Algorithm identifies vulnerable people during natural disasters

February 2 2018

A new algorithm developed at the University of Waterloo will help first responders and home care providers better help the elderly during natural disasters.

According to the World Health Organization, older adults who live at home face disproportionally high fatality rates during natural disasters as evidenced by Hurricane Katrina where 71 per cent of the deaths resulting from that disaster involved people over 60 years of age.

"Frailty combined with social isolation can mean that older adults still living at home have nowhere to turn during emergencies," said John Hirdes, a researcher in the Faculty of Applied Health Sciences at the University of Waterloo. "With a growing proportion of elderly persons choosing to reside in their own homes, it's a very real concern. Home care services need to have mechanisms in place to manage the needs of their most vulnerable clients during disasters."

Hirdes is also the senior Canadian researcher for interRAI, an international network of researchers committed to improving care and quality of life for vulnerable populations.

The algorithm uses data from interRAI's home care assessment to generate an up-to-date list of vulnerable adults using home care services. It takes into account disability, health status, social isolation and the amount of support an individual may receive from informal caregivers.

Eight provinces/territories, including Ontario, already mandate the use of the interRAI assessment for long-stay home care clients. Home care clients are assessed every six months to one year to determine their health status and service needs.

"Older adults living on their own are more difficult to locate and assist than those living in healthcare facilities," said Sandy Van Solm, the Emergency Management Coordinator at the Region of Waterloo who developed the algorithm as part of her PhD at Waterloo. "This algorithm helps us to plan for disasters in advance and allows responders to quickly generate an accurate list of those who may need help during a disaster."

Hirdes and Van Solm are working with the Canadian Institute for Health Information to deploy the algorithm into interRAI home care software used across Canada beginning in 2018.

"It has the potential to save hundreds of lives," said Hirdes. "It's a tool that should be top of mind for any part of the country at risk of natural disasters."

By 2036, seniors aged 65 years and older could represent a quarter of the total Canadian population, and one sixth of the global population.

Details of the algorithm appear in the *Journal of Emergency Management*.

Provided by University of Waterloo