



"HE WHO IS PREPARED HAS WON HALF THE BATTLE"

# RECOMMENDATIONS FOR BEST PRACTICES

*in the Management of Elderly Disaster Victims*

BAYLOR COLLEGE OF MEDICINE ■ THE AMERICAN MEDICAL ASSOCIATION



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On August 29, 2005, Hurricane Katrina began to wreak havoc on the US Gulf Coast, emerging offshore as a horrific Category 5 hurricane before it slowed to a severe Category 3 storm when it made landfall. Hurricane Katrina caused extensive damage to parts of Mississippi, Alabama, and Louisiana the first, third, and fourth poorest states, respectively. To date, it is the costliest US storm in history, causing more than \$80 billion in damage and taking approximately 1,200 lives.

Initially, Louisiana did not experience the full brunt of the storm; however, on August 30th, levees protecting the city of New Orleans from flooding by Lake Pontchartrain and a major industrial canal broke and 80% of New Orleans flooded, rendering most of the city uninhabitable. Of the approximately 484,000 people who resided in New Orleans before the storm's landfall, 28% lived below the poverty line. New Orleans tied for the fourth poorest city in the country, according to the 2004 US Census Bureau.

In the ensuing weeks, more than 200,000 men, women, and children were evacuated from southeastern Louisiana to other parts of Louisiana, Texas, and other neighboring states. Approximately 23,000 individuals were transported by bus to the Reliant Astrodome Complex (RAC) in Houston, Texas. While the American Red Cross organized housing in the Astrodome, the Harris County Hospital District, in conjunction with Baylor College of Medicine, erected a comprehensive medical unit within hours of the first evacuees' arrival in another RAC facility. Baylor College of Medicine faculty worked with the Harris County Health Department and the Harris County Hospital District to provide leadership and physician infrastructure. Nurses, gerontological social workers, physicians from a number of disciplines, pharmacists, physical therapists, phlebotomists and other healthcare professionals were deployed to the facility to address the medical and social needs of the shelters' residents.

In the first days following their arrival, the evacuees were housed and fed, and many received the medical care they needed. Fifty-six percent of the evacuees seen in the medical unit were 65 years of age and older. Many could not walk to the bathroom or the cafeteria and many were demented and did not know where they were. Some had sensory impairments that prevented them from reading signs indicating where help was located or from hearing the public address system announcements. There were elders who were gravely ill and needed to be hospitalized or moved to a site where their medical needs could be properly addressed.

The necessity of special planning to accommodate the needs of frail elders who required health services that could not be provided on site, who could not function in an ordinary disaster shelter setting, or who could not access the

medical services in the shelter due to mental and physical impairments had been overlooked. Some of the evacuees had friends or family members who could assist them in accessing the wide range of services available in the facility or bring them to on-site medical professionals who arranged for them to be moved to a more appropriate placement such as a hospital or nursing home. Many elders, however, had no friends or family and were so debilitated they could not advocate for themselves or

access the on-site services. They languished on their cots unnoticed, usually suffering in silence as busy volunteers and staff attended to the needs of more able-bodied evacuees.

*Many elders had no friends or family and were so debilitated they could not advocate for themselves or access the on-site services.*

*They languished on their cots suffering in silence.*



Included among the healthcare workers at the RAC were gerontologists including: geriatricians, geriatric nurses, gerontological social workers, adult protective service workers, members of the Area Agency on Aging and other gerontological professionals who had expertise in addressing the complex needs of frail elders. They observed that many of the frail elderly were not receiving needed treatment and would likely die or suffer further harm unless steps were taken to get them care. These observers knew that to meet the needs of this special population a different approach to providing medical and social services in a shelter setting would be necessary.

*To meet the needs of this special population a different approach to providing medical and social services in a shelter setting was necessary.*

Consequently, several of these gerontological professionals formed a team to help the seniors who had no advocates or family with them to meet their needs. The team was named SWiFT – Seniors Without Families Triage, and its members developed a screening tool to assess the needs of the frail and to identify or triage those requiring care most rapidly (see Appendix 1, SWiFT Screening Tool®). The team addressed the needs of the frail elderly residents of the RAC until it closed, assessing and triaging hundreds of people. In the process, SWiFT members learned much about how to effectively serve frail elders in a disaster shelter setting.

No location in the United States is immune from natural disasters or terrorism, and given the rapidly increasing number of elders in this country, citizens and disaster planners must learn from the Hurricane Katrina experience. Resolution 25 from the 2005 White House Conference on Aging underscored this issue and the need for a coordinated national response. This document, our *Recommendations for Best Practices in the Management of Elderly Disaster Victims*, provides detailed information for planners, clinicians, and policy makers responsible for frail elder and vulnerable adults. It includes a literature review and annotated bibliography, observations made by members of SWiFT, the development and use of the SWiFT tool, data from the Harris County Hospital District Medical Clinic, the Medical

Examiner's Office, and the SWiFT tool as well as recommendations for future planning by experts from the American Medical Association (AMA) and BCM faculty. SWiFT members do not claim to have all the answers on the provision of care for frail elders in disaster situations and shelters, but we believe our first-hand experience, coupled with the disciplinary expertise of

our members and the expertise of AMA consultants, make this guide a valuable document for future planning for the special needs populations of the United States.

<sup>1</sup> Center on Budget and Policy Priorities. *Essential Facts About the Victims of Hurricane Katrina*, September 19, 2005. Accessed January 23, 2006, at: <http://www.cbpp.org/9-19-05pov.htm>.

<sup>2</sup> The Weather Channel, accessed January 23, 2006, <http://www.weather.com/newscenter/tropical/>

<sup>3</sup> CNN.com. *New Orleans Shelters to be Evacuated*, August 31, 2005. Accessed February 16, 2006, at: <http://www.cnn.com/2005/WEATHER/08/30/katrina/index.html>.

<sup>4</sup> US Census Bureau. 2000 US Census Profile of General Demographic Characteristics, New Orleans City, Louisiana. Accessed January 24, 2006, at <http://censtats.census.gov/data/LA/1602255000.pdf>.

<sup>5</sup> Center on Budget and Policy Priorities. *Essential Facts About the Victims of Hurricane Katrina*, September 19, 2005. Accessed January 23, 2006, at: <http://www.cbpp.org/9-19-05pov.htm>.

This report can be used by federal, state, and local government disaster planning teams to help them understand the unique problems faced by frail elder and vulnerable adult populations during Hurricane Katrina. Recommendations are proffered for consideration by these federal, state, and local teams regarding consultation with gerontologists, as well as use of tracking systems, a method for screening and triage, and ways to avoid potential harm to frail elders or vulnerable adults. Specifically, the SWiFT screening tool is recommended as a pre- and post-disaster triage tool that can be used to assess and address the needs of this special population. It is important to note that although the SWiFT tool was initially developed for community elders, its screening capabilities also extend to other vulnerable adults with disabilities and those living in nursing homes or assisted living facilities.

*Providers of geriatric medicine, social work, and nursing care* should be consulted by disaster planning teams at the federal, state and local levels because they are the professionals best prepared to advocate for the medical needs of these populations. This document is meant to empower geriatric physicians and nurses to participate in policy decisions, planning, direct care, and training of front-line disaster workers such as rescue workers, volunteers, and American Red Cross employees.

This document advises *planners, clinicians, and policy makers* of the increased need for the delivery of social services to evacuees as well as the significant need for post-disaster placement and case management. They should also be aware of the increased likelihood that frail elders and other vulnerable adults may be more susceptible to fraud and exploitation than other populations during times of crisis. Social service providers should feel empowered to participate in disaster management teams, direct care, and training of front-line workers.

This document should serve as a reminder to *policy makers* that with the changing demography in this country, the human suffering sustained by the elderly and other vulnerable adult Hurricane Katrina evacuees will be multiplied in the future. Measures must be established to ensure that gerontologists are available to serve this population in times of disaster and in the planning efforts in anticipation of natural and terrorist-induced disasters. Provisions must be made to incorporate gerontologists into teams as well as

increase the numbers of professionals needed to serve. Geriatricians and other gerontological professionals are in short supply and policies that promote increased enrollment into the various gerontological disciplinary training programs are sorely needed. Two of the top ten resolutions from the 2005 White House Conference on Aging called for increased numbers of professionals trained in gerontology. The lack of expertise in dealing with aged victims of disasters is one example of what the shortage of gerontologists has wrought.

*American citizens* interested in the care of their elderly family members should use this guide to apprise themselves of the special needs of their frail family members during disasters. A modification of the SWiFT tool could help seniors and others prepare for future disasters, by establishing a level of post disaster needs prior to the disaster.



**M**en, women, and children of all ages were evacuated from New Orleans, and among them were a large number of frail elders and persons with disabilities. It is estimated that the frail constituted more than 60% of the evacuee population. The majority of these evacuees were without families, found to be demented, or unable to function independently. Although many had evacuated prior to Hurricane Katrina's landfall, thousands remained in their homes, either refusing or unable to evacuate. One half of New Orleans' poor households did not own a vehicle; among New Orleans' elderly population, 65% were without vehicles.<sup>6</sup> When the water rose to the rooftops, many citizens drowned. Ultimately, of the approximately 1,200 people who died as a result of Hurricane Katrina, 74% were over 60 years old and 50% were over age 75.<sup>7</sup> These proportions are shockingly high, considering the elderly constituted only 11.7% of New Orleans' population.<sup>8</sup>

#### ■ PHYSICAL IMPAIRMENTS

Frail elders and other vulnerable adults have physical and cognitive characteristics that necessitate a specialized disaster response strategy. They require varying degrees of assistance with activities of daily living, such as eating, dressing, bathing, grooming and toileting. Some are incontinent of bowel and/or bladder or have chronic physical conditions that require ongoing monitoring. Their chronic diseases are often managed by complicated treatment and medication regimens.

#### ■ COGNITIVE IMPAIRMENTS

Cognitive decline may affect an elder's ability to express him or herself or process information. They may have difficulty articulating their needs and understanding problems and how to resolve them. One out of every six persons over age 65 years has dementia, which may range from mild memory loss and confusion to complete loss of orientation. Stroke victims and some elders with Parkinson's disease may also have cognitive impairment. Highly confused elders may wander, have poor impulse control, or resist medical care or assistance with personal care tasks such as bathing or toileting. In some cases, confusion in elders

results from an acute condition known as delirium, which requires immediate medical treatment. Depression may also affect an elder's memory as well as impair his or her ability to adequately respond to the challenges a disaster poses.

#### ■ NEED FOR ASSISTIVE DEVICES

Physical decline associated with aging and chronic disease may affect an elder's mobility and require the use of assistive devices such as canes, walkers or wheelchairs. Elders may also need adaptive equipment such as bath bars, benches for showering or special toilet seats. Declining vision and hearing may require use of eye glasses or hearing aids. Elders' dietary needs may differ from the general population's in terms of what is eaten and how it is served. Those with diabetes must avoid sugar, while those with hypertension may require low salt diets. Some elders will need their food chopped or pureed to ensure they can eat safely. Elders are at greater risk of dehydration and so they must have adequate fluid intake. In some cases, elders will forget or ignore their need for fluids and it will be necessary to remind them to drink fluids to avert dehydration.

