



Critical healthcare for older adults post Hurricane Ian in Florida, United States

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Abstract

We highlight critical public healthcare inadequacies for older adult populations resulting in fatalities after Hurricane Ian. We summarize whether a fatality was a result of the storm directly, indirectly, or not at all. Massive destruction from Ian eliminated critical life-sustaining health care for the week following the hurricane. This disproportionately affected the older adult population, with most elder deaths attributed to a lack of some form of health care. To prevent further unnecessary deaths following a disaster event, we recommend that public health policy practitioners, medical practitioners, and state officials consider how to provide managed opt-in emergency care services, mobile elderly care until restoration of power and services, and revisions to community-based critical care provider building codes to include generators and fuel. We offer this viewpoint to generate discussion among public health and emergency planners.

Keywords Public health policy · Hurricane · Elder care · Natural disaster · Hurricane Ian · Mortality

Key messages

- Older adult populations have special needs and need special resources during a natural disaster.
- Most fatalities following Hurricane Ian related to the storm indirectly and almost exclusively affected older adult victims.
- Community cooperation, mobile dialysis, and information sharing need improvement to prevent post-disaster fatalities.

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Introduction

We highlight our experience to stimulate a policy debate about the urgent need for an appropriate public response to improve critical health care for the aging and older adult population following a disastrous natural event. LCB is a Florida state-wide disaster medicolegal death investigator. Hurricane Ian, classified as a strong Category 4 hurricane, made landfall in the United States (U.S.) on 28 September 2022, at Cayo Costa, a barrier island near Fort Myers, Florida. The US National Oceanic and Atmospheric Administration (NOAA) issued the first bulletin to place Southwest Florida on alert on Monday, 26 September 2022 at 2:00 AM EST, 2 days before impact on Florida's coast [1]. Ian packed sustained winds of 155 miles per hour, just shy of a Category 5 hurricane on the Saffir-Simpson Scale [2]. Atlantic hurricane recording began in 1949, and over the ensuing 73 years, Ian was the 5th most powerful hurricane ever recorded to make landfall in the U.S. [3]. In addition to damaging winds and accompanying tornados, Ian delivered a storm surge of 12–18 feet [3]. The damage caused by this storm topped \$8.4 billion [4]. People in the region and meteorologists know that hurricanes in the State of Florida are natural disasters that bring tremendous rain, flooding, powerful damaging winds, catastrophic storm surges, and wide-scale power outages. Hurricanes and other disastrous natural events draw attention to recovery efforts for individuals and communities [5]. Effects often include loss of life, property, and negative effects on health. Communities may suffer from prolonged flooding, shortages of food or water, or both, along with lapses in power that may persist for weeks, blocked roadways, delayed business re-openings, and limited critical healthcare. Those most impacted by hurricanes are often marginalized populations [6]. Marginalized populations typically are those that lack personal or community resources or opportunities and are often represented by Black, Brown, poor, or adults over 65 years old. Often, older adults require specialized care that may not be available following a disaster.

In this viewpoint, we share our experience as responding emergency personnel in the case of the first author and assessing the sociological impacts in the case of the second author. Together, we offer recommendations to the public policy community. Our experience is based on the participation of one of us (LCB) in the Florida Emergency Mortuary Operational Response Service (FEMORS) and in the Florida Emergency Support Function (ESF) deployed after Hurricane Ian to help other responders to locate, identify, and recover hurricane decedents. His observations while conducting postmortem medicolegal death investigations at the Charlotte County Medical Examiner's Office, along with visits to other locations within the disaster-affected area, provide context for our recommendations, which include potential healthcare policy changes or implementation in anticipation of a disaster event. While we discuss the spectrum of fatalities, indirectly related storm deaths are the greatest concern, and of those, the majority were due to a lack of critical health care access for the older adult population following the hurricane. We identify the challenges to the older adult population, chiefly fatalities attributed to limited or absent community-based critical health care availability, with recommendations, both operational and sociological, for future disaster planning.



