



E45 Characterizing Deaths Related to Hurricane Michael Using Vital Statistics Data

Samuel P. Prahlow, MPH*, Florida Department of Health, Tallahassee, FL 32399; Heather Rubino, PhD, Florida Department of Health, Tallahassee, FL 32399; David Atrubin, MPH, Florida Department of Health, Tallahassee, FL 32399; Allison Culpepper, BS, Florida Department of Health, Tallahassee, FL 32399

Learning Overview: After attending this presentation, attendees will: (1) understand the process utilized by the Florida Department of Health (FDOH), Bureau of Epidemiology, to identify potential cases of death due to a natural disaster, such as a hurricane; and (2) recognize ways in which the partnership between public health and the death investigation community can be strengthened.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing an example of collaborative interaction between the medical examiner system and death data in public health information systems, such as syndromic surveillance systems.

In October 2018, Hurricane Michael was the first Category 5 storm to make landfall in the contiguous United States since 1992.¹ This storm quickly developed and struck the panhandle of Florida. The storm resulted in 40 deaths in Florida, with a variety of manners of death and causes of death. These deaths were reported in the media for longer than three months post-storm.²

The FDOH is responsible for surveillance of events of public health significance. FDOH utilizes the Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE-FL) to monitor for events of public health significance and maintain situational awareness. ESSENCE-FL contains data from eight information sources. Data from Emergency Department (ED)/Urgent Care visits (UC), poison control calls, and death records are used in post-storm surveillance. ESSENCE-FL is one of the most robust syndromic surveillance systems in the country. These data are utilized for a number of public health program areas.

Before, during, and after Hurricane Michael, ESSENCE-FL data were leveraged daily to monitor visits at EDs, UCs, and Disaster Medical Assistance Team (DMAT) clinics. Post-storm electronic media reports of deaths attributed to the storm were tracked using Google® Alerts, which were monitored immediately post-storm through mid-March 2019 by FDOH to understand the health impacts of the storm. Death record data were utilized to review media-reported deaths related to Hurricane Michael as reported by the office of the medical examiner.

The media reported 40 deaths related to the storm; 8 were unable to be identified in the death record data. The decedents ranged in age from 24 to 94 years, with a median age of 66 years. Eight decedents were female and 32 were male. Thirty-four were white, and 6 were African American. Education level was reported as less than high school for 6 cases, high school or equivalent for 17 cases, some college or associate degree for 9 cases, bachelor's degree for 6 cases, 1 case had a master's degree, and 1 case's education status was unknown. Most decedents were Florida residents, but four decedents were residents of other states. The Manners Of Death (MODs) for these reported deaths were accident (19), natural (17), suicide (2), and homicide (2). Autopsies were performed on 23 of the 40 cases.

There was a higher incidence of deaths (58%) in those who had lower education levels (i.e., high school or less). Those with lower levels of education typically have a lower income, which impacts their ability to prepare or evacuate for a coming storm.³ This suggests an opportunity to improve public health messaging and support for those with a lower education status. In addition to providing some of the details of the deaths, this report will highlight areas of intersection between public health data and medical examiner/death investigation information.

This event illustrates the importance of collaboration and coordination between medical examiners/death investigators and public health practitioners. Increased collaboration in the future via electronic record data sharing would improve the timeliness of reporting death data of significance. This will result in decreased delays in public health interventions immediately following a disaster. Syndromic surveillance systems like ESSENCE-FL are able to facilitate near real-time data sharing and allow better access to records for other public health use purposes, such as opioid overdose fatalities and injury prevention.

Reference(s):

1. National Oceanic and Atmospheric Administration. *Hurricane Michael upgraded to a category 5 at time of U.S. landfall*.
2. www.noaa.gov/media-release/hurricane-michael-upgraded-to-category-5-at-time-of-us-landfall.
3. Burlew, J. Authorities release more names of the dead from Hurricane Michael. *Tallahassee Democrat*. 2018 Dec 4. www.tallahassee.com/story/news/2018/12/04/authorities-release-more-names-dead-hurricane-michael/2196902002/.
4. Yang J., Qiu M. The impact of education on income inequality and intergenerational mobility. *China Economic Review*. 2016;37:110-35. doi:10.1016/j.chieco.2015.12.009.

Disaster, Death, Surveillance