Even under normal circumstances the provision of care for frail elders requires the careful coordination of medical care, assistance with activities of daily living and social support to ensure their safety. The stress of a disaster increases elders' care needs. Disaster responses must address the unique characteristics of this population and strive to replicate the community-based coordinated caregiving systems necessary for protecting their health and safety. This is accomplished in two ways: First, pre-disaster planning ensures that frail elders are evacuated with information on their medical histories, medications, needed adaptive devices, and an assessment of their ability to perform activities of daily living. A portable medical record with elders' medical histories and current medications would be particularly useful. Several types, including electronic cards, bracelets, and chips, are currently being investigated to determine which would be most practical, affordable, and effective. Second, disaster shelter planning ensures that frail elders are evacuated to shelter settings designed to accommodate their special needs.

<sup>6</sup> Center on Budget and Policy Priorities. *Essential Facts About the Victims of Hurricane Katrina*, September 19, 2005. Accessed January 23, 2006, at: <http://www.cbpp.org/9-19-05pov.htm>.

<sup>7</sup> Simerman J, Ott D, Mellnik T. Katrina affected elderly the most. *Charlotte Observer*, December 30, 2005. Accessed January 23, 2006, at: <http://www.charlotte.com/mld/charlotte/news/13513079.htm>.

<sup>8</sup> US Census Bureau, 2000 US Census Profile of General Demographic Characteristics, New Orleans City, Louisiana. Accessed January 24, 2006, at: <http://censtats.census.gov/data/LA/1602255000.pdf>.

From August 31, 2005, to September 15, 2005, the Harris County Medical Examiner's Office investigated 38 deaths of people who were evacuated from New Orleans. Of the deaths, 64% (23 of 36 cases), the decedents were over the age of 60 years. Sixteen were male and 20 female. All but four were classified as natural deaths. The others were classified as: two suicides, one accident and one homicide.

The deaths associated with Hurricane Rita, however, included more accidents. The medical examiners office identified 45 cases related to the events surrounding the hurricane evacuation. Of the deaths, in 64% (29 of 45) of cases, the decedents were over age 60. Twenty were male and 25 female. Seven of the cases were classified as accidental, with the cause being hyperthermia. Four of the decedents were over age 60 years. The majority of the deaths were classified as natural due to chronic medical problems probably exacerbated by the evacuation process.

While not all deaths are reportable to the local medical examiner, the Harris County Medical Examiner investigated many of the deaths associated with the evacuation as well as the aftermath of both hurricanes that met state statues. The Texas Code of Criminal Procedures article 49.25 outlines what type of deaths are reportable, such as: When an individual dies (1) at home unattended, (2) less than 24 hours following admission to a hospital, or (3) due to trauma. See Appendix 2, Data Table A: Harris County Deaths as a Result of Hurricanes Katrina and Rita.

This guide focuses on elders and vulnerable adults because they have more difficulty in evacuating due to physical and cognitive impairments and experience higher mortality rates than younger, more able-bodied evacuees. The numbers of persons over the age of 65 years in this country is increasing exponentially. Besides these factors, there is scant literature to guide policy makers and disaster relief teams in the planning and care of these special populations.



Approximately 35 articles have been published on the impact of both natural and technological disasters on elderly victims. Disasters in which elderly persons were studied include hurricanes, tornados, floods, earthquakes, train collisions, and plane crashes. While there is a great deal of variety in the type of study and kind of disaster, unfortunately, many of these studies yield inconsistent results.

Several researchers have found that elderly disaster victims are less susceptible to post-traumatic stress or other psychological disorders than younger victims (Bell et al, 1978; Bolin and Klenow, 1988; Huerta and Horton, 1978; Thompson et al, 1993). Melick and Logue (1985) discovered that women who had experienced flooding showed no symptoms of mental distress during the post-recovery period. This fact is surprising as women are more likely to develop mental disorders than men (Melick and Logue, 1985). Furthermore, some studies have found that, contrary to conventional logic, mass relocation of elders does not influence their psychological well being in the long term (Cohen and Poulshock 1977; Kilijanek and Drabek, 1979). In their study of Honduran survivors of Hurricane Mitch in 1998, Kohn et al (2005) found that elderly victims were at equal risk for developing post-traumatic stress disorder as younger victims. In their comparison of levels of post-traumatic stress for young, middle-aged, and elderly disaster victims, a team of researchers from the United Kingdom concluded that it was not the victims' age, but the disaster type and exposure level that caused psychological stress to victims of two technological disasters (Chung et al, 2004). Knight et al (2000) discovered that post-disaster depression levels were associated most with pre-disaster depression levels in their study of victims of the 1994 Northridge earthquake in California; the elderly respondents to their survey showed fewer symptoms of depression both before and after the earthquake.

On the other hand, several researchers found that elderly disaster victims are more inclined to experience post-disaster mental and physical distress than victims in other age groups. Friedsam (1960) discerned that older adults were more likely to be missing or dead after natural disasters because they frequently did not have access to transportation and were less likely to receive prior warning. Phifer and Norris (1989) discovered that severe flooding and sub-

sequent displacement of elders caused mild to moderate levels of distress. In his study of older adults' response to Hurricane Alicia in Galveston, Texas, Krause (1987) found that negative physical and psychophysiological symptoms associated with somatic and retarded activities decreased as time lapsed after the hurricane. In the short term, he found that women were more likely to experience such symptoms, but that they abated more quickly than when experienced by male victims. Finally, Ticehurst et al (1996) discovered that older adults, especially women, were more vulnerable to stressors following natural disasters, although they sought help less often than any other age group.

In terms of interventions for elderly disaster victims, several researchers stressed working with Area Agencies on Aging in both pre- and post-disaster planning (Bell et al, 1978; Huerta and Horton, 1978; Bolin and Klenow, 1988). Older adults, who frequently gather at community or religious centers (Anetzberger, 2002), can attend useful disaster-planning preparatory workshops or classes. At the disaster site, elderly disaster victims should be taken to "special medical needs shelters" (Clinton et al, 1995) where they can receive individualized attention from staff members who have been trained to handle their specific needs. Saltvedt et al (2002) reported that being treated in a geriatric evaluation and management unit (GEMU), a special unit specifically designed for elderly patients, severely reduced early mortality. The same logic can be applied to elderly disaster victims being treated in specialized facilities. Surge hospitals, a developing model that will allow hospitals to either expand their services at existing facilities or at nearby sites to handle increased numbers of patients in a short time, are one possible solution (Romano, 2005).

At the disaster relief site, Fernandez et al (2002) stress that programs such as Meals On Wheels can be instrumental in food distribution. Elderly disaster victims should be targeted

specifically for post-disaster counseling because of the stigma associated with seeking out mental health treatment (Anetzberger, 2002; Huerta and Horton, 1978; Chou et al, 2003). Due to their proclivity for volunteer work, previous experience, and resilience, elderly persons could even be targeted to help in relief efforts once disaster victims have been relocated to host cities (Thompson et al, 1993).

Despite the number of articles published on elderly disaster victims, few focus specifically on frail elders. Unfortunately, most researchers do not distinguish between frail and strong elderly populations, and it is important to note that impaired physical mobility, diminished sensory awareness, pre-existing health conditions, and social and economic constraints are factors that lead to increased

vulnerability in frail elderly populations (Fernandez et al, 2002). Between one-fifth and one-third of community elders have trouble walking, and it is important to understand that limited mobility can critically affect one's ability to remove him or herself from a dangerous situation (Winograd et al, 1994). Thus, researchers should use both age and level of physical impairment as indicators of which populations aid workers should target first at disaster relief sites.

The literature on older persons in disasters is incomplete, focusing on well elders or post-traumatic stress disorder. This underscores the need for a guide on frail elders and other vulnerable adults with disabilities.

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The Reliant Astrodome Complex (RAC) provided food, shelter, medical services, clothing, access to social services, and other types of assistance necessary for day-to-day functioning. These services, however, were not accessible to some frail elders due to physical or mental impairments, including the trauma that resulted from the impact of the storm and subsequent evacuation. No formal mechanism existed to ensure that frail elders were assisted with eating, bathing, toileting, or other activities of daily living. There were no formal means to ensure that they received needed medical treatments or medication, although both were available on site. Elders who could voice their needs or had advocates received assistance from Red Cross volunteers, but such assistance was random and not based on severity of need. Many frail elders in couples or alone without family could not function in the shelter and needed placement in settings that could provide for their needs, such as personal care homes or nursing facilities. Others had acute medical conditions that required hospitalization.

The shelter had no formal mechanism for tracking all the evacuees and there was no effective mapping of the facility in order to locate those who needed ongoing services or follow-up. Evacuees moved or were moved about and it was common to lose track of people who had changed cot location or left the facility. There was no tracking of frail elders and other vulnerable adults. Many dispirited frail elders simply sat on their cots, and many did not even know exactly where they were or what they were going to do next.

#### ■ SWiFT—DEVELOPMENT OF THE TEAM AND THE INSTRUMENT

A host of gerontological professionals from the Houston area volunteered at the RAC. These included nurses, social workers, geriatricians from Baylor's Geriatrics Program at the Harris County Hospital District, and protective service workers from the Texas Department of Family and Protective Services. They noted that family members and friends of frail elders and other vulnerable adult evacuees were able to advocate for older or disabled persons. However, those without family members had no advocates. Therefore, approximately eight individuals who serve the elder community in Houston met to devise ways to quickly serve these special needs populations. It was determined

that a rapid screening or triage instrument was needed to determine who needed help, how quickly, and what interventions could be provided.

A tool was devised to screen for those most in need of help by assessing the issues of cognition, medical and social services needs, and the ability to perform activities of daily living. The plan for the administration of the SWiFT tool was to pair social workers with either a doctor or nurse. Each of these pairings walked among the cots on the Astrodome floor looking for seniors who appeared to be by themselves. As noted above, every SWiFT field team included a social worker paired with a medical professional so they would be equipped to identify and act if they encountered an urgent or emergency medical problem. The purpose of choosing seniors without family members was to avoid separating families as was done with some of the evacuees who were bused from New Orleans. This also allowed the staff pairs to focus time and resources on those evacuees without any advocates.

Three SWiFT levels were assigned. SWiFT Level 1 identified those who could not perform activities of daily living, such as bathing, toileting, and remembering to take medications. These persons were to be placed immediately in a more suitable environment, such as a nursing home, person-

al care home, or assisted living facility. SWiFT Level 2 identified those with impairments in instrumental activities of daily living who could not easily access benefits or manage money. The field team social worker did what he or she could on the spot and either worked on the necessary issues in the ensuing days or referred the evacuee to one of Houston's social service agencies. Persons who were SWiFT Level 3 simply needed to be connected to family or had a problem easily remediable by Red Cross or other volunteers.

The SWiFT field teams began by walking through the shelter areas, engaging the senior in conversation. The SWiFT pairs talked to the individual or older couple, asked the questions outlined on the assessment instrument, and filled out the assessment form. During the visit, the clinician would also take the person's pulse and blood pressure. Persons with immediate medical needs were sent for treatment. After a pilot period of two hours, the SWiFT teams met again to discuss what worked and what did not. Some modifications were made and the new assessment instrument was finalized.