Background

Florida is a peninsular state known for tourist attractions, fair weather, no state income tax, and relatively affordable housing [7]. Thus, many people of retirement age choose to relocate to Florida. In 1992 alone, the state's population grew by more than 60% [8]. Along the western peninsula and throughout the panhandle, the relatively warm and shallow Gulf of Mexico offers spectacular beaches and coast lines (see Fig. 1a; The inset depicts the trajectory of Hurricane Ian (the yellow line) from Cayo Costa inland. The red line is the detour area due to I-75 flooding. The orange balloon is the location of the medical examiner's office. Created using Google Earth). The Atlantic Ocean borders the eastern side of the state. The southernmost area, the Florida Keys, sits between the two bodies of water. Much of the older adult population in Florida lives in or retires to Central and South Florida. In 2022, the Associated Press published Florida growth projection estimates of 25 million residents by 2032 [9]. As of 2019, 4.5 million adults over the age of 65 lived in Florida and the older adult population of Southwest Florida, or the Fort Myers/Naples area, is roughly 27.4% of Florida's total population [10, 11].

Hurricane disasters

Hurricanes affect southern coastal locations in the United States and elsewhere. The U.S. National Oceanic and Atmospheric Administration (NOAA) and the U.S. National Hurricane Center maintain records of all Atlantic hurricanes from the 1940s onward [12]. On 24 August 1992, Hurricane Andrew made landfall in the Southeastern part of Florida with wind speeds of 166 miles per hour. It was the costliest storm from 1992 until 2005 when Hurricane Katrina destroyed the Louisiana coast and the City of New Orleans. In lives lost, Katrina took 1,833 and Andrew took 44 [13]. Also, in 2005, Hurricane Wilma made landfall in Southwest Florida as a strong Category 3 hurricane [14].

In August of the preceding year, 2004, Hurricane Charley arrived near Cayo Costa, Florida, the same impact area of Hurricane Ian in 2022. Charley, a Category 4 storm on the Saffir-Simpson Scale, had sustained winds near 150 mph and a surge of 6–7 feet on Sanibel Island and Estero Island (Fort Myers Beach) [15]. The U.S. National Oceanic and Atmospheric Administration (NOAA) estimated that Charley caused \$14 billion in damage and other economic losses such as lost business revenue or personal income, lost lives, illness, and health care inadequacies following the storm [15]. Five major named storms impacted Florida in 2004, one of which (Hurricane Ivan) circled out to the Atlantic and hit a second time, effectively bringing the number of major storm's impacts that year to six [16]. In 2018, Hurricane Michael landed in Florida as a Category 5 hurricane [17]. We have included an infographic depicting all 459 named storms originating in the Atlantic Basin, Caribbean Sea, and the Gulf of Mexico from 1992 (the year of Hurricane Andrew) up through 2022 and their tracks [18] (see Fig. 1b).



