



## IHPI BRIEF

# After the storm:

## The health impacts of weather and climate-related disasters on older adults in the U.S.



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The frequency and severity of weather and climate-related disasters continues to rise in the U.S., affecting the resilience of communities and the health of their most vulnerable residents, including older adults. Disasters can disrupt access to health care services and community support, worsen existing health conditions, and contribute to new health concerns. Because chronic disease, frailty, memory impairment and limited mobility become more common with age, older adults are particularly vulnerable to the effects of disasters.



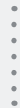
### Defining Disaster:

*A sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources. Though often caused by nature, disasters can have human origins.<sup>4</sup>*

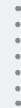
### Older adults in the U.S.



The number of adults age 65+ is expected to **nearly double by 2060**, to an estimated 95 million.<sup>1</sup>



**85%** have at least one chronic condition.<sup>2</sup>



**90%** take at least one prescription medication.<sup>3</sup>

## Takeaways from our research

A University of Michigan team is studying the effects of weather and climate-related disasters on older adults in the U.S.



### Emergency planning

Many older adults have not taken steps recommended by disaster preparedness agencies to prepare for disasters.<sup>5\*</sup>

**53%** believed that they will experience a disaster or other emergency in the next year.

**29%** had a stocked emergency kit that follows recommended guidelines.

**25%** of those who use essential medical equipment that requires electricity (9% of respondents) had an alternative power source.

**44%** were signed up for an emergency alert warning system in their communities, and 33% were unsure if their communities had a system.

\*The National Poll on Healthy Aging conducted a survey of adults age 50-80 years old in May 2019.



### Disruptions in health care

Access to essential health care services for older adults—such as primary care, home health services, and treatments for chronic disease—becomes even more important after a disaster, yet disruptions in care occur.



In a study of home health agencies affected by Hurricane Harvey in Texas, 76% reported a disruption in services, despite 99% of agencies reporting that they had emergency preparedness plans in place. Nearly half of the disruptions lasted one week or longer.



### Long-term health outcomes

Older adults may experience lasting negative health effects after disasters. Changes in daily routines and limited access to community services and health care may contribute.



Older adults are hospitalized in larger numbers not just immediately, but also in the weeks following large-scale disasters.



Living through a disaster has been linked to changes in healthy living, such as weight gain and decreased physical activity, among older adults.



Breast cancer patients who lived through Hurricane Katrina in 2005 had a significantly higher death rate than similar patients not exposed to the storm, in the 10 years following the disaster.

# What does this mean for health policy and practice discussions?

## Emergency preparedness

- At-risk older adults—those who are socially isolated or live with disabilities, for example—can benefit from emergency preparedness planning that is tailored to their specific needs.
- Discussing emergency preparedness with older adults during routine health care visits, especially in advance of hurricane or wildfire seasons, can support them in taking steps to be prepared.
- Communication to older adults about disasters and emergencies should be targeted to their preferences for receiving information. For example, our findings suggest that older adults tend to get information about emergencies from TV, rather than the internet.

## Preparing for increased health care needs and service disruptions

- Health care systems should plan for the increased needs of older adults in the weeks and months after a disaster, particularly those with chronic conditions or disabilities.
  - Our research indicates that hospital surge planning could be critical for up to a month after a disaster. Current standards call for immediate availability of 20% of staffed beds within four hours of a declared disaster,<sup>6</sup> but planning for increased admissions for a longer period is necessary.

- Since 2017, the Centers for Medicare and Medicaid Services has required that participating providers have an emergency preparedness plan in place.<sup>7</sup> Yet, our research finds that disruptions in services persist. The effectiveness of these plans should be regularly evaluated to determine how they have been deployed and to assess their impact and remaining gaps in health care system disaster response.
- Home health agencies can work to minimize disruptions in services; key challenges include addressing issues with staffing and following clients who have evacuated or relocated after a disaster.

