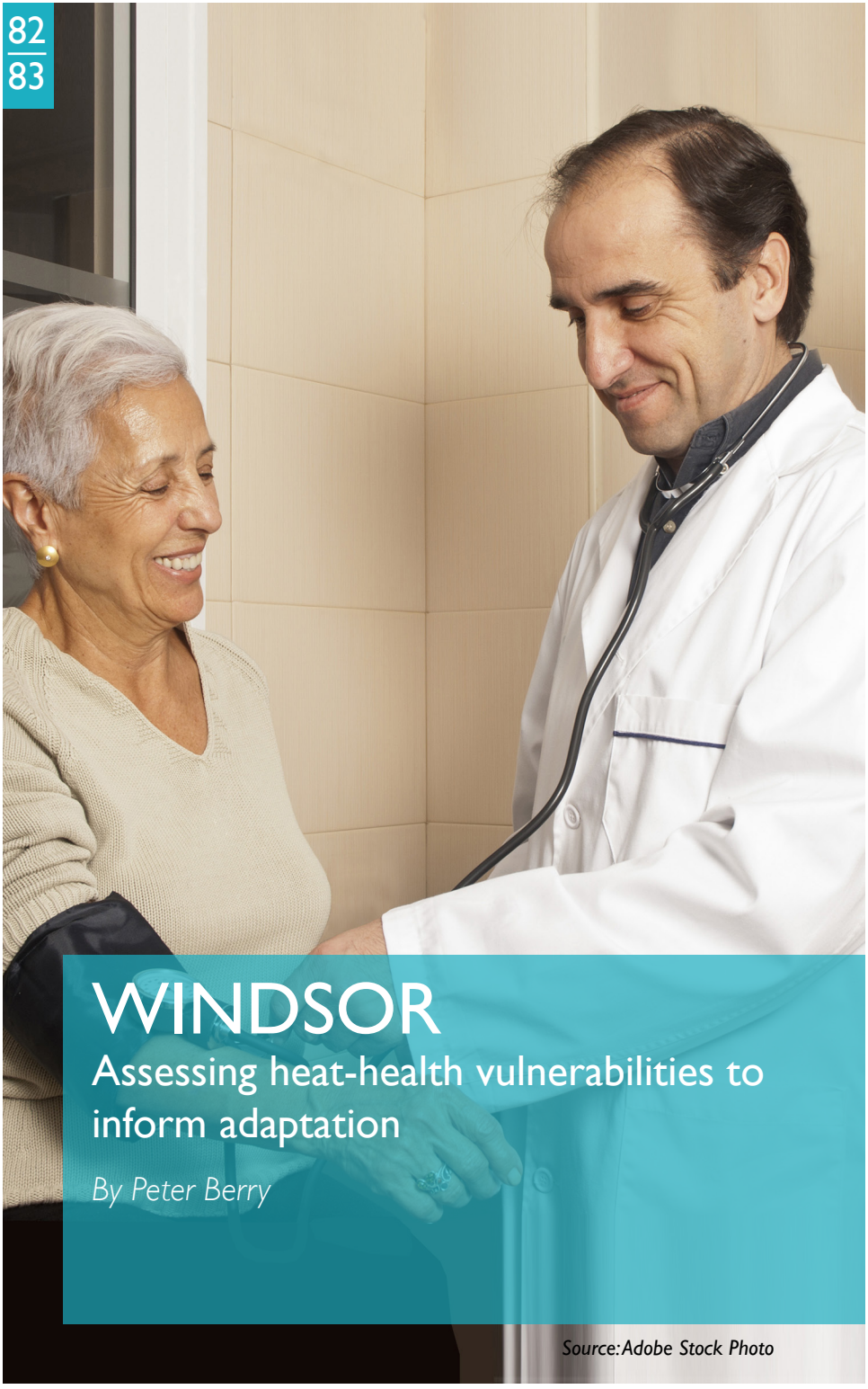

WINDSOR

Assessing heat-health vulnerabilities to inform adaptation

By Peter Berry

Source: Adobe Stock Photo

THE SCIENCE

Extreme heat events are a growing threat to the health of Canadians as the climate continues to change. Windsor is the southernmost city in Canada and experiences some of the warmest summertime temperatures in the country. During summer months, temperatures are often above 30°C and average humidex values are the highest in Canada. Climate change is expected to significantly increase the number of extreme heat days annually in the region. This may exacerbate the risk of heat-related illness and deaths, particularly among seniors, people with chronic illnesses and other vulnerable groups.

Extreme heat can cause serious illness and even death if people do not take protective measures in hot conditions. It can lead to skin rashes, cramps, dehydration, syncope (fainting), exhaustion and heat stroke. In Windsor, there is a strong association between excess mortality and temperature; at approximately 29°C, excess mortality begins to increase as ambient temperatures increase.