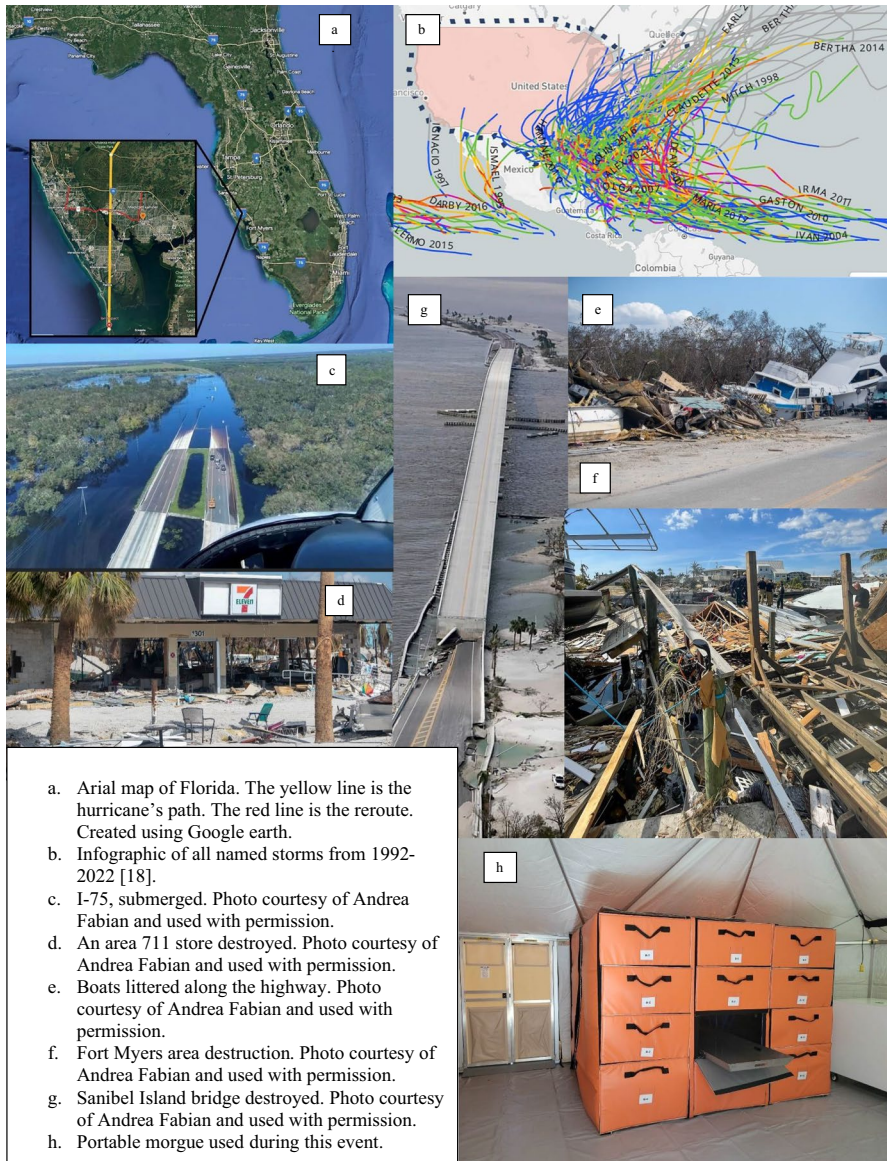


Fig. 1 **a** Aerial map of Florida. The yellow line is the hurricane's path. The red line is the reroute. Created using Google earth. **b** Infographic of all named storms from 1992 to 2022 [18]. **c** I-75, submerged. Photo courtesy of Andrea Fabian and used with permission. **d** An area 711 store destroyed. Photo courtesy of Andrea Fabian and used with permission. **e** Boats littered along the highway. Photo courtesy of Andrea Fabian and used with permission. **f** Fort Myers area destruction. Photo courtesy of Andrea Fabian and used with permission. **g** Sanibel Island bridge destroyed. Photo courtesy of Andrea Fabian and used with permission. **h** Portable morgue used during this event

Marginalized populations and Hurricane disasters

The needs of marginalized populations reached the forefront of debate in the United States after the devastation caused by Hurricane Katrina in New Orleans, Louisiana in 2005 and the events at the Superdome. Marginalized populations, which includes the aging population, populations of color (Black, Brown, et al.), and people living in poverty, remained vulnerable after Katrina [8] and media coverage drew attention to the needs of these populations during and after a hurricane disaster. Some individuals who failed to cooperate with local, state, and federal orders to evacuate increased their risk of mortality and morbidity [19] by not evacuating when told to do so. Often, those who elect to not evacuate do so because they do not have resources to leave, which may include a lack of personal transportation, nowhere to go, or do not have the money to leave. The aging, poor, and Black populations usually suffer more than others [6]. The population most effected by a lack of government response during and after a hurricane disaster is the older adult population [20].

Other recent hurricane events caused high fatality rates among the older adult population, both during the storm and from lack of services following it [21]. Hurricanes have far-reaching impacts on all people, but devastation afflicts the older adult population, especially those already suffering from poor health and financial insecurity [22–24]. For instance, the aging population was nearly 12% of the overall Louisiana population in 2005, yet they accounted for roughly 75% of the estimated 1800 people who died during Hurricane Katrina [6], and more than half of the 117 who succumbed to Hurricane Sandy that impacted New York and the upper Eastern seaboard of the United States in 2012 [24].

Research shows that older adults are vulnerable to both direct and indirect impacts of hurricanes [25]. Direct economic and life losses compound their stresses, and indirect health effects of hurricanes continue to challenge the older adult population over time [25]. Of the more than 130 deaths related to Hurricane Ian, at least 54 (42%) of the victims died by drowning [26]. Sixty one of the victims (47%) were at least 60 years old, 18 (14%) in their 80s, and 5 (0.03%) in their 90s [26]. Of those older adults who died from Hurricane Ian, less than 25% perished for lack of power to run their oxygen machines [27]. Reports suggest that many of those who died would still be alive had they been able to evacuate [27]. Of those who remained and who did not die as a direct result of the hurricane, roughly 50% died as a result of limited critical healthcare.

