

Elderly Populations in Disasters: Recounting Evacuation Processes from Two Skilled-Care Facilities in Central Florida, August 2004

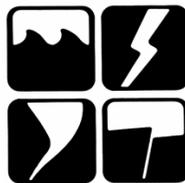
By

**Michelle Kuba
Alina Dorian
Sarah Kuljian
Kimberley Shoaf**

UCLA Center for Public Health and Disasters

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The views expressed in the report are those of the authors and not necessarily those of the Natural Hazards Center or the University of Colorado.

Introduction

Research suggests that “vulnerable populations” may be at significant risk of illness and injury in natural and human-generated disasters. As the population ages, medically fragile populations increase and present unique challenges to the community during disaster events. Older adults are at higher risk of adverse health effects from disaster events than are other populations. Impacts on the elderly population could vary by the type of hazard, the magnitude of the event, and its direct effect on their lives. Phifer et al. (1988) showed that floods in a community impacted the subsequent health of elderly citizens in the area and that the effects were related to the intensity of the flood. The impact of indirect effects of a disaster, such as evacuations, on this population has not been determined.

Evacuations may prove to be equally as stressful and disruptive to the daily activities of older adults as the disaster itself. They are of particular concern for residents of long-term care facilities who are often immobile and require medical equipment, medications, and nursing care. There is a belief in the medical community that evacuations of nursing facilities increase mortality significantly in the year following the evacuation; however, there has been no research to document this phenomenon.

Saliba et al. (2004) examined the role of nursing homes in disasters and found that while they did not receive much public assistance, nursing homes were able to support one another in an informal manner during disasters. In order to formalize these relationships, the authors encouraged the inclusion of nursing homes in community-wide disaster plans. The logistics of how to best protect the nursing home population during disasters must be understood in order to incorporate these facilities effectively into a community-wide plan.

The purpose of this research was to identify current evacuation procedures for the nursing home population and document the baseline status of facilities and the procedures utilized in evacuations. This analysis should illuminate the current status of evacuation procedures, highlight possible improvements, examine the potential for long-term health impacts of evacuation, and provide baseline data for future follow-up studies.

Methods

The evacuations that occurred in mid-August 2004 preceding and following Hurricane Charley in Florida provided an opportunity to begin the examination of nursing facility evacuations. Hurricane Charley struck the western and central part of Florida on Friday, August 13, 2004. Thirty-one fatalities occurred as a result of the hurricane and over two million people throughout the state were advised to evacuate their homes for shelter in safer locations. Eight counties along the western coast had mandatory evacuations ordered by local officials in certain areas. The magnitude of this natural disaster and the extensive preparations that occurred prior to the hurricane provided an opportunity for investigation into nursing facilities’ evacuation processes.

Nursing homes located in hard-hit counties and counties that had mandatory evacuations were found via the government’s Medicare Web site. They were contacted by UCLA Center for Public Health and Disasters (center) staff prior to the researchers’ arrival in Florida on August 31. Two long-term care facilities agreed to participate in the study. One facility was located in Charlotte County, the county hardest hit by Hurricane Charley. The other was located in Pinellas

County, an area that was not affected by the hurricane, but that had mandatory evacuations due to anticipation that the hurricane would strike there.

Interviews were conducted with facility employees across a variety of functions. Four versions of the questionnaire were available for administrators, staff members, first responders (defined here as external assistance for transportation), and residents of the nursing homes.

The first facility (facility A) was a nursing facility that housed both long-term and short-term residents. The evacuation of this facility occurred prior to the hurricane because of predictions that the hurricane was directed toward their area. An administrator, staff members, and residents were interviewed at this location. Personnel from a sister nursing facility that provided assistance with transportation were interviewed at another location two days prior to the interviews at facility A.

The second facility (facility B) was the rehabilitation wing of a hospital. They had primarily elderly patients and evacuated after the hurricane struck because of damage to the building. An administrator and staff members were interviewed at this facility by center staff. Three researchers conducted interviews individually with staff members. Because of damage to the building, patients had not been allowed back into the facility at the time the interviews took place; therefore, no patients were interviewed. Also at this time, first responders from emergency medical services were deeply involved with preparations for the next hurricane, Hurricane Frances, and were not easily located or available, so no first responders were interviewed.