THE TRIGGER

The City of Windsor and the Windsor-Essex County Health Unit led development of a Heat Alert and Response System to protect people in Windsor, particularly the most vulnerable, from extreme heat events. Development of effective community alert and response measures depends upon assessment of population and community vulnerability. Heat-health vulnerability assessments document baseline exposures and take into account population sensitivities as well as how individuals, communities, and society respond to extreme heat events and their capacity to adapt in the future. They provide decision makers and the public with knowledge about existing vulnerabilities to these events and to future climate change conditions, along with the range of responses needed to reduce adverse health impacts.

THE APPROACH

The City of Windsor and Health Canada collaborated to undertake a heat-health vulnerability assessment to strengthen the Heat Alert and Response System as well as to engage important stakeholders. The methodology for the assessment was drawn from a framework developed by the Pan-American Health Organization and the World Health Organization for assessing health vulnerabilities related to climate change. The vulnerability assessment proceeded in five steps: (1) an initial assessment of the scope, objectives, work plan and stakeholders involved; (2) the collection and analysis of data, including an examination of the relationship between temperature and mortality; (3) the projection of future climate for the Windsor region; (4) a literature review to provide background information about the impacts of heat on health, vulnerability assessment methods and best adaptation practices; and (5) workshops to consult with stakeholders and the community about existing vulnerabilities, adaptive capacity and potential adaptation actions. The vulnerability assessment provided information that allowed city officials to develop more effective adaptation interventions.

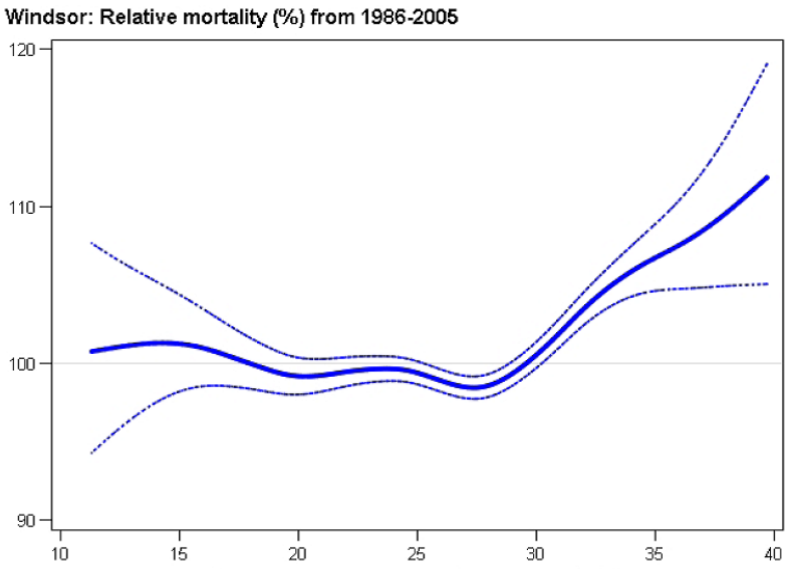

Figure 21: *Association between non-traumatic daily deaths and maximum daily temperatures in Windsor from 1986 to 2005 (Source: City of Windsor)*

THE OUTCOME

The final report, *Assessment of Vulnerability to the Health Impacts of Extreme Heat in the City of Windsor* (2011), found that people living in Windsor are vulnerable to the health impacts of extreme heat events and actions are needed to prepare for increasing risks to health. Examples of key heat-health vulnerability factors included the following:

- Urban heat islands have been documented along the Toronto–Windsor corridor and in the Detroit–Windsor region. Continued urbanization of this region will result in an amplification of community exposure to extreme heat events.

- Relative to Canadian and Ontario populations, people living in Windsor suffer more from a range of chronic diseases (high blood pressure, asthma, diabetes, obesity, circulatory disease, cancer) that increase vulnerability to the health impacts of extreme heat events.

- Community events in Windsor during the summer season, which often attract large numbers of tourists from across the United States border, mean the potential exposure of very large numbers of people to extreme heat events.

- Of the 4,728 community housing units that the city and county manage, the vast majority of these do not have air conditioning, increasing the vulnerability of residents to heat-related illnesses and deaths. A lack of other cooling facilities, such as water fountains in public spaces, may also increase health risks during extreme heat events.

- Current awareness and knowledge of risks to health from extreme heat events and about protective measures among public and social service agencies is low and needs to be increased.

Based on the assessment findings, the City of Windsor is taking a number of actions to increase the resiliency of populations to extreme heat events, including development of a broad communication strategy with an extended reach through a social media campaign, completion of urban heat island mapping to assess urban heat island reduction measures, and improvement of the thermal design of city parks (including consideration of both natural and artificial shade, water features, and consideration of cool surfaces).

A WORD FROM WINDSOR

When asked what kind of advice he would give to other communities that may have interest in conducting similar assessments, Dr. Gary M. Kirk, Medical Officer of Health and CEO for the Windsor-Essex County Health Unit, indicated that "by completing the heat-health vulnerabilities assessment, the health unit has been able to develop a comprehensive communication plan with specific tools to target vulnerable populations and reach out to community partners to assist in heat-health education. Our municipal partner, the City of Windsor, has also been able to use the information to develop their Climate Change Adaptation Plan, which identifies actions that should be taken to reduce the impacts of extreme heat on local residents."