Resources for marginalized populations

Public health actors should understand how marginalized populations can evacuate and prepare for hurricanes and assure strategic planning to meet health needs, especially for those groups. The State of Florida's Department of Health already has a special needs registry [28], a passive online portal that is reliant upon older adults to self-report their needs to local emergency operation centers;



but the registry does not guarantee assistance [29]. Because it is a web-portal, it requires the user to have a computer, an internet connection, sufficient computer skills, and the cognitive ability to use the registry. Many older people lack those skills or do not have a computer [30–33]. This special needs self-reporting system is only as accurate as those who contribute to it; thus, it falls short in providing actual resources to those in need. Unfortunately, it is a unilateral communication medium through which the Florida Department of Health shares information with emergency operations centers, but no one links communication among those centers, the users, the state, or medical providers. Thus, communication is woefully inadequate to protect the older adult population.

Hurricane Ian

Hurricane Ian caused many casualties. The hardest hit populations were located in the coastal communities of Lee County and Charlotte County, Florida, which share the western coast on the Gulf of Mexico. The collapse of bridges to Sanibel Island hindered emergency efforts there and for Pine Island, both in Lee County. The hurricane caused submersion of the major north–south corridor on the west coast, Route U.S I-75 (see Fig. 1c). Authorities re-routed all traffic through the Venice and North Port communities just north of the most affected area, using a business corridor (Route U.S. 41; see the red path in Fig. 1). Most traffic lights failed, and law enforcement officers worked at intersections to control traffic. This extended travel time considerably (for example, once deployed, LCB drove for nearly 12 h to reach the disaster area instead of the usual four hours.)

Law enforcement and emergency personnel responded from neighboring Southeastern U.S. states, along with linemen from all over the country. Few succeeded in find gasoline (beyond emergency responders with credentials authorized by the governor or surgeon general as members of the ESF response). Businesses were destroyed, closed, or shuttered (see Fig. 1d). Flooding or obstruction rendered roads impassable, and boats littered roadways, and nearby areas (see Fig. 1e). Fort Myers Beach, part of Estero Island in Lee County, was perhaps the hardest hit (see Fig. 1f). Ian ravaged and destroyed businesses and homes there and in the surrounding area. Area bridge collapses isolated other popular residential locations such as Sanibel Island and Pine Island from services (see Fig. 1g). Searches focused more on recovery than rescue. Teams with the Florida Emergency Mortuary Operational Response Service and the Florida Emergency Support Function (Health and Medical), and National Army or Air Guard, or both, assisted localities to locate, identify, and recover hurricane decedents. Lee County suffered the greatest number of deaths, followed by Charlotte County. From the Charlotte County Medical Examiner's Office, LCB observed that most of the dead processed were White, and middle-aged or elderly. Only one decedent was a person of color. Two decedents were juveniles, with the rest older.



Fatalities

There were three storm-related categories among fatalities: those directly related, indirectly related, and not related to the storm.

Directly related storm deaths

Categorization as a directly related storm death meant a mechanism of the storm itself was a principle cause of the fatality, such as someone drowning in storm surge. In some areas, the storm surge was higher than the roof of a house. For example, some individuals who sought refuge in an attic were trapped there and drowned. Drowning was the most common cause of death in this category. Witnesses accounts shared similarities: during the height of the storm, winds, or currents swept away decedents concerned about private property (such as a car or some personal belonging in a garage,) as they left the safety of their homes. Responders discovered these deceased after the waters subsided, often lodged under a vehicle or caught on a fence or other structure.

Indirectly related storm deaths

Most victims were older adults and often died for lack of critical life-support resources: kidney dialysis, oxygen, or air-conditioned environments. Florida contains both 524 end-stage renal treatment centers offering dialysis services—and a medically underserved population of 25% [34]. Because the storm caused massive power outages and structural damage to businesses and medical offices, critical life support for those dependent upon them were absent or in short supply. Patients dependent on dialysis expired within days of the storm's impact, as did those reliant upon oxygen at home. This is a topic about which we wish to stimulate discussion among public health policy planners.