Each interview lasted 20 to 30 minutes. Researchers filled out questionnaires and recorded the interviews to ensure that accurate records were kept. Questions for the administrator, staff, and first responders pertained to the interviewees' roles and personal experiences during the evacuation, detailed information on the process that took place, their overall impressions, and their preparation for such an event. Questions for the residents concerned their personal experiences, their preparation for the evacuation, their impressions of the steps that were taken during the evacuation, and their overall impressions.

Results

A total of 22 interviews were conducted: three administrators, ten staff, three first responders, and six residents. There were broad differences between the two facilities (see Table 1).

Evacuation Process

Facility A

Facility A evacuated prior to the hurricane because it was located in the projected path of Hurricane Charley. The decision to evacuate was made by the regional director in conjunction with other area directors in the network after it was determined that the home was in a mandatory evacuation zone. It was determined that all residents would go to another facility within the network, which was approximately 16 miles away. Staff members notified residents that they should prepare clothing for two to three days and pack any other necessary personal belongings in labeled plastic bags. Nurses, who were in charge of specific halls in the home, then gathered the necessary medications and medical records for their residents. The entire evacuation process took approximately six to seven hours to complete.

Housing staff gathered linens and collected 120 mattresses, packed them into a truck owned by the home, and were the first to go to the new facility. When they arrived, they unloaded the mattresses, disinfected each one, set them up in a large recreation room that had been provided for them, and made the beds. At the same time, residents were being evacuated. Residents who required acute care were evacuated first via small buses. The remaining residents were evacuated in groups based on residence halls. Medical charts and carts with medications were loaded onto the same buses as the residents. Each bus carried one cart of medications and all of the medical records for the group of residents that were being transported in that bus. This was done with the help of staff from other facilities in the network who had come with their own vans to assist with the transport of the residents. Staff of the evacuating facility alerted families by phone as to the whereabouts of the residents.

When they arrived at the shelter, residents were placed either in spare rooms or in a large recreation room that was set up with mattresses on the floor. The residents spent two nights in the shelter facility, with meals, activities, and sleep all taking place in the same large room. Residents reported that they felt all of their needs were met, and that their personal schedules were not greatly disrupted by the change in locale. Because a majority of the staff accompanied them to the new facility, they felt that they were safe and in familiar hands. The greatest discomfort reported was the placement of the mattresses on the floor, which was uncomfortable for the elderly residents. Hurricane Charley's path changed direction and did not strike facility A's neighborhood. When it was time to return home, the mattresses were again taken back first. Residents reported that they were surprised to come home to find their own beds already made and their rooms returned to their normal conditions.

Facility B

Facility B was located in the county that was hardest hit by Hurricane Charley. The decision to evacuate the facility was made by the local emergency operations center and chief executive officer of the hospital due to significant storm damage to the building. Members of a rehabilitation unit of the hospital that housed elderly patients were selected for interviews. When the decision was made to evacuate, nurses on the floor quickly met to discharge as many patients as possible. Of the 18 patients on the floor at that time, 8 were discharged. The remaining 10 were evacuated from the building. Unlike facility A, there was no predesignated shelter in the evacuation plan. Because this facility was a short-term acute care facility, the patients had special needs that prohibited the evacuation of all patients to the same place. Instead, patients were evacuated to surrounding hospitals as beds with adequate levels of care were found for them. Floors of the hospital were evacuated in order of the amount of damage incurred by each floor. The rehabilitation unit was the last floor to evacuate. The evacuation process for the rehabilitation unit took approximately one and a half days to complete.

