libraries when Special Weather Statements or Heat Warnings have been issued or are impending and extending hours of operation for cooling centres based on risk assessments. Monitoring of outdoor spaces for at-risk populations involves actions such as driving by parks and commercial areas to advise vulnerable populations about the location of nearby water fountains and increasing park patrols by Park Rangers to locate and assist people suffering from heat-related illness. Finally, public outreach and information relates to activities like advising the public of heat alerts and warnings by using various tools (such as media releases, social media, 3-1-1 contact centre, etc.) to inform them of available resources to reduce the health effects of heat and encouraging residents to look out for each other and obtain assistance for people exhibiting signs of heat related illness.

A WORD FROM VANCOUVER

When asked what kind of advice she would give to other communities that would like to develop a similar tool, Hersi Hibak, Emergency Planning Coordinator for the City of Vancouver, indicated that “the City’s Climate Adaptation Strategy (2012) recommends that a study be done to map heat islands and vulnerable populations in the city. This information will help identify areas that are most at risk and will allow the City of Vancouver to focus its mitigation efforts (e.g. planting trees and locating drinking fountains) in areas where they are most needed.” The city is looking at creating extreme heat-related map layers to be accessible from its web-based Geographic Information System (VanMap) as an important resource for the Extreme Heat Planning Committee during extreme heat response operations. The Committee will continue to implement actions identified in the Climate Change Adaptation Strategy, such as developing cooling centres within identified hot spots, and exploring options for transporting those in need to these cooling centres during heat events.