Deaths unrelated to the storm

We saw post-storm drownings among those kayaking or swimming, and a few suicides. One could argue that the suicides could be attributed, in some psychological fashion, to the storm, but that is speculation on our part. The Medical Examiner's office investigates death cases and usually takes jurisdiction of 'unattended deaths' (deaths for which there were no physician involved or familiar with the deceased and conditions that may cause the death, or where the death was not expected, or where something suspicious about the death indicates a pathological review). Accidental deaths, such as those by drowning, generally fall under the jurisdiction of a Medical Examiner, as would a suicide or homicide. Additionally, the Florida Emergency Mortuary Operational Response Service and the Florida Emergency Support Function deployed a portable morgue, in tandem with the Air National Guard's portable morgues, with joint capacity for 56 decedents. Diesel generators powered the portable morgues (see Fig. 1h) to store decedents for as long as necessary. Because of the wide power outage, the Florida Emergency Mortuary Operational Response Service



assumed courtesy storage for local funeral homes, maintaining the dignified storage of the deceased until utility providers restored power to funeral homes for final disposition of the decedents. Among the dead brought in by funeral homes for storage, there were no persons of color and all but one appeared to be elderly.

Recommendations

Based on our experience with Hurricane Ian, we believe it will be prudent for public health policy planners to consider, as a part of disaster response, a focus on the pressing medical needs of vulnerable populations such as people of color and the older adult population. Two significant elements that influence those preparing for a hurricane are the extent of hurricane exposure over the preceding decade and the need for cooperation from others [35]. Cooperation is the single most important aspect for the older adult population [35]. The most used sources for early disaster warnings for the elderly are television and the radio [35], not the internet. We are concerned that most people may assume cooperation will be handled by family and friends, but Florida's coastal communities are heavily populated by aging retirees who moved south, leaving their families behind. Thus, public health planners must prepare for and ensure community cooperation to offer life saving strategies to the older adult population.

Those needing dialysis comprised the majority of indirectly related storm fatalities. Loss of power for 6 days and wide-spread destruction meant death for dialysis-reliant patients, most of whom could tolerate only 2 days without dialysis. Ambulance services functioned but could not keep up with the need. For many, there had been no way to call for them. Hospitals remained open, except one that suffered such structural damage that it diverted patients to other facilities.

With a sense of urgency, we offer several recommendations:

1. *Post-disaster mobile dialysis* Incorporate post-disaster mobile dialysis as a critical element of emergency public health planning and response. Florida's Special Needs Registry should immediately incorporate dialysis dependency as a critical aspect of community care. How to do so may vary by local rules and provisions. Public health policy makers might mandate emergency operations centers to work with primary care providers or outpatient ambulatory clinics to identify critical community-based patients and their needs before a storm is noted as a threat. Mobile dialysis is not a new concept, and there are providers of such services. In Florida, the state surgeon general or the Department of Health might be appropriate providers of mobile dialysis as part of the state emergency response network.
2. *Generators and fuel for critical life-support facilities* Equip critical life providers, including dialysis centers, with power generators. Use powers under a 'state of emergency' to provide fuel for generators with the same authorizations as those afforded to other responders. After Hurricane Ian, the Emergency Support Function, a division of Florida's Emergency Management Office coordinated fuel delivery to the Medical Examiner's office to maintain our mobile morgue operations. The first author visited several dialysis centers once power was restored as



part of the ongoing medicolegal investigations (to obtain physical patient records due to the downed communication lines) and witnessed that the dialysis centers he visited appeared structurally sound. They were unable to provide services due to lack of power. It may be prudent to revise state building codes to require critical care facilities to have a generator capable of supporting the facility during extended power outages.

3. *Enrollment for special needs services* Shift responsibility in Florida from the patient to the health care provider for enrollment in a special needs service. Other jurisdictions in the U.S. or elsewhere also need registries or some system to catalog those with special needs of this sort. Such systems should also provide alerts to patients. Addition of interactive capacity would benefit patients unable to leave home without aid. Enrollment through a standard informed consent where the patient consents to sharing health care information with emergency authorities would suffice, along with an option for someone to opt out. When a disaster does occur, health care providers and emergency authorities can use a triage approach to prioritize at-risk patients for outreach, contact, and treatment.

Conclusions

The storm's death toll was most severe for the White older adult population in the affected communities. Indirectly related storm deaths outnumbered directly related storm deaths and non-related storm deaths. Most indirectly related storm deaths occurred among patients who required outpatient care, such as dialysis. Some of these deaths occurred within a few days of the power outages. Public health policy practitioners, medical practitioners, and state officials need to consider a provider managed opt-in emergency care service, mobile older adult care until power and services are restored, and revisions to critical care provider building codes to include generators. We offer this Viewpoint to generate discussion among public health and emergency planners as a step towards addressing needs of a very vulnerable population within our communities—even when everything else is offline.