Once the SWiFT tool was piloted and revisions were made, the SWiFT system was put into place.

#### OPERATIONALIZING THE SWiFT SYSTEM

Members from Care for Elders (CFE) were asked to participate in the SWiFT system. CFE is an established private-public partnership of 85 local groups and more than one thousand individuals in the Houston/Harris County area dedicated to improving the care and services provided to vulnerable older adults and family caregivers in Harris County through collaborative problem-solving and strategic planning that includes consumers, providers, funding organizations, and other major stakeholders in the long-term care system. Some CFE members helped develop and pilot the SWiFT tool, while others designed the processes to help operationalize the system. Furthermore, CFE received emergency support from the Robert Wood Johnson Foundation to support a SWiFT Coordinator and purchase some emergency assistance items such as cab vouchers.

Through e-mail and telephone communication to the 85 partner agencies of CFE and 11 individuals, the SWiFT leadership invited concerned providers to a meeting to



recruit their assistance with SWiFT efforts at the Astrodome. Using the existing Web site for CFE, a section for SWiFT activities was constructed and sign-up schedules and orientation materials were posted.

Individual practitioners in social work and nursing responded and became SWiFT volunteers. Because of their prior collaborations, many volunteers were able to work together more effectively. Unfortunately, many individuals could not be released from their routine duties for long periods of time, which underscores the need for prior planning to ensure the availability of adequate personnel for rapid response. Those who were unable to come to the RAC offered assistance with resources by telephone. An important lesson learned was the value of an existing coordinated partnership with a current roster of key agencies and means of contact via e-mail and telephone. Potential participants were sent lists of jobs that needed to be filled at the RAC as well as tasks they could perform at work if they could not leave the office or had prior commitments.

Daily coordinators were identified to train the SWiFT field teams and staff a station in the RAC equipped with computers with Internet access and telephones. Victory Packaging, a family owned national business, donated cellular telephones for communication among the field team and for the team leader. Evercare, a Care for Elders Partner, prepared clipboards with the assessment forms and signed up team leaders and field teams for two shifts per day. The plan was for the forms to be turned into the SWiFT desk for data analysis, and

many were. The tool was introduced by the Harris County Area Agency on Aging and the Texas Department of Aging and Disability Services at other shelters throughout Houston and was used widely, but those data were not captured. The tool was used for two more weeks in the RAC until the medical clinic closed and most of the evacuees were placed. Entries into a database developed by one of the volunteers were made on site at the RAC. Two hundred and thirty-eight forms suitable for analysis were retained and subsequently analyzed. These data are presented in the appendix.

#### ■ USE OF THE SWiFT LEVEL TOOL IN THE POST-DISASTER PHASE

The SWiFT tool worked well on site at the RAC and its adoption across Texas speaks to its utility. This type of triage system is necessary to screen the very sick and the very frail. With computers, cellular telephones, and volunteers, the program worked in Houston, Texas. The form and the processes could be adapted for different situations in different locales.

SWiFT LEVEL TOOL IN THE POST-DISASTER PHASE		
SWiFT Level	Explanation	Post-disaster Actions
1	Cannot perform at least one basic ADL (activities of daily living: eating, bathing, dressing, toileting, walking, continence) without assistance	Immediate transfer to a location that can provide skilled or personal care (i.e., assisted living facility, nursing home, hospital)
2	Trouble with instrumental activities of daily living (i.e., finances, benefits management, assessing resources)	Needs to be connected with a local aging services case manager
3	Minimal assistance with ADL and instrumental activities of daily living	Needs to be connected with a rescue organization service (i.e., Red Cross)

The simple 1, 2, or 3 designation is easy to apply and can be used to assess urgency of need and intervention required.

#### ■ DATA ANALYSIS

Overall, 10,435 people were served in the RAC medical unit following Hurricane Katrina. An analysis of age revealed that 5,846 (56%) of those served, were 65 years of age or older. Of the 10,341 individuals with recorded

gender 5,738 (55%) were female. African-Americans (n = 7,709) made up 90% of the sample based on available ethnicity data. A comprehensive demographic profile of those serviced in the RAC Medical Unit can be found in Appendix 2: Table C.

The Harris County Medical Examiners Office in Houston, Texas, reviewed 72 Hurricane Katrina-related fatalities. The mean age for this fatality group was 65.7 years, and 40 (56%) of the fatalities occurred among individuals 65 years of age or older. Thirty-six or 50% of the fatalities occurred among African-Americans, while 39 (54.2%) of those examined were female. Analysis of the manner of death revealed that 59 (81.9%) of the fatalities were due to natural cause(s). Personnel from the Harris County Hospital District analyzed these data. Table A in Appendix 2 provides a descriptive summary of the 72 individuals examined.

The data analysis occurred in two phases. The first phase consisted of matching the database entries with the original hard copy versions of the SWiFT tool. This was performed

to ensure data accuracy. The second phase consisted of analyzing the descriptive statistics to characterize the samples. All data analyses were conducted using the Statistical Package for Social Sciences (SPSS 12.0).

Two hundred twenty-eight patients were assessed using

the SWiFT tool. The average age of those assessed was 66.1 years and 125 (60.1%) were 65 years of age or older. Overall, 156 (68%) were SWiFT Level 1, 41 (18%) were SWiFT Level 2, and 12 (5%) were SWiFT Level 3. Hypertension was the most common medical disorder. A more complete description of these samples is reported in Appendix 2, Data Table D.

■ SWIFT SCREENING TOOL<sup>®</sup>

Current date:		Worker's name:	
Name:		DOB:	
DO YOU HAVE FAMILY OR FRIENDS WITH YOU HERE? <input type="checkbox"/> Y <input type="checkbox"/> N   Confirmed? <input type="checkbox"/> Y <input type="checkbox"/> N			
<b>Level 1:</b> <u>Health/Mental Health Priority</u>  <b>GOES TO SOCIAL WORK BOOTH IN MEDICAL CLINIC</b>	<b>A. Do you have any of the following medical problems:</b> <input type="checkbox"/> Y <input type="checkbox"/> N Diabetes <input type="checkbox"/> Y <input type="checkbox"/> N Heart disease <input type="checkbox"/> Y <input type="checkbox"/> N High blood pressure <input type="checkbox"/> Y <input type="checkbox"/> N Memory <input type="checkbox"/> Other <b>Note:</b>  <b>B. Do you take medicine?</b> <input type="checkbox"/> Y <input type="checkbox"/> N <b>Do you have your medicine?</b> <input type="checkbox"/> Y or <input type="checkbox"/> N <b>If "No," treat as Level 1</b>		<b>C. Do you need someone to help you with:</b> <input type="checkbox"/> Y <input type="checkbox"/> N Walking <input type="checkbox"/> Y <input type="checkbox"/> N Eating <input type="checkbox"/> Y <input type="checkbox"/> N Bathing <input type="checkbox"/> Y <input type="checkbox"/> N Dressing <input type="checkbox"/> Y <input type="checkbox"/> N Toileting <input type="checkbox"/> Y <input type="checkbox"/> N Medication administration <b>Any checks, treat as Level 1</b> <b>Do you use something to help you get around:</b> <input type="checkbox"/> Cane <input type="checkbox"/> Walker <input type="checkbox"/> Wheel chair <input type="checkbox"/> Bath Bench
	<b>D. Where are you right now?</b>  <b>If senior cannot or does not answer correctly treat as Level 1</b>	<b>E. Name 3 ordinary items and have them repeat them; for example, "apple, table, penny."</b>	<b>F. What year is it?</b>  <b>If senior cannot/does not answer correctly treat as Level 1</b>
<b>Level 2:</b> <u>Case Management Needs</u>  <b>IS REFERRED TO A CASE MANAGER</b>	<b>A. Ask them what their major need is right now.</b>	<b>B. Do you have a plan for where you will go when you leave here?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>C. Income/Entitlements</b>  <b>Are you on:</b> <input type="checkbox"/> Y <input type="checkbox"/> N Medicare <input type="checkbox"/> Y <input type="checkbox"/> N Medicaid <input type="checkbox"/> Y <input type="checkbox"/> N SSI <input type="checkbox"/> Y <input type="checkbox"/> N Social Security <input type="checkbox"/> Y <input type="checkbox"/> N Food Stamps <input type="checkbox"/> Y <input type="checkbox"/> N VA Benefits <input type="checkbox"/> Y <input type="checkbox"/> N Section 8 housing funds <b>Do you have your documents?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Level 3: Only needs to be linked to family or friends</b>  <b>DIRECTED TO RED CROSS VOLUNTEER</b>	<b>A. Family</b>  <b>Do you need help to find your family/friends?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>B. Names:</b>  <b>Relationship:</b>  <b>Location:</b>	<b>WHERE IS THE SENIOR LOCATED?</b>

## ■ SWIFT POLICIES AND PROCEDURES

### POLICIES AND PROCEDURES

- The goal of this program is to move frail seniors who do not have family or friends to advocate for them to a more suitable environment than the current shelter.
- We do not want to separate families; therefore, we must confirm by asking the senior who is mentally intact or the Red Cross or other collateral sources.
- The tool is to be employed by social service professionals, nurses, nurse practitioners or physicians.
- If you are in the shelter, please attach a map of the shelter and circle the senior's location, and work with existing procedures of the shelter.
- If there is any doubt about the medical condition, senior should be referred to a medical professional.

**Please circle on the form one of the following levels:**

Level 1 – Senior requires placement in a more suitable facility, such as a nursing home, personal care home, or assisted living.

Level 2 – Senior needs case management assistance to have needs met. Will refer to local agency for help.

Level 3 – Senior needs to be directed to appropriate Red Cross Services.

**\*\*\*\*\*ALL DISPOSITIONS ARE TO BE RECORDED AND REPORTED TO AMERICAN RED CROSS (ARC) FOR THEIR RECORDS.**

<b>Date:</b>	<b>Patient's name:</b>	<b>Details of patient's conditions/needs:</b>
<b>Nurse/worker:</b>	<b>Other identifying info:</b>	
<b><u>Transfer information</u></b>		<b>Time of transfer:</b>
<b>Facility name and address:</b>		<b>Transportation provider:</b>
<b>Facility staff contact:</b>		<b>Provider contact information:</b>
<b>Team leader:</b>	<b>Time information transmitted to ARC:</b>	<b>ARC staff contacted:</b>

### ■ USE OF THE SWiFT LEVEL TOOL IN DISASTER PREPAREDNESS

The SWiFT tool can also be used to prepare for future disasters. The SWiFT tool can be used in two ways in the pre-disaster phase. It establishes a uniform designation of level of disability, and provides general guidelines for the preparatory steps needed based on level of disability. Individuals, family members, home health nurses, or the individual's physician or clinician could easily designate a frail or vulnerable elder or adult as SWiFT Level 1, 2, or 3. Persons who are completely independent, regardless of age, would not have a SWiFT designation and would follow the

An individual's SWiFT level designation could be evaluated every year on his or her birthday as the level may change from year to year based on a new health condition or positive health interventions. Not all elderly, frail, and vulnerable persons will fall clearly into one specific SWiFT level. When in doubt about a person's SWiFT level, the lower number, which indicates higher need, should be chosen. For example, if a person falls between a SWiFT Level 2 and SWiFT Level 3, he or she should be classified as SWiFT Level 2.