In order to keep track of medical records, the staff created a system of writing medical record numbers on pieces of masking tape and placing the tape on the gowns of the patients. Copies of their medical records were sent with the individuals in the ambulances. Personal belongings were bagged and labeled and sent with them as well. Medications were given to the patients until the time of their departure. Medications were not sent with them since they were going directly to other hospitals that should have been able to provide the appropriate medications. Transport of patients was done through county emergency medical services;

ambulances from the county took patients from one hospital to another. No one from the staff at facility B accompanied the patients to the new hospitals.

Staff attempted to contact family members over the phone. They also kept a list of patients' new hospital locations so that if family members called in they could be quickly alerted as to the patient's whereabouts. At the time of the interviews, no patients had been readmitted to the hospital because of the damage to the building. Part of the floor was being used as an obstetrics ward for emergency deliveries, but all other cases were being diverted to other surrounding hospitals.

Staff members' accounts of patients' reactions to the evacuation generally emphasized that they were anxious and nervous, particularly about their own families. Because several family members were not reached by phone, patients were worried about their families' well-being as well as about locating them after they had been evacuated to the new hospital. However, they were described as being cooperative with the staff's efforts. No residents were interviewed because patients had not been readmitted to the hospital at the time of the interviews.

Assessment of Evacuations

Questions concerning the participants' understanding and impressions of the evacuation process were included in the interviews. Overall, subjects at both facilities felt that the evacuation was successful. Their knowledge of the evacuation plans and how they knew what tasks to perform during the evacuation differed (see Table 2).

Employees at both facilities expressed satisfaction with their respective evacuations. Though the circumstances surrounding the evacuations and the protocols used by the two facilities differed greatly, personnel at both facilities declared their evacuation responses successful. Areas for improvement included the need for better facilitation with external transportation agencies and better preparation for mental health patients. All interviewees agreed that their respective facilities were prepared for future disaster events.

Although both evacuation processes were considered successful by interviewed staff, different methods were utilized to complete each of them. As demonstrated in Table 3, employees knew what to do during the evacuation for different reasons. The greatest number of staff at facility A relied on supervisor orders and the disaster plan while the greater number of staff at facility B relied on job experience. The differences in how staff understood their roles point to a need for more training or preparation. Although staff may have relied on job experience because of a history with other disasters, each facility should take responsibility for ensuring that their current employees are aware of their roles during a disaster event. Although facility A was lucky enough to have good leadership in this situation, preparation on all levels is important.

All of the residents interviewed at facility A were aware of the hurricane before it hit. When asked how they first learned that the hurricane was approaching their town, all six responded that at least one source of information was the television. Later in the interview, when asked who had told them about the hurricane, the responses also included staff members. In general, residents were up-to-date because of their access to television and because of casual conversations that residents and staff had regarding the hurricane.

Overall, the impressions of the evacuation given by residents were very positive. As one resident expressed, "It was like a holiday." Surprise that their personal routines (primarily meals and medications) were not interrupted was conveyed. Another resident explained, "They gave

you the medication just like it was here. The nurses followed up just like you were in your room. They didn't miss nothing. They had everything figured out. They were very efficient.”

The residents were not aware of the evacuation plans of the facility or of what they should do in the event of a hurricane (see Table 4); however, this was not expressed as a concern by any residents. The fact that their staff accompanied them to the evacuation site provided comfort to the residents and helped to minimize the disruption of their routines. Although they did experience some discomfort because of the mattresses on the floor, the general attitude regarding the evacuation was positive. As one resident explained, “They weren't the greatest comforts in the world, but it beats the heck out of being in a hurricane.”

Discussion

The two skilled-care facility evacuations described here represent different approaches taken due to differing circumstances. One major difference in the evacuation plans was the designation of an evacuation shelter prior to the event. Facility A, being part of a network, was able to quickly identify a site that could accommodate all of the residents. However, they realized upon arriving at the new facility that while an effective evacuation plan had been implemented for their network of nursing homes, no plan existed for the receiving facility as to how to deal with the sudden increase in residents. This is an important consideration for all homes and hospitals in areas that may be impacted by evacuations.