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Data Availability Data used in this Viewpoint are publically accessible and maintained by the Department of Health, Bureau of Vital Statistics.

Declarations

Conflict of interest The authors declare no conflict of interests. The views expressed in this article are those of the authors and do not necessarily reflect the official policy of any organization named or unnamed.

References

1. NOAA. Tropical Storm Ian. https://www.nhc.noaa.gov/archive/2022/al09/al092022_public_a.012.shtml? (2022). Accessed 26 Oct 2022.



2. NOAA. Saffir-Simpson hurricane wind scale. <https://www.nhc.noaa.gov/aboutsshws.php>. (2021). Accessed 26 Oct 2022.
3. NOAA. Hurricane Ian's path of destruction. <https://www.nesdis.noaa.gov/news/hurricane-ians-path-of-destruction>. (2022). Accessed 26 Oct 2022.
4. News Service Florida. Ian death toll in Florida increases to 130 as insured losses top \$8.4B. <https://www.fox35orlando.com/news/ian-death-toll-in-florida-increases-to-130-as-insured-losses-top-8-4b>. (2022). Accessed 3 Nov 2022.
5. Cagney KA, Sterrett D, Benz J, Tompson T. Social resources and community resilience in the wake of Superstorm Sandy. *PLoS ONE*. 2016. <https://doi.org/10.1371/journal.pone.0160824>.
6. Becquart NA, Naumova EN, Singh G, Chui KKH. Cardiovascular disease hospitalizations in Louisiana Parishes' elderly before, during and after Hurricane Katrina. *Int J Environ Res Public Health*. 2019. <https://doi.org/10.3390/ijerph16010074>.
7. Cox E. Sunshine State scramble: why is everyone moving to Florida? <https://www.realtor.com/news/trends/why-is-everyone-moving-to-florida/> (2022). Accessed 3 Nov 2022.
8. Ivanova I. Floridians recover from Ian, most homeowners in the state do so without flood insurance. <https://www.cbsnews.com/news/hurricane-ian-flood-insurance-fema/>. (2022). Accessed 26 Oct 2022.
9. Associated Press. Forecast: Florida is still growing, but pace of growth to slow in future... <https://www.mynews13.com/fl/orlando/news/2022/07/27/forecast--florida-is-still-growing-but-faces-future-slowdown>. (2022). Accessed 26 Oct 2022.
10. Florida Office of Economic and Demographic Research (EDR). Demographic estimating conference executive summary. <http://edr.state.fl.us/content/conferences/population/index.cfm>. (2022). Accessed 26 Oct 2022.
11. U.S. Census. Select maps on the population 65 and older in the United States by county: 2013–2017. U.S. Census. https://www.census.gov/library/visualizations/time-series/demo/nia_county_maps.html. (2019). Accessed 26 Oct 2022.
12. National Hurricane Center. National Hurricane Center snapshots from 1949 to present day. https://www.nhc.noaa.gov/pdf/NHC_Snapshots_1949_to_present_day.pdf (2021). Accessed 16 Aug 2023.
13. Florida International University's Extreme Events Institute. Andrew vs Katrina. https://eei.fiu.edu/case_study/andrew-vs-katrina/ (2016). Accessed 26 Oct 2022.
14. National Weather Service. Hurricane Wilma <https://www.weather.gov/mfl/wilma> (2005). Accessed 26 Oct 2022.
15. NOAA. Service assessment Hurricane Charley, Aug 9–15 2004. <https://www.weather.gov/media/publications/assessments/Charley06.pdf> (2005). Accessed 26 Oct 2022.
16. Florida Health. Florida hurricane season 2004. https://www.floridahealth.gov/environmental-health/climate-and-health/_documents/2004-hurricane-season-factsheet.pdf (2014). Accessed 26 Oct 2022.
17. National Hurricane Center. Tropical cyclone report Hurricane Michael. https://www.nhc.noaa.gov/data/tcr/AL142018_Michael.pdf (2019). Accessed 26 Oct 2022.
18. NOAA. Historical hurricane tracks. <https://coast.noaa.gov/hurricanes/#map=2/35.7/-72.16> (2023). Accessed 16 Aug 2023.
19. Elder K, Xirasagar S, Miller N, Bowen SA, Glover S, Piper C. African Americans' decisions not to evacuate New Orleans before Hurricane Katrina: a qualitative study. *Am J Public Health*. 2007. <https://doi.org/10.2105/AJPH.2006.100867>.
20. Blake ES, Landsea CW, Gibney ES. The deadliest, costliest, and most intense United States tropical cyclones from 1851 to 2010 (and other frequently requested hurricane facts); Technical Memorandum NWS NHC-6; National Oceanic and Atmospheric Administration: Silver Spring, MD, 2011;1–47.
21. McCann DGC. A review of hurricane disaster planning for the elderly. *World Med Health Policy*. 2011. <https://doi.org/10.2202/1948-4682.1144>.
22. Adams V, Kaufman SR, Van Hattum T, Moody S. Aging disaster: mortality, vulnerability, and long-term recovery among Katrina survivors. *Med Anthropol*. 2011. <https://doi.org/10.1080/01459740.2011.560777>.
23. Krishnan S, Pappadis MR, Graham JE. Experiences and needs of older adults following Hurricane Ike: a pilot study of long-term consequences. *Health Promot Pract*. 2019. <https://doi.org/10.1177/1524839918761385>.