The SWiFT designation would provide a universal language for health professionals and disaster planners that would allow

for enhanced communication in disaster situations. SWiFT level can indicate the appropriate level of care for persons who must be transferred from a care facility to a temporary shelter.

Research should be conducted on the SWiFT tool to assess inter-rater reliability and validity. Drills could be conducted in assisted living facilities and retirement communities to determine the efficacy of this rapid screening tool. Studies should also analyze experience from previous

SWiFT LEVEL TOOL IN DISASTER PREPAREDNESS		
SWiFT Level	Explanation	Preparatory Steps
1	Cannot perform at least one basic ADL (activities of daily living: eating, bathing, dressing, toileting, walking, continence) without assistance	Evacuate early rather than late depending on the circumstance. If possible, keep with family member, companion, or caregiver. Receives assistance in gathering all assistive devices, including eye glasses, walkers, hearing aids, list of medicines, names of doctor(s), family contact telephone numbers, and important papers, so they are accessible.
2	Trouble with instrumental activities of daily living (i.e., finances, benefits management, assessing resources)	Gather, with assistance if necessary, all assistive devices, including eye glasses, walkers, hearing aids, list of medicines, names of doctor(s), family contact telephone numbers, and important papers, so they are accessible.
3	Minimal assistance with ADL and instrumental activities of daily living	Advise individuals to have all assistive devices, including walkers, eye glasses, hearing aids, list of medicines, names of doctor(s), family contact telephone numbers, and important papers together and accessible.

guidelines for the general population regarding emergency preparedness. The preparatory steps could be taken by the elder or disabled adult themselves, by their paid or family caregivers, or by staff from social service organizations. Different locales could modify and adapt the SWiFT tool for use in their own regions.

disasters on the efficacy and outcomes of early transfer versus late transfer for nursing home facility patients. In addition, research studies on technology-based coding and tracking systems should be performed.

### ■ DIFFICULTIES LOCATING AND TRACKING SENIORS AND VULNERABLE ADULTS

Many families could not locate their elderly loved ones for days to weeks due to the absence of a tracking system. In a chairman's report recently issued by the Senate Committee on Health, Education, Labor and Pensions<sup>9</sup> several family members recounted the agony and fear they faced wondering where their frail family member was or if they had survived at all.

Although the Harris County Hospital District established an electronic medical record for those seen in the RAC medical clinic, no comprehensive evacuee registration or tracking system existed in the RAC domiciliary areas, and as a result, efforts to identify elders without families or other supports were hampered. SWiFT team members located frail elders by roaming the floors looking for them. This ineffective means of identification resulted in a "first found/first served" scenario.

To whatever degree possible all shelter occupants need to be registered. This is particularly important for frail elders who require screening to determine their level of need. Some elders will need to be quickly discharged from the shelter to more appropriate placements. Registration also ensures that central command for the area knows how many frail elders are in the facility so they can devise a strategy to ensure that on-site medical and social services are accessible and available to them.

It will not always be possible for every evacuee to be registered upon entry. Some elders may be confused, traumatized, or non-cooperative. Those who cannot or refuse to be registered at the time of arrival can be marked with color-coded wristbands so they can be identified as unregistered elders. In addition to flagging unregistered evacuees (who can be registered later), color-coded wristbands can be used to indicate which elders have been successfully registered, screened by the SWiFT tool, identified as having special medical or dietary requirements, or needing social services. Basic information can also be represented on the color-coded wristband using numeric and /or letter codes as well as punch holes. Designated shelter staff can modify wristbands as needed using whatever method was established in

the disaster planning process. The data on the coded wrist band would also be part of the registration process and updated by designated personnel, such as SWiFT staff, as needed.

Proper conduct of the discharge process is a critical issue. Across the country countless elderly were missing, presumed dead, or thought to be in one place when actually in another due to failure to track their movements once they had reached a shelter and then left. Frail elderly were likely to be discharged from shelters to hospitals or other settings. In some cases, placement was temporary and they were returned to the shelter.

Most healthy younger adults have the capacity to contact family and friends to let them know where they are. Frail elders may be too physically or cognitively impaired to do so. This caused stress for them and their families who had no clear mechanisms to locate them. Establishment of a proper registration system within the shelter will limit this problem. As evacuees are permanently or temporarily discharged from the shelter the registration database is updated. In addition, there needs to be a regional registry to facilitate location of shelter residents by family and friends who do not know the shelter to which their frail elder has been evacuated.

There has been a discussion of the use of technology in shelter settings such as computer based tracking or electronic cards. Careful consideration should be given to that strategy for this particular population. Many of the frail persons who had difficulty evacuating in time were impoverished and or cognitively impaired. Thus, many would not or could not have accessed electronic means for tracking had such means been available prior to Hurricane Katrina. SWiFT leadership recommends simple and inexpensive color-coded bands. Although there will probably not be a one-size-fits-all solution, electronic tracking may work for some. The population of frail elders and vulnerable adults will benefit most from the simple, effective means of tracking.

<sup>9</sup> Committee on Health, Education, Labor and Pensions. Chairman's Report on Elder Evacuations During the 2005 Gulf Coast Hurricane Disasters, February 16, 2006.

### ■ SHELTER INADEQUACIES AND ACCESSING THOSE IN NEED

Shelters should be able to meet the basic needs of special populations. Initially, in the Astrodome patients requiring help with basic activities of daily living were largely left to fend for themselves or were helped by those next to them in cots. Bathing, toilet facilities, and food services need to be accessible to persons with disabilities. For example, food appropriate for diabetic patients and those with few or no teeth will be needed. Extra blankets should also be available.

It is highly likely, especially early in the evacuation process, that facilities for special populations would not be readily available. In that case, as was done in the RAC for the children without parents, a separate area for frail elderly and vulnerable adult evacuees should be designated. A separate designated area would also allow for easier access by professionals who serve the aging or disabled community. In fact, in the RAC, able-bodied seniors spontaneously cordoned off an area for themselves and frail elders. Transfer to these distinct areas can be accomplished at the time of registration into the facility. When possible, this area should be further divided into separate sections for men and women.

### ■ THE NEED FOR GERIATRICIANS

Harris County Hospital District data show that the most common diagnoses in the older evacuees sent to the RAC medical clinic were hypertension, diarrhea, diabetes, and upper respiratory infection. The symptoms of these diseases were exacerbated during Hurricane Katrina, as patients often did not have crucial medications and foods needed to maintain health. Public health and disaster planners should not overlook the importance of planning for elders with chronic diseases in future disasters.

SWiFT pairs located seniors with geriatric syndromes, including dementia, psychosis and delirium (altered mental status), who had not been taken to the RAC medical clinic. These diagnoses, which rendered individuals unable to access help, manage their medications, or obtain meals, were undetected upon entry to the RAC. Without the field team pairs, these seniors may not have been identified for long periods of time. Examples of the serious illnesses

identified were infection, cardiovascular disease (i.e., stroke), or medication problems, all potentially lethal.

It is important to note that these diagnoses are seen every day by geriatric medicine teams. Although volunteer physicians from other disciplines can be helpful in performing triage, the subtleties of these diagnoses could easily elude those not trained in geriatric medicine. Teams of persons with multiple skill sets often deliver disaster relief. Geriatricians are accustomed to working in interdisciplinary teams. In geriatric teams, leadership is assumed by the professional who is best versed in the patient's most immediate problem – when the patient is urgently ill, the nurse or physician leads; when social issues are more pressing, a gerontological social worker assumes the lead role. A specialized geriatric medicine unit formed ad hoc in the RAC medical clinic and was staffed by local geriatricians from Baylor. In the future, such teams could be located in or near the area where elders and other vulnerable adults are congregated and serve both triage and treatment functions.

### ■ SOCIAL NEEDS

Often shelter residents perceive their social needs as more important than their medical needs, and in many instances this is true. Finding housing, ensuring evacuees receive existing benefits and obtaining disaster relief are critical not only to their material well being but also to their mental and physical health. Living day to day in a shelter without any plan for a return to a more normal setting is extremely disturbing to frail elders who want to preserve their prior level of independence. For this reason, elder response teams like SWiFT must begin to address social issues as quickly as they address medical issues. Gerontological social workers on the team need to have a working knowledge of housing resources, benefit programs, disaster aid programs, and any other resources necessary to resolve the frail elders' non-medical problems. They must advocate for getting evacuees the services they require. They also need to keep evacuees informed about the progress being made in resolving their problems. This process should continue even when the elder or vulnerable adult is placed out of the shelter until it is clear that the evacuee's problems have been resolved or that another agency has assumed responsibility for that activity.

### ■ THE INVOLVEMENT OF GERONTOLOGISTS

Based on a review of the literature and consultation with experts from around the United States, it is unlikely that gerontologists participated on disaster planning teams. Had they, some of the problems seen with Hurricane Katrina evacuees might have been avoided. Given that gerontologists have extensive clinical experience with this population, in the future, they can help disaster management teams at the federal, state and local levels anticipate the needs of frail elders. There is a shortage of geriatricians and other gerontologists nationally, and at the current enrollment rate, there will not be enough of them to serve on teams in many locales. Disaster planning is just one of the many reasons why matriculation into gerontology programs in medicine, nursing, social work and other fields must be encouraged. Members of the American Geriatrics Society and the Gerontological Society of America could be consulted to serve on these disaster-planning teams. Direct care on site could be accomplished by local gerontological teams or members of the public health service.

In addition to disaster planning and direct care provision, gerontologists could train front-line workers to serve the elderly and other vulnerable adults in disaster situations.

Training could be done at the local level, but state governments could work with geriatricians to develop training on the basic skills to care for special needs populations. The American Red Cross in conjunction with members from gerontological professional groups could develop specialized training for their volunteers, much as they do for children.<sup>10</sup>



### ■ COMMUNICATION DIFFICULTIES

Communication was a challenge for all. Central to the success of the SWiFT processes was a daily coordinator who served the field team pairs and performed a central communication function. Daily briefings and job assignments, a communication board, and a designated daily coordinator are essential. The daily coordinator should remain apprised of ongoing developments in the shelter operations and available resources. At the RAC, the daily coordinator organized and deployed volunteers, answered questions on site, communicated with the disaster command center, and followed up on complex social situations, such as a community placement that required multiple telephone calls. Cellular telephones proved invaluable in the SWiFT functions. Proper signage and directions allow elders or others to navigate through the facility and arrive at designated sites. In areas where a percentage of disaster victims' primary language is not English, translators or volunteers versed in the foreign language should be available to help bridge language barriers.

### ■ COOPERATING WITH LOCAL AGENCIES

In advance, local public and non-profit agencies should be identified for planning and resources. These should include medical, social, and housing agencies, and well as adult protective services. The Area Agencies on Aging are overseen by the State Units on Aging, which are mandated by the Older Americans Act of 1973. These agencies provide services that allow older Americans the opportunity to continue living independently by providing a wide range of services such as Meals On Wheels and homemaker assistance. They also provide resources for persons living in assisted care facilities. The Area Agencies on Aging, through their multiple services, can access a wide variety of available resources and can be instrumental in future disaster planning. Likewise, aging coalitions or partnerships such as CFE in Houston can mobilize additional financial resources and volunteers.