## Supporting communities in promoting healthy aging

- Establishing, or enhancing existing, partnerships between community agencies, health care systems, faith-based organizations and local public safety agencies can strengthen community ties in advance of an emergency.
- Older adults and the community agencies that serve them can participate in local emergency preparedness activities, such as free or low-cost drills, simulations, or courses on preparedness.
- Local aging organizations should work with emergency response professionals to develop programming to increase awareness about preparing for emergencies.

## Our published research

**Supporting the Health of Older Adults Before, During and After Disasters.** Bell SA, Kullgren JT, Solway E, Malani P. *Health Affairs Blog*. 2019 Nov. doi:10.1377/hblog20191126.373930.

**The Effect of Exposure to Disaster on Cancer Survival.** Bell SA, Banerjee M, Griggs JJ, Iwashyna TJ, Davis MA. *J Gen Intern Med*. 2019 Oct 28. PMID: 31659658. doi:10.1007/s11606-019-05465-x.

**Health Outcomes After Disaster for Older Adults with Chronic Disease: A Systematic Review.** Bell SA, Horowitz J, Iwashyna TJ. 2019 Sept 7. doi:10.1093/geront/gnz123.

**National Poll on Healthy Aging: Emergency Planning Among Older Adults.** Bell SA, Singer D, Solway E, Kirch M, Kullgren J, Malani P. 2019 Sept. <http://hdl.handle.net/2027.42/150655>.

**Home Health Service Provision After Hurricane Harvey.** Bell SA, Horowitz J, Iwashyna TJ. *Disaster Med Public Health Prep*. 2019 Jun 20. PMID: 31218986. doi:10.1017/dmp.2019.27.

**Health Risk Behaviors After Disaster Exposure Among Older Adults.** Bell SA, Choi H, Langa KM, Iwashyna TJ. *Prehos Disaster Med*. 2019;34(1):95-97. PMID: 30642407. doi:10.1017/S1049023X18001231.

**All-Cause Hospital Admissions Among Older Adults After a Natural Disaster.** Bell SA, Abir M, Choi H, Cooke C, Iwashyna TJ. *Ann Emerg Med*. 2018 Jun;71(6):746-754.e2. PMID: 28789804. doi:10.1016/j.annemergmed.2017.06.042.

## Additional references

<sup>1</sup> **2018 Profile of Older Americans.** Administration for Community Living (2018). [acl.gov/aging-and-disability-in-america/data-and-research/profile-older-americans](https://acl.gov/aging-and-disability-in-america/data-and-research/profile-older-americans). Accessed January 20, 2020.

<sup>2</sup> **Talking with Your Older Patient: Supporting Older Patients with Chronic Conditions.** National Institute on Aging (2017). [www.nia.nih.gov/health/supporting-older-patients-chronic-conditions](https://www.nia.nih.gov/health/supporting-older-patients-chronic-conditions). Accessed January 20, 2020.

<sup>3</sup> **Trends in Prescription Drug Use Among Adults in the United States from 1999-2012.** Kantor ED, Rehm CD, Haas JS, Chan AT, Giovannucci EL. *JAMA*. 2015;314(17):1818-1830. PMID: 26529160. doi:10.1001/jama.2015.13766.

<sup>4</sup> **What is a disaster?** International Federation of Red Cross and Red Crescent Societies. [www.ifrc.org/en/what-we-do/disaster-management/about-disasters/what-is-a-disaster](https://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/what-is-a-disaster). Accessed January 7, 2020.

<sup>5</sup> **Seniors.** Office of Homeland Security (2019). [www.ready.gov/seniors](https://www.ready.gov/seniors). Accessed January 20, 2020.

<sup>6</sup> **Public Health Emergency: Immediate Bed Availability.** U.S. Department of Health & Human Services, Office of the Assistant Secretary for Preparedness and Response (2014). [www.phe.gov/Preparedness/planning/sharper/Pages/lba.aspx](https://www.phe.gov/Preparedness/planning/sharper/Pages/lba.aspx). Accessed January 3, 2020.

<sup>7</sup> **Emergency Preparedness Rule.** Centers for Medicare & Medicaid Services (2019). [www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertEmergPrep/Emergency-Prep-Rule](https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertEmergPrep/Emergency-Prep-Rule). Accessed January 15, 2020.

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