24. Carr D. Why hurricanes are deadly for older people. <https://blog.oup.com/2019/09/why-hurricanes-are-deadly-for-older-people/#:~:text=The%20physical%20wear%2Dand%2Dtear,life%2Dsustaining%20treatments%20like%20oxygen.> (2019). Accessed 26 Oct 2022.
25. Waddell SL, Jayaweera DT, Mirsaeidi M, Beier JC, Kumar N. Perspectives on the health effects of hurricanes: a review and challenges. *Int J Environ Res Public Health*. 2021. <https://doi.org/10.3390/ijerph18052756>.
26. Smith M, Robles F, Fawcett E, Sasani A. Many of Hurricane Ian's victims were older adults who drowned. <https://www.nytimes.com/2022/10/07/us/hurricane-ian-victims-drowned.html> (2022). Accessed 26 Oct 2022.
27. O'Donnell C. Hurricane Ian was lethal for elderly those with chronic health conditions. <https://www.tampabay.com/hurricane/2022/10/21/hurricane-ians-lethal-elderly-those-with-chronic-health-conditions/> (2022). Accessed 26 Oct 2022.
28. Florida Division of Emergency Management. Special needs registry. <https://www.floridadisaster.org/snr/> (2022). Accessed 26 Oct 2022.
29. Florida Special Needs Registry. Welcome. <https://snr.flhealthresponse.com/> (2023). Accessed 20 Jan 2023.
30. Bashshur RL, Doarn CR, Frenk JM, Kvedar JC, Shannon GW, Woolliscroft JO. Beyond the COVID pandemic, telemedicine, and health care. *Telemed J E Health*. 2020. <https://doi.org/10.1089/tmj.2020.0328>.
31. Hirko K, Kerver J, Ford S, Szafranski C, Beckett J, Kitchen C, Wendling AL. Telehealth in response to the COVID-19 pandemic: implications for rural health disparities. *J Am Med Inform Assoc*. 2020. <https://doi.org/10.1093/jamia/ocaa156>.
32. Kruse C, Karem P, Shifflett K, Vegi L, Ravi K, Brooks M. Evaluating barriers to adopting telemedicine worldwide: a systematic review. *J Telemed Telecare*. 2018. <https://doi.org/10.1177/1357633X16674087>.
33. Lama Y, Davidoff AJ, Vanderpool RC, Jensen RE. Telehealth availability and use of related technologies among Medicare-enrolled cancer survivors: cross-sectional findings from the onset of the COVID-19 pandemic. *J Med Internet Res*. 2022. <https://doi.org/10.2196/34616>.
34. Florida Department of Elder Affairs. 2021 profile of older Floridians. <https://elderaffairs.org/wp-content/uploads/Florida-Profile-2021.pdf>. (2021). Accessed 26 Oct 2022.
35. Kleier JO, Krause D, Ogilby T. Hurricane preparedness among elderly residents in South Florida. *Public Health Nurs*. 2018. <https://doi.org/10.1111/phn.12344>.

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