<sup>10</sup>Red Cross Disaster Preparedness Plan for Children. Accessed February 24, 2006, at: [http://www.redcross.org/services/prepare/0,1082,0\\_85\\_,00.html](http://www.redcross.org/services/prepare/0,1082,0_85_,00.html).

## ■ SAFETY ISSUES

Frail elders were vulnerable prior to Hurricane Katrina and evacuation to the RAC. The trauma resulting from the disaster, the process of evacuation, the disruption of regular care, and the stress of residing in the shelter complex further increased their vulnerability. There was a disruption in treatment for chronic conditions such as diabetes, hypertension and heart disease, as well as increased risk for infectious disease, such as Norwalk virus, which spread among some shelter residents. Residents with dementia, depression, anxiety, and other psychiatric disorders often experienced an increase in symptoms due to the elevated stress levels they experienced as a result of evacuation. To whatever degree psychiatric symptoms increased, elders experienced a decline in their ability to communicate basic information necessary for their medical care, thus making any intervention more difficult.

Decreased cognitive function and physical strength also put these individuals at risk for exploitation by a variety of predators who sometimes seized medications, pocket money, and even the few belongings evacuees still possessed. Others exploited frail elders by taking the money they received from FEMA. Operators of residential facilities, many of which were unlicensed, searched the complex for potential “business,” sometimes moving frail elders who lacked mental capacity to offsite housing facilities. In some cases, they took their money, and upon discovery of the extent of the elders’ needs, returned them to the shelter.

One of the problems that occurred at the RAC was the difficulty in securing the building. On one hand, many evacuees were adults and needed to be treated with respect. They disliked any rules that hindered their coming and going in and around Houston. Unfortunately, this open flow of human traffic allowed scam artists and schemers to enter the complex.

The rapid pace involved in trying to move seniors to appropriate living spaces made it difficult to check the quality of every personal care home or senior living center, which resulted in some seniors being placed in apartment complexes when they needed more assistance and supervision than was available. The SWiFT teams followed-up on several senior apartment complex placements to assist seniors who were having difficulty with independent living.

Some seniors had to be moved an additional time when the first placement out of the shelter did not meet their needs.

Some seniors were placed in either personal care homes or senior apartment complexes that did not have access to transportation. Six months after the initial disaster, city and county agencies are still grappling with the issue of transportation for evacuees who cannot access any type of public transportation. This inability to access transportation could be attributed to placement outside of the areas of Houston that are covered by the Metro public transportation system.

If an evacuee went to the medical unit and was sent to the hospital, transfer from the RAC medical clinic to the hospital was documented in the records of the Harris County Hospital District. Some evacuees who were hospitalized, treated and released were discharged back to the RAC for lack of other housing.

When services became available, there were long lines of people trying to access them. No provisions were available to assist seniors who might not be able to stand in lines for hours at a time. At one point, evacuees were issued debit cards worth \$2000.00 to assist in meeting immediate needs and to begin resettlement or readjustment. While this was a welcome relief to many, there was no system in place to assist seniors with either taking money out of an ATM machine or to help seniors keep their money safe.

It will be essential for persons from local and state protective service agencies to be involved in future disaster relief efforts. The local adult protective services agency was very involved in Houston, served on the SWiFT field teams, and made its services available to the evacuees and the SWiFT daily coordinator.

### ■ LONG-TERM NEEDS

Older evacuees arrived with a range of functional abilities and limitations. Although some older adults may not need immediate medical assistance or mental health intervention, they may experience significant worries about the most practical of concerns: Where will I live? How can I replace my lost belongings? Therefore, as part of the response to older evacuees, there is a need to mobilize a range of services and support to address many potential problems that require long-term follow-up.

Issues of literacy and language must be addressed as part of any long-term assistance. It is critical to have bilingual personnel to communicate with evacuees.

Providing long-term assistance can be made easier by the organization and documentation of immediate assistance. For example, many older evacuees received medical or psychiatric services or medication assistance during their shelter stay. Having this information documented (medical diagnoses, medications, and physician telephone numbers) in something like a “medical passport” will assist further medical or pharmacy follow-up, regardless of the individual’s final destination. This medical passport record could be in paper or electronic form. Similarly, documentation of when older adults have applications for benefits initiated would be useful as well.



Specific needs for long-term assistance may be quite diverse. Based on the experience with Hurricane Katrina, these needs may be considered in the following priority categories:

- 1) Helping older adults locate and settle into appropriate housing (temporary and permanent)
- 2) Re-establishing public benefits and services
- 3) Securing long-term health and mental health services as needed
- 4) Accessing other services necessary to resume “normal” life, including basic necessities like clothing and household supplies
- 5) Obtaining transportation to address all needs and potentially to relocate to reunite with family or re-establish permanent residence.

A clear need existed for compiling resource information about how older evacuees could access any entitlements they were receiving in their prior residence, as well as what emergency or disaster-related benefits they could qualify for over time. Using computer technology to compile and exchange this information is critical. During the Hurricane Katrina response the Department of Aging and Disability Services (Integrated Title XIX and Older Americans Act Agency) was instrumental in creating a Website to support the updating of information about changing service eligibility criteria and resources. Frequently, public resources must be supplemented by volunteer, non-profit services or donations. Therefore, communities need some system for making resource updates available to the range of public and private agencies and social service practitioners who may be helping with the broad list of issues and problems older evacuees may confront.

Any planning measures must ensure that protocols for special populations such as children, elders, and vulnerable adults are integrated into the local, regional and national disaster preparedness plans for all citizens.



The following recommendations/best practices are based on the observations and experience of the SWiFT members and AMA consultants in response to Hurricane Katrina.

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■ **RECOMMENDATION ONE**

Develop a simple, inexpensive, cohesive, integrated and efficient federal tracking system for elders and other vulnerable adults that can be employed at the state and local levels during disasters.

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■ **RECOMMENDATION TWO**

Designate separate shelter areas for elders and other vulnerable adults.

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■ **RECOMMENDATION THREE**

Involve gerontologists (geriatricians, geriatric nurse practitioners, gerontological social workers, or other aging experts, etc.) in all aspects of emergency preparedness and care delivery.

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■ **RECOMMENDATION FOUR**

Involve region-specific social services, medical and public health resources, volunteers, and facilities in pre-event planning for elders and vulnerable adults.

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■ **RECOMMENDATION FIVE**

Involve gerontologists (geriatricians, geriatric nurse practitioners, gerontological social workers, or other aging experts, etc.) in the training and education of front-line workers and other first responders about frail adults' unique needs.

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■ **RECOMMENDATION SIX**

Utilize a public health triage system like the SWiFT Tool® for elders and other vulnerable populations in pre- and post-disaster situations.

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■ **RECOMMENDATION SEVEN**

The personnel charged with overseeing elders and vulnerable adults should maintain a clear line of communication with the shelter's central command. Communication within the shelter should involve technology such as cellular telephones and walkie-talkies.

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■ **RECOMMENDATION EIGHT**

Provide protection from abuse and fraud to elders and other vulnerable adults.

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■ **RECOMMENDATION NINE**

Develop coordinated regional plans for evacuations of residents of long-term care facilities and for homebound persons with special needs (i.e., ventilator-dependent adults.)

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■ **RECOMMENDATION TEN**

Conduct drills and research on disaster preparedness plans and the use of a triage tool, such as SWiFT, to ensure their effectiveness and universality.

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■ SWIFT SCREENING TOOL °

Current date:		Worker's name:	
Name:		DOB:	
DO YOU HAVE FAMILY OR FRIENDS WITH YOU HERE? <input type="checkbox"/> Y <input type="checkbox"/> N		Confirmed? <input type="checkbox"/> Y <input type="checkbox"/> N	
<b>Level 1:</b> <u>Health/Mental Health Priority</u>  <b>GOES TO SOCIAL WORK BOOTH IN MEDICAL CLINIC</b>	<b>A. Do you have any of the following medical problems:</b> <input type="checkbox"/> Y <input type="checkbox"/> N Diabetes <input type="checkbox"/> Y <input type="checkbox"/> N Heart disease <input type="checkbox"/> Y <input type="checkbox"/> N High blood pressure <input type="checkbox"/> Y <input type="checkbox"/> N Memory <input type="checkbox"/> Other <b>Note:</b>	<b>C. Do you need someone to help you with:</b> <input type="checkbox"/> Y <input type="checkbox"/> N Walking <input type="checkbox"/> Y <input type="checkbox"/> N Eating <input type="checkbox"/> Y <input type="checkbox"/> N Bathing <input type="checkbox"/> Y <input type="checkbox"/> N Dressing <input type="checkbox"/> Y <input type="checkbox"/> N Toileting <input type="checkbox"/> Y <input type="checkbox"/> N Medication administration <b>Any checks, treat as Level 1</b> Do you use something to help you get around: <input type="checkbox"/> Cane <input type="checkbox"/> Walker <input type="checkbox"/> Wheel chair <input type="checkbox"/> Bath Bench	
	<b>B. Do you take medicine?</b> <input type="checkbox"/> Y <input type="checkbox"/> N <b>Do you have your medicine?</b> <input type="checkbox"/> Y or <input type="checkbox"/> N <b>If "No," treat as Level 1</b>	<b>D. Where are you right now?</b>  <b>If senior cannot or does not answer correctly treat as Level 1</b>	<b>E. Name 3 ordinary items and have them repeat them; for example, "apple, table, penny."</b>
<b>G. Ask them to repeat the three items you previously mentioned.</b>  <b>If more than one item is missed, treat as Level 1.</b>	<b>Level 2:</b> <u>Case Management Needs</u>  <b>IS REFERRED TO A CASE MANAGER</b>	<b>A. Ask them what their major need is right now.</b>	<b>B. Do you have a plan for where you will go when you leave here?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Level 3: Only needs to be linked to family or friends</b>  <b>DIRECTED TO RED CROSS VOLUNTEER</b>	<b>A. Family</b>  Do you need help to find your family/friends? <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>B. Names:</b>  Relationship:  Location:	<b>C. Income/Entitlements</b>  Are you on: <input type="checkbox"/> Y <input type="checkbox"/> N Medicare <input type="checkbox"/> Y <input type="checkbox"/> N Medicaid <input type="checkbox"/> Y <input type="checkbox"/> N SSI <input type="checkbox"/> Y <input type="checkbox"/> N Social Security <input type="checkbox"/> Y <input type="checkbox"/> N Food Stamps <input type="checkbox"/> Y <input type="checkbox"/> N VA Benefits <input type="checkbox"/> Y <input type="checkbox"/> N Section 8 housing funds <b>Do you have your documents?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No
		<b>WHERE IS THE SENIOR LOCATED?</b>	

**SWIFT POLICIES AND PROCEDURES**

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- The tool is to be employed by social service professionals, nurses, nurse practitioners or physicians.
- If you are in the shelter, please attach a map of the shelter and circle the senior's location, and work with existing procedures of the shelter.
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**\*\*\*\*\*ALL DISPOSITIONS ARE TO BE RECORDED AND REPORTED TO AMERICAN RED CROSS (ARC) FOR THEIR RECORDS.**

