

Older People: Canaries in the Coal-Mine for Health Effects of Climate Change

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Human activity has caused approximately 1.0°C of global warming above pre-industrial levels to date, and is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate¹. Among the risks are increased frequency and duration of heatwaves in many countries, including Ireland, as well as flooding and major storms. As climate change poses significant implications for health, there is an urgent need for a more pro-active and coordinated response by the Irish health services.

As the largest key sentinel group to suffer from extreme heat, older people are the “canaries in the coal-mine” of climate change. This vulnerability arises from the physiological and pathological changes with ageing such as reduced homeostatic reserve, loss of thirst sensation, social isolation and presence of chronic disease and frailty². The unprecedented three week heatwave in Northern France in August 2003 resulted in over 14,000 excess deaths, predominantly among women over the age of 75³. They are also disproportionately affected in climate change phenomena such as major flooding and storms as exemplified by Hurricane Katrina in New Orleans⁴. The strategies employed at an individual, community and national level to safeguard this cohort will benefit other vulnerable groups such as children and the homeless.

Although the Faculty of Public Health of the Royal College of Physicians in Ireland and Public Health Medicine Environment and Health Group of public health doctors in the HSE have published position papers on climate change⁵, to date Ireland has no specific Heatwave Response Plan akin to the Heatwave Plan for England updated annually since 2004⁶. Better late than never, a public consultation was launched in July 2019 by the Irish Department of Health on the impact climate change will have on the health sector with a view to developing the first five-year plan adapting the health sector to minimise the impact of climate change.

A broad range of actions will be required: a large enterprise such as the Irish health service needs to follow the example of the UK NHS by reducing carbon use⁷: a start has been made with a HSE National Sustainability Office and policy for 2017-2019. Health advocacy is required to contribute to overall national policy on climate change at a range of levels including housing, transport and infrastructure⁵. As well as domestic dwellings, a specific concern in the physical

environment for older people is the consideration of cooling strategies for hospitals and nursing homes keep them in the safe temperature range of 18-23 degrees. Imaginative strategies are required for retrofitting climate control to a large number of often older buildings without undue reliance on energy-hungry air-conditioning.

At a clinical and public health level a Heatwave Action Plan is a central fulcrum, anticipating changes required before, during and after periods of severe heat. These include improving the public's appreciation of the health risks during extreme heat; developing a response plan for heat waves; improving reported morbidities and mortalities during the heat waves; and improving community responses to heat waves⁸.

Five essential criteria have been identified to create an effective health heat response plan: (i) identify a lead agency and other participating agencies and ensure that their plans are revised annually before each hot season; (ii) identify criteria for activation/deactivation of the heat response plan based on city/area-specific ambient temperature, relative humidity, extreme day and night temperature highs, and deviations from local normal values; (iii) develop a communication plan and public education tools; (iv) define high-risk populations and how to provide outreach to them (e.g., daily well-person checks of the older people by public health services, radio/TV/newspapers/Internet messages about heat health hazards, and provision of transportation for vulnerable older people to air-conditioned centres, which can be organized in community centers, schools, and libraries - even a few hours per day in a climate-controlled environment has been shown to reduce heat-related morbidity and mortality); and (v) evaluation and revision at post heat event meetings, including analyses of morbidity and mortality data⁹.

The plan needs to specify preparations that both individuals and organizations can make to reduce health risks and include specific measures to protect at-risk groups. The plan must provide good practice and advice on how to respond and what to do once severe hot weather has been forecast. It also explains the responsibilities at national and local level for alerting and protecting people once a heatwave has been forecast, and for advising them how to respond and what to do during a heatwave.

There are some parallels with healthcare needs projections from existing HSE Winter Plans: for example, heat-illness consultations doubled in the UK during the 2013 heatwave compared to a non-heatwave year. A significant difference from winter cold snaps is that the increase in mortality associated with heatwaves occurs rapidly – within one to two days of the temperature rising. With this in mind, the window of opportunity for effective intervention is brief, therefore advanced planning and preparedness is key.

Adaptation to increased temperatures for older people will pose some specific challenges and opportunities. Promoting increased hydration is a critical factor for a group particularly prone to dehydration², and this will entail not only targeted public education but also ensuring ready access to, and supply of, fluids. Review of medication regimes will also need to be considered in terms of both selection and dosage to take account of the altered metabolism and renal function in anticipation of heatwaves.

The use of new technologies may also assist in monitoring temperature for those particularly at risk. Systems currently being developed using integrating smart sensor technology, location tracking technology, and information communication technology, such as global system for mobile communication (GSM) based environmental sensors, smart bracelet, and smart phone application, to protect the wellbeing of construction workers who have to work in hot and humid conditions¹⁰ might be adapted for older people at risk in domestic and institutional environments.

Developing effective strategies for older people and climate change will benefit not only other vulnerable groups but also the population as a whole and future generations.

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