Facility B sent its residents to various surrounding hospitals as beds with adequate care were identified. Because this plan was dependent on the needs of the short-term residents, which of the hospitals in the surrounding area remained undamaged, and the caseload of the area hospitals at the time of the evacuation, this was an unpredictable situation. However, agreements could have been made in advance with other hospitals in the area to expedite the process of locating beds. A central source in the community to coordinate the needs of the damaged hospitals with available beds is another possibility worth investigating. The need for public health to play a role in preparing such facilities for disasters is clearly indicated.

The Joint Commission on Accreditation of Healthcare Organizations identified the problem of multiple transfers as one that impacted elderly citizens in the wildfires of Southern California in 2003. They found that when older citizens were evacuated from nursing homes to hospitals, they were often transferred more than once, and that this became a stressful situation that may have led to increased mortality among those patients (Wise 2004). Follow-up was not done on the patients at facility B to determine whether they were allowed to stay at the new locations and how they fared in general.

One point that emerged at both facilities pertained to the level of understanding of a specific evacuation plan by staff and administrators. While all administrators confirmed the existence and use of an evacuation plan, staff members differed in their knowledge of the existence and use of that plan. They also relied on different sources for their knowledge of what to do during a disaster event. This could indicate the need for more formalized training. Both evacuations seemed to be driven by strong leadership of administrators. As Robin (2000) suggests, preparation on all levels is important to ensure effective response in a disaster.

Another issue that emerged was the issue of mental health. Facility B provided counseling to employees after the hurricane. This was highlighted as a gesture that made the employees feel appreciated. Mental health of both the patients and the staff are components that should be considered in the future.

The perceptions of the residents were important in determining the amount of stress caused by the evacuations. While residents interviewed at facility A seemed to understand what was happening and thought highly of the efforts of the staff, it cannot be determined whether the residents who were less coherent understood what was happening and whether they felt more or less stress than those interviewed. Because residents from facility B could not be reached, their reactions to the evacuation could not be determined. However, staff members described them as anxious and stressed by the move. Whether this experience would have subsequent impact on these residents' lives has yet to be determined.

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Table 1. Facility Summaries

	Facility A	Facility B
Number of interviews	17	5
Number of residents	120	10
Age range of residents	60–99	50–90
Term of stay of residents	Long term and short term	Short term
Timing of evacuation	Prior to hurricane	After hurricane
Context	Part of a network of nursing homes	Rehabilitation facility within an independent hospital
External assistance with transportation	Staff from other nursing homes in the same network	Emergency medical services
Destination of residents	Another home in the network	Various surrounding hospitals

Table 2. Staff Questions

		Facility A	Facility B
To your knowledge does this facility have a disaster or evacuation plan for emergencies?	Yes	(5/6) 83%	(4/4) 100%
The evacuation response was successful.	Strongly agree	(3/6) 50%	(3/3) 100%
	Agree	(3/6) 50%	(0/3) 0%
There is room for improvement in the disaster response of this facility.	Agree	(5/6) 83%	(3/3) 100%
	Disagree	(1/6) 17%	(0/3) 0%
The nursing facility is adequately prepared for a disaster event in the future.	Strongly agree	(2/6) 33%	(3/3) 100%
	Agree	(4/6) 67%	(0/3) 0%

Table 3. How Did You Know What to Do During the Evacuation?

	Facility A	Facility B
Supervisor orders	(5/6) 83%	(1/3) 33%
Intuition	(2/6) 33%	(1/3) 33%
Disaster plan	(3/6) 50%	(1/3) 33%
Previous drill	(1/6) 17%	(1/3) 33%
Previous training	(2/6) 33%	(1/3) 33%
Television	(1/6) 17%	(0/3) 0%
Job experience	(1/6) 17%	(3/3) 100%
Other	(0/6) 0%	(1/3) 33%

Table 4. Resident Questions from Facility A

	Yes	No
Someone from this facility talked to you before this recent hurricane about what to do in the event of a hurricane.	(0/6) 0%	(6/6) 100%
Someone from this facility talked to you about evacuation plans for this facility.	(1/6) 17%	(4/6) 67%