<b>Date:</b>	<b>Patient's name:</b>	<b>Details of patient's conditions/needs:</b>
<b>Nurse/worker:</b>	<b>Other identifying info:</b>	
<b><u>Transfer information</u></b>		<b>Time of transfer:</b>
<b>Facility name and address:</b>		<b>Transportation provider:</b>
<b>Facility staff contact:</b>		<b>Provider contact information:</b>
<b>Team leader:</b>	<b>Time information transmitted to ARC:</b>	<b>ARC staff contacted:</b>

DATA TABLE A: HARRIS COUNTY DEATHS AS A RESULT OF HURRICANE KATRINA



*Luis A. Sanchez, Chief Medical Examiner  
Harris County Medical Examiner  
Houston, Texas*

**2005 HURRICANE KATRINA – CAUSE & MANNER**

	<b>Date of Death</b>	<b>R/G/A</b>	<b>MOD</b>	<b>COD</b>
1.	8/31/05	AM63	Natural	Atherosclerotic Cardiovascular Disease
2.	9/1/05	BF90	Natural	Hypertensive & Atherosclerotic Cardiovascular Disease
3.	9/1/05	WM66	Natural	Complications of Pulmonary Fibrosis
4.	9/1/05	BM50	Natural	Atherosclerotic Cardiovascular Disease
5.	9/2/05	BF66	Natural	1. Hypertensive Cardiovascular Disease 2. Diabetes Mellitus 3. Obesity
6.	9/2/05	WM53	Natural	Complications of Hepatic Cell Carcinoma
7.	9/3/05	BF56	Natural	Hypertensive Cardiovascular Disease
8.	9/3/05	BF52	Natural	1. Deep Venous Thromboses of Lower Extremities with Pulmonary Thromboemboli due to Relative Immobility while Riding in Motor Vehicle 2. Obesity 3. Uterine Leiomyomas
9.	9/3/05	BF92	Natural	1. Hypertensive Atherosclerotic Cardiovascular Disease 2. Diabetes Mellitus
10.	9/3/05	WM82	Natural	1. Complications of Severe Dementia 2. Hypertension 3. Extreme Stress following Hurricane Katrina Relocation
11.	9/4/05	BM71	Natural	Hypertensive & Atherosclerotic Cardiovascular Disease
12.	9/4/05	WM44	Suicide	Gun Shot Wound, Head
13.	9/5/05	BF58	Natural	Complications of Breast Cancer

14.	9/5/05	WF54	Natural	Pancreatic Cancer with Metastases to Liver and Kidneys
15.	9/6/05	WF93	Natural	Complications of Leukemia
16.	9/6/05	BF80	Natural	1. Renal Failure 2. Hypertensive Cardiovascular Disease
17.	9/6/05	WF92	Natural	1. Atherosclerotic Cardiovascular Disease 2. Diabetes Mellitus
18.	9/6/05	BF72	Natural	Hypertensive & Atherosclerotic Cardiovascular Disease
19.	9/6/05	BF73	Natural	1. Atherosclerotic Cardiovascular Disease 2. Hypertensive Cardiovascular Disease
20.	9/6/05	WF68	Natural	1. Atherosclerotic Cardiovascular Disease 2. Hypertensive Cardiovascular Disease
21.	9/7/05	WF104	Natural	Congestive Heart Failure
22.	9/7/05	BM79	Natural	Hypertensive & Atherosclerotic Cardiovascular Disease
23.	9/7/05	WF63	Natural	Cirrhosis
24.	9/8/05	AM80	Natural	End-stage Heart Disease
25.	9/9/05	BF0	Natural	Intrauterine Fetal Demise with Placental Abruption
26.	9/9/05	HF85	Natural	Atherosclerotic Cardiovascular Disease
27.	9/10/05	HM25	Suicide	Asphyxia due to Hanging
28.	9/11/05	WF90	Natural	Congestive Heart Failure
29.	9/12/05	WF57	Natural	Lung Cancer with Multi-Organ Metastases
30.	9/12/05	BF86	Natural	Hypertensive and Atherosclerotic Cardiovascular Disease
31.	9/13/05	WM77	Natural	Hypertensive Atherosclerotic Cardiovascular Disease
32.	9/13/05	WF45	Natural	Acute Myocardial Infarction
33.	9/13/05	WM73	Natural	Acute Myocardial Infarction
34.	9/13/05	AM48	Natural	Chronic Ethanolism
35.	9/13/05	WF20	PENDING	PENDING
36.	9/13/05	WM75	Natural	1. Hypertensive Cardiovascular Disease 2. Atherosclerotic Cardiovascular Disease 3. Asthma
37.	9/14/05	HM83	Natural	1. Hypertensive Cardiovascular Disease 2. Alzheimer Disease
38.	9/16/05	WM72	Natural	Complications of Dementia, Organic Brain Syndrome, Paralysis Agitans

**DATA TABLE A: HARRIS COUNTY DEATHS AS A RESULT OF HURRICANE KATRINA**

**CONTINUED**

39.	9/17/05	WM78	Natural	Terminal Liver Cancer with Metastases to the Lungs
40.	9/17/05	BF65-75	Natural	Ischemic Cerebral Infarct due to Atherosclerotic Cardiovascular Disease
41.	9/17/05	BM28	Accident	Acute Cocaine Toxicity
42.	9/17/05	WF88	Natural	Terminal Alzheimer's Disease
43.	9/18/05	WF85	Natural	End-stage Congestive Heart Failure
44.	9/20/05	WM94	Natural	Atherosclerotic Cardiovascular Disease
45.	9/20/05	BM40	Accident	Complications of Acute Cocaine Toxicity
46.	9/20/05	WM78	Natural	Advanced Lung Cancer
47.	9/20/05	BM5days	Natural	Complications of Vein of Galen Malformation
48.	9/20/05	BM58	Natural	Subarachnoid Hemorrhage due to A-V Malformation
49.	9/21/05	WF27	Natural	Pulmonary Embolus due to Deep Vein Thrombosis due to Relative Immobility due to Hurricane Evacuation
50.	9/22/05	BF43	Natural	Hypertensive and Atherosclerotic Cardiovascular Disease
51.	9/27/05	WF79	Natural	End-stage Lung Cancer
52.	9/28/05	BF49	Natural	Breast Cancer with Brain, Bone and Liver Metastases
53.	9/28/05	WM53	Natural	Congestive Heart Failure
54.	9/29/05	WM74	Natural	End-stage Chronic Obstructive Pulmonary Disease and Terminal Renal Failure
55.	9/29/05	WF58	Accident	Deep Venous Thromboses of Right Lower Extremity with Pulmonary Thromboemboli following Blunt Impact Trauma of Extremities with Fractures of the Tibia, Fibula and Ulna
56.	9/30/05	BF0	Natural	Intrauterine Fetal Demise
57.	10/1/05	BM32	Accident	Toxic Effects of Heroin and Cocaine
58.	10/2/05	WF82	Natural	End-stage Cerebrovascular Accident [?]
59.	10/4/05	WM30	Accident	Acute Heroin Toxicity
60.	10/6/05	BF69	Natural	Advanced Colon Cancer, Hypertension and Anemia
61.	10/7/05	WF53	Accident	Blunt Trauma of Torso with Rib Fractures and Hemothorax
62.	10/8/05	BM83	Natural	Atherosclerotic Cardiovascular Disease
63.	10/8/05	HM72	Natural	End-stage Lung Cancer

64.	10/8/05	BM52	Natural	Aortic Dissection due to Hypertensive Cardiovascular Disease
65.	10/13/05	BF91	Natural	Acute Myocardial Infarction
66.	10/16/05	BF50	Natural	Hypertensive and Atherosclerotic Cardiovascular Disease
67.	10/16/05	BM33	Natural	End-stage Renal Disease, Hypertension
68.	10/18/05	BM55	Natural	Hypertension and Morbid Obesity
69.	10/19/05	BF95	Accident	Complications of Blunt Force Injury of the Head
70.	10/20/05	WF83	Natural	End-stage Cerebrovascular Accident [?]
71.	10/26/05	BF69	Natural	Hypertensive and Atherosclerotic Cardiovascular Disease
72.	10/29/05	BM1mo	Natural	Bronchopulmonary Dysplasia, Pulmonary Hypertension due to Extreme Prematurity

\*\*This list contains all Hurricane Katrina evacuees who died in Harris County (and were reported to our office) from arrival on August 27, 2005, until October 30, 2005.

Decedents listed may not necessarily have died as a result of the hurricane evacuation. This list was generated to assist local, state and federal agencies with identifying individuals from the affected areas.

No deaths due to homicide were included on this list.

## DATA TABLE B: HARRIS COUNTY DEATHS AS A RESULT OF HURRICANE RITA



*Luis A. Sanchez, Chief Medical Examiner  
Harris County Medical Examiner  
Houston, Texas*

## 2005 HURRICANE RITA – CAUSE &amp; MANNER

Updated 04/05/06

	<b>Date of Death</b>	<b>R/G/A</b>	<b>MOD</b>	<b>COD</b>
1.	9/21/05	WF 27	Natural	1. Pulmonary Emboli due to Deep Venous Thrombosis Associated with Relative Immobility during Hurricane Evacuation(s) 2. Obesity
2.	9/21/05	WM 83	Accident (MVA-Driver)	1. Blunt Injuries of Torso with Fractures of Multiple Ribs and Sternum 2. Hyperthermia
3.	9/22/05	WF 91	Accident	1. Hyperthermia with Dehydration 2. Hypertensive Cardiovascular Disease
4.	9/22/05	WF 75	Accident	1. Hyperthermia 2. Atherosclerotic and Hypertensive Cardiovascular Disease
5.	9/22/05	WF 17	Accident	Hyperthermia
6.	9/22/05	BF 73	Natural	Hypertensive Cardiovascular Disease
7.	9/22/05	WF 91	Accident	Hyperthermia
8.	9/22/05*	WM 58	Natural	1. Liver Failure 2. Alcoholism & Cirrhosis
9.	9/22/05*	WF 67	Natural	Hypertensive Cardiovascular Disease
10.	9/22/05*	WF 69	Natural	Atherosclerotic Cardiovascular Disease
11.	9/22/05*	WF 83	Natural	Atherosclerotic Cardiovascular Disease
12.	9/22/05	BM 24	Undetermined	Undetermined
13.	9/22/05*	BF 43	Natural	1. Acute Myocardial Infarction 2. Congestive Heart Failure, Obesity
14.	9/23/05	WF 58	Accident	Polydrug Toxicity (amitriptyline, fluoxetine, hydrocodone)
15.	9/23/05	WM 51	Accident	1. Hyperthermia 2. Atherosclerotic & Hypertensive Cardiovascular Disease
16.	9/23/05	BF 72	Accident	1. Hyperthermia 2. Hypertensive Cardiovascular Disease, Diabetes Mellitus

17.	9/24/05*	WF 92	Natural	Atherosclerotic Cardiovascular Disease
18.	9/24/05*	WM 80	Natural	Cerebral Vascular Accident
19.	9/25/05	BF 50	Accident--fire	Smoke Inhalation
20.	9/25/05	WM 63	Natural	Atherosclerotic Cardiovascular Disease
21.	9/25/05	BF 71	Natural	Hypertensive and Atherosclerotic Cardiovascular Disease
22.	9/25/05*	WF 79	Natural	End-stage Alzheimer's Disease
23.	9/25/05*	WM 71	Natural	1. Hypertensive Cardiovascular Disease 2. Renal Failure
24.	9/25/05*	WM 90	Natural	Aspiration Pneumonia
25.	9/25/05*	WF 86	Natural	Hypertensive & Atherosclerotic Cardiovascular Disease
26.	9/25/05*	HM 85	Natural	End-stage Chronic Obstructive Pulmonary Disease
27.	9/26/05	HF 29	Accident	Acute Dehydration
28.	9/26/06*	HM 83	Natural	Renal Failure due to Hypertensive Cardiovascular Disease
29.	9/26/05*	HM 92	Natural	Lymphoma
30.	9/26/05	BF 30	Accident	1. Hyperthermia
31.	9/27/05	WM 65	Accident	1. Complications of Hyperthermia 2. Hypertensive & Atherosclerotic Cardiovascular Disease
32.	9/27/05	HF 72	Accident (MVA)	Blunt Injuries of Torso
33.	9/28/05	WM 66	Accident	1. Complications of Hyperthermia 2. Hypertensive & Atherosclerotic Cardiovascular Disease
34.	9/28/05	BM 9	Accident	Carbon Monoxide Toxicity
35.	10/04/05	WF 24	Natural	Pulmonary Embolus due to Deep Vein Thromboses of Lower Extremities due to Prolonged Immobility in Motor Vehicle during Hurricane Rita
36.	10/18/05*	WF76	Natural	Pulmonary Embolus due to Deep Vein Thrombosis-related to the Evacuation during Hurricane Rita

\* Denotes cases reported to the Harris County Medical Examiner Office, but which were released directly to the funeral home. In these cases, the natural disease process was exacerbated by the circumstances surrounding the hurricane and the evacuation. However, these deaths were clearly natural and did not warrant further medical examiner investigation.

**TABLE C: DEMOGRAPHICS OF HURRICANE KATRINA PATIENTS SERVED IN THE RAC MEDICAL CLINIC**

	<b>Overall Total</b>	<b>n(%)</b>
<b>Patients Serviced</b>	10,435	***
<b>Age (&lt;18)</b>		285(2.7)
<b>Age (18-64)</b>		4,304(41.3)
<b>Age (&gt;65)</b>		5,846(56)
<b>Gender</b>	10,341	***
Male		4,603(44.5)
Female		5,738(55.4)
Missing		94(.9)
<b>Ethnicity</b>	8,606	***
African-American		7,709(90)
European-American		607(7)
Hispanic-American		231(2)
Asian-American		59(1)
Missing		1,735(17)

*The overall total does not include missing data.*

Table C provides the demographic profile of the patients served in the RAC medical clinic in Houston, Texas, following Hurricane Katrina. The demographic characteristics were derived using basic frequency counts and percentage calculations based on the available data. Data provided by the Harris County Hospital District.

■ DATA TABLE D: DESCRIPTIVE ANALYSIS OF SWiFT DATA

	Average	N	%
<b>Patients Assessed</b>		228	***
<b>Avg. Age</b>	66.1+12.72	***	***
<b>Referred for Medical and/or Mental Health (Level 1)</b>		156	68
<b>Referred for Social Work Needs (Level 2)</b>		41	18
<b>Referred for Locating Family (Level 3)</b>		8	4
<b>No Need for Assistance</b>		12	5
<b>Unable to be Determined</b>		11	5
<b>Medical Diagnoses</b>			
Hypertension		123	54
Diabetes		61	27
Heart Disease		50	22
Memory		22	10

Table D provides the demographic and level of care analysis of 228 individuals assessed by the SWiFT. The descriptive data were derived using basic frequency counts and percentage calculations based on the available data. Percentages of medical diagnoses overlap due to patients' multiple conditions.

## ■ ANNOTATED BIBLIOGRAPHY

**Anetzberger GJ.** (2002). Community resources to promote successful aging. *Clinics in Geriatric Medicine*, 18, 611-625.

This research focuses on use of community resources by elderly persons. As the population ages, community programs for elders will need to be reassessed and redesigned to ensure that they are utilized. National surveys have found that only 20% of elders report having used any community services in the past year. Instead, most prefer assistance from family and friends. Some resources that have been employed successfully with elderly populations include case management, educational programs, and using the World Wide Web to disseminate information. Mental health programs should be reassessed, as it is estimated that 15% of community-dwelling elders cope with depression and 10% suffer from dementia. Because of the stigma associated with using mental health services, few elderly persons utilize them, but with the prevalence of mental health diseases increasing, these services must become a comprehensive part of long-term care for the elderly population. Adult day health care centers, community centers, and senior housing centers should be prepared to deal with an influx of elderly persons using their services in the coming years.

**Bell BD, Kara G, and Batterson C.** (1978). Service utilization and adjustment patterns of elderly tornado victims in an American disaster. *Mass Emergencies*, 3, 71-81.

The researchers interviewed 200 elderly persons and a control group of 100 other adults to gauge their responses to the 1975 tornado in Omaha, Nebraska. Levels of emotionality, perceived stress, interpersonal stability, and perceived needs in response to the tornado were assessed. The findings were discordant with the researchers' hypothesis that elderly persons would experience greater physical and emotional injuries than other age groups as a result of the tornado. Their findings were more consistent with research done by Thompson et al (1993) and Huerta and Horton (1978) that elderly victims were not as emotionally distressed by the disaster as persons in other age groups. Resilience, previous disaster-related experience, and an educated and employed elderly sample were broached as possible explanations. The authors indicate that informal support structures would benefit elderly disaster victims because of their high desire for independence. The authors stress working with the Area Agencies on Aging to prepare elderly persons to deal with consequences of future natural disasters.



**Bolin R, Klenow DJ.** (1988). Older people in disaster: A comparison of black and white victims. *International Journal on Aging and Human Development*, 26(1), 29-43.

Researchers used data collected from 431 families after a tornado in Paris, Texas, to explore the effect of disasters on elderly black and white victims. White elderly tornado victims with large support networks tended to change residences several more times after the disaster than younger victims, indicating that temporary homes were sought with friends or extended family members while a permanent home was being rebuilt. In contrast, black elderly victims were found to move less frequently after the disaster than white victims, possibly indicating that they were welcome to stay with family members for longer periods of time. For the white elderly group, having a spouse was positively correlated with a faster recovery process. For the black elderly group, socioeconomic status (SES) and marital status are important indicators of aid sources used; higher SES and not being married are positively associated with using more aid resources. Higher SES positively affected recovery status for both groups of elderly victims. Interestingly, although non-married blacks received more aid resources, being married affected psychosocial recovery positively for both groups. Like similar studies, the authors indicate that all elderly disaster victims were “more likely to be psychosocially recovered” than younger disaster victims, although white victims tended to fully recover faster. Again, the article fails to distinguish between frail and nonfrail elderly disaster victims. The authors urge the use of Area Agencies on Aging in both pre- and post-disaster strategies.

**Chou F H-C, Su T T-P, Ou-Yang W-C, Chien I-C, Lu M-K, et al.** (2003). Establishment of a disaster-related psychological screening test. *Australian and New Zealand Journal of Psychiatry*, 50(5), 792-798.

The researchers studied emotional responses of young, middle-aged, and elderly persons after two traumatic technological disasters—an airplane crash in 1994 and a train collision in 1996. One hundred forty-eight community residents (half from each event) were interviewed. Essentially, the authors found that members from all three age groups responded and coped similarly to the disasters. Researchers discovered that it was not the respondents’ age, but disaster type and intensity of exposure that actually affected their level of traumatic response; the more traumatic the disaster, and the closer the respondent was to the disaster when it occurred, the

more post-traumatic symptoms he or she displayed. The inoculation hypothesis (that previous exposure to stressors will ease one’s post-traumatic response) was not supported in this research.

**Clinton JJ, Hagebak BR, Sirmons JG, Brennan JA.** (1995). Lessons learned from the Georgia floods, *Public Health Reports*, 110, 684-688.

In 1994 tropical storm Alberto caused severe damage in a large area of the southeastern United States. The authors discuss several lessons that can be learned from the response and subsequent recovery efforts to the tropical storm. Relevancy to the issue of frail elders includes a discussion of early planning and priority setting. Again, the authors stress that the special needs of elderly populations must be taken into account in pre-disaster planning. Elderly persons with special needs should be taken to “special medical needs shelters” where they can receive individualized attention from staff that has been trained to handle their specific needs.

**Cohen ES, Poulshock SW.** (1977). Societal response to mass dislocation of the elderly. *The Gerontologist*, 17(3), 262-268.

This research explores the impact of flood-affected areas in Luzerne County, Pennsylvania, in 1972. A three-point longitudinal survey was taken in the two and one-half years following the flood to assess the effects on elderly persons displaced by the flood. Researchers noted that a large percentage of sample respondents (60%) reported themselves as ill or chronically disabled. They found no long-term problems in terms of housing. Many flood victims, in fact, reported that their housing situation had improved as a result of being relocated after the flood. Also, while there was a heightened sense of emotion during the flood itself, most elderly victims did not relate problems they experienced to the flood. Overall, this study indicated that mass relocation of elderly persons did not have a significant effect on their well-being. The research also indicated that the most critical period following the flooding was within the first 100 days, and that Area Agencies on Agencies take on a significant role in the pre-planning and post-disaster phases of the recovery efforts.

**Ehrenreich JH, McQuaide S.** (2001). *Coping with Disasters: A Guidebook for Psychosocial Intervention*. Available at: <http://www.mhwwb.org>.

This manual provides healthcare workers with a comprehensive approach to dealing with disaster victims. In terms of the elderly, the manual includes a very brief, general, and one-paragraph section on elderly disaster victims. The authors note that formal research on elderly disaster victims is inconsistent, and that the elderly may show signs of depression that are easily overlooked by healthcare workers. In a guidebook advising healthcare workers how to deal with disaster victims, more depth and information is clearly needed about elderly victims, who, in some disasters, comprise the majority of victims.

**Fernandez LS, Byard D, Lin C-C, Benson S, Barbera JA.** (2002). *Frail elderly as disaster victims: Emergency management strategies*. *Prehospital and Disaster Medicine*, 17(2), 67-74.

The authors conducted a medical literature search and Website review of journal articles, government training materials, news reports and other materials in order to identify and implement strategies to address the vulnerability of elders during disasters. The authors determined that impaired physical mobility, diminished sensory awareness, pre-existing health conditions, and social and economic constraints do lead to increased vulnerability in elderly populations during disasters. The authors delineate three categories of intervention strategies: Personal strategies are those that educate the elderly for preparedness and response before a disaster; agency and community strategies utilize existing resources such as Meals On Wheels; community strategies incorporate the special transportation, healthcare access, aid distribution, and warning design needs of the elderly into the emergency management system. The article stresses transportation needs as one of the elderly population's most limiting factors. If elderly persons cannot be transported, aid must be brought to them in their present location.

**Ford ES, Mokdad AH, Link MW, et al.** (April 2006). *Chronic disease in health emergencies: in the eye of the hurricane. Preventing Chronic Disease*. Available at: [http://www.cdc.gov/ped/issues/206/apr/05\\_0235.htm](http://www.cdc.gov/ped/issues/206/apr/05_0235.htm).

The researchers analyzed data from adults over age 18 years who participated in the Behavioral Risk Factor Surveillance System (BRFSS) in 2004 to estimate the number of people with chronic conditions such as diabetes, stroke, and hypertension who lived in the New

Orleans area at the time of Hurricane Katrina. They found that 9% of New Orleans' adult population in August 2005 had diabetes, and that the majority of these patients (79.4%) used oral glucose-lowering medications to control their illness. Among elderly populations, the incidence of diabetes is often much higher. In addition, 29% reported hypertension, and 81.1% of those patients reported using some type of antihypertensive medication. About 4.6% of adults reported angina or coronary heart disease, 3% reported that they had had a myocardial infection, and 2% reported having had a stroke. Following Hurricane Katrina, New Orleans' infrastructure was completely destroyed, rendering it all but impossible for the city's residents to attain medications. While the sample size was small, and the research was limited to data at one specific point in time, it is clear that disaster relief teams and public health officials should identify rapid treatment of chronic diseases as one of their focuses in disaster planning.

**Friedsam HJ.** (1960). Older persons as disaster casualties. *Journal of Health and Human Behavior*, 1(4), 269-273.

This report studies elderly disaster casualties from Hurricane Audrey, a Category 4 hurricane that hit Louisiana in 1957. Older persons were overwhelmingly more likely to be dead or missing following the hurricane than persons in other age groups. The author notes several factors that may contribute to higher mortality rates among elderly populations in the wake of a natural disaster: The first is that elderly persons are more likely to be at home, without access to transportation. Another factor is that elderly persons often live in older parts of cities that may be more susceptible to damage than newer areas where younger persons live. A third reason is that the elderly may not receive proper warning. The elderly are also at higher risk for secondary casualty effects because of increased levels of stress and negligent care. Although fairly sound, one limitation of this research is that it focuses primarily on white victims; the researcher justifies this decision by noting that data for aged nonwhites in this region are unreliable.

**Gibson, Mary Jo** with Michele Hayunga. (2006). *We can do better: Lessons learned for protecting older persons in disasters*. Washington, D.C.: AARP Public Policy Institute, 84 pages. A short summary is also available at [www.aarp.org](http://www.aarp.org). This report is based on an AARP conference in the aftermath of hurricanes Katrina and Rita which brought together more than 100 government officials, emergency

preparedness and response experts, and others "who had been there" to share promising practices. It also presents highlights from an extensive literature review, and data from a short survey of persons 50 and older conducted by Harris Interactive for AARP on who needs help in evacuating. The report focuses on three major topics: (1) planning and communications; (2) identifying who will need help and what kind of help, including registries, tracking, and medications; and (3) evacuating older persons, including transportation and "special needs" shelters. Examples of practical suggestions, tools, and links to resources are included.

**Hastings S, Mitchell H.** (2005). A systematic review of interventions to improve outcomes for elders discharged from the emergency department. *Academic Emergency Medicine*, 12(10), 978-986.

Based on the premise that patients will recover more quickly when they receive both adequate care in the emergency department and are transitioned successfully into their homes, the authors sought to determine what studies had been conducted in this area. They conducted a review of articles in MEDLINE and CINAHL related to emergency care of elders. The authors found that several interventions have been developed specifically to target elderly populations. Some examples of positive interventions are the use of staff education programs, specially trained nurses to perform geriatric assessments, discharging the patients with a summary and referral to their primary physician, and providing continuing home-based follow-up care. One significant finding of this study was that targeting high-risk groups with these intensive interventions was more effective than applying the strategies more generally. Further research should be conducted in this area to determine which interventions are most effective.

**HelpAge International, London.** (2006). *Older people in disaster and humanitarian crises: Guidelines for best practice*. Available at: [www.helpage.org](http://www.helpage.org). Accessed March 6, 2006.

This guide, published by HelpAge International, a global network of nonprofit organizations whose goal is to work with and for disadvantaged older people, is an excellent resource in elderly disaster management. It discusses several of the same concerns addressed in this Guide, including elders' unique shelter and nutrition needs, complex psychosocial needs, and protection from abuse. It is geared toward, and is a valuable resource in, disaster planning for the elderly in developing countries.

**Huerta F, Horton R.** (1978). Coping behavior of elderly flood victims, *The Gerontologist*, 18(6), 541-546.

The data used in this paper came from a research project of 387 telephone interviews of flood victims in Idaho in 1978. Similarly to Thompson et al (1993) the researchers conclude that elderly flood victims showed fewer signs of emotional distress than persons in other age groups. The researchers acknowledged that their sample of elderly persons was physically, socially, and economically better off than the general elderly cohort because they lived in a fertile region with an established and educated population. Some of the authors' recommendations are: that during the pre-impact stage, with the help of the Area Agencies on Aging, a roster should be compiled of elderly persons and a contact person with name, telephone number, and relationship to the elderly person. During the impact stage, within the first ten days after the natural disaster, when a great deal of separation anxiety occurs, elderly persons living alone should be recruited to help others locate their relatives, since greater trauma occurs in those who are seeking lost house hold members. During the repair and rehabilitation phase, which the authors delineate as 10 to 100 days following the impact, elderly persons should be given legal and tax counseling. Furthermore, because the elderly are often particularly sensitive to the stigma associated with receiving social services, if they are in need of counseling, it should be given in conjunction with innocuous data collection, or by religious officials, in order to downplay the fact that it is social assistance.

**Jeste DV, Blazer DG, First M.** (2005). Aging-related diagnostic variations: Need for diagnostic criteria appropriate for elderly psychiatry patients. *Biological Psychiatry*, 58, 265-271.

Few studies have been performed on the incidence and prevalence of psychiatric disorders other than dementia in elderly patients. Diagnostic confusion may occur for one or several of the following reasons: true age-related differences between older and younger adults, physical and psychiatric comorbidity that may be difficult to distinguish, underreporting of symptoms by elderly persons, symptoms that vary through time of onset, and symptoms that may fall below the diagnostic threshold set by Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV criteria. Furthermore, several factors and methodological problems may limit the reliability of published studies. Additional research should be done to better clarify and classify diseases and conditions that elderly adults may be more prone to developing.

**Kilijanek TS, Drabek T.** (1979). Assessing long-term impacts of a natural disaster: A focus on the elderly. *The Gerontologist*, 19(6), 555-565.

The authors used information collected from a study that reviewed the effects of the 1966 tornado in Topeka, Kansas, on family functioning to assess the impact of the tornado on persons 60 years of age and older. The authors found that the elderly, for the most part, placed more value on sentimental than monetary losses, were seriously neglected in the relief efforts, and used fewer economic recovery resources (other than house insurance) than younger victims; however, the elderly had fewer problems using different types of insurance, and reported their health as being excellent or good compared with other flood victims. The tornado did not affect the self-perceived mental or physical long-term health of elderly disaster victims despite a pattern of neglect the researchers found. Interestingly, elderly victims were less likely to use resources and more likely to report better health conditions. This may have to do with elderly persons' ideas and expectations of their own independence. Clearly, it is surprising that elderly persons did not seem more distressed that their needs had been overtly neglected during recovery efforts.

**Knight BG, Gatz M, Heller K, Bengston VL.** (2000). Age and emotional response to the Northridge earthquake: A longitudinal analysis. *Psychology and Aging*, 15(4), 627-634.

**Krause N.** (1987). Exploring the impact of a natural disaster on the health and psychological well-being of older adults. *Journal of Human Stress*, 13:61-69.

This report is based on data from the Longitudinal Study of Generations, a panel of 250 multiple-generation families originally sampled in 1970 and subsequently resurveyed every three years. The Northridge earthquake in California occurred three months before the 1994 survey was to be distributed. The data collected can thus be instrumental in documenting age-based response patterns to the earthquake. Researchers found that post-earthquake depression levels were most affected by pre-disaster depression levels. Those in the young-old cohort, between ages 55-75 years, had the lowest depression scores both before and after the earthquake. The inoculation hypothesis (that previous exposure to disasters will reduce post-traumatic symptoms, and in this case depression, due to the event) was supported moderately in this study.

**Kohn R, Levav I, Garcia ID, Machuca ME, Tamashiro R.** (2005). Prevalence, risk factors and aging vulnerability for psychopathology following a natural disaster in a developing country. *International Journal of Geriatric Psychiatry*, 20, 835-841.

Researchers studied psychopathological responses of 800 Hondurans to the disastrous situation caused by Hurricane Mitch in 1998. In this study, elderly persons were defined as those over age 60 years due to the low level of life expectancy in Honduras. Using interviews and a self-reported questionnaire, researchers found that while persons over age 60 did experience post-traumatic stress reactions, younger adults were equally affected. Essentially little is known in terms of psychiatric epidemiology in developing countries. More research should be done to identify risk factors specific to elderly persons in developing countries because their needs may differ significantly from those of the elderly in wealthier countries.

**Krause N.** (1987). Exploring the impact of a natural disaster on the health and psychological well-being of older adults. *Journal of Human Stress*, 13: 61-69.

The researcher interviewed a random sample of older adults in Galveston, Texas, at varying time intervals after Hurricane Alicia to attain an understanding of elders' response to natural disasters. He discovered that negative symptoms associated with somatic and retarded activities decreased as time lapsed after the hurricane. Thus, elders appear to have reacted to the storm by demonstrating physical or psychophysiological symptoms. Women, who were over-sampled in the study, were initially observed to be more vulnerable to the hurricane's effects but seemed to report fewer symptoms in the long-term, although self-reported health measures showed no significant difference between women and men. One of the study's major weaknesses was that it was not begun until nine months after the hurricane struck, and thus cannot be used to discuss the development of physical problems or psychological distress. However, the study does indicate that elders' reactions to the disaster differed by gender and over time, and thus the results can be employed in discussions of symptom abatement after natural disasters.

**Kuo C-J, Tang H-S, Tsay CJ, Lin S-K, Hu W-H, et al.** (2003). Prevalence of psychiatric disorders among bereaved survivors of a disastrous earthquake in Taiwan. *Psychiatric Services*, 54(2), 249-251.

Researchers surveyed 120 bereaved survivors of the 1999 earthquake in Taiwan. Fifty-three percent of those surveyed exhibited characteristics of post-traumatic stress disorder (PTSD). Many experienced feelings of guilt and thus greater symptoms of grief. Women were three times more at risk than men for developing major depressive disorder. Despite the high rate of PTSD, only one quarter of persons affected sought treatment. Strategies for dealing with bereaved persons in Asian countries should be developed, as cultural differences would suggest that these strategies differ from conventional Western practices.

**Magnum W, Kosberg JI, McDonald P.** (1989). Hurricane Elena and Pinellas County Florida: Some lessons learned from the largest evacuation of nursing home patients in history. *The Gerontologist*, 29(3), 388-392.

The authors discuss the emergency evacuation of 1,860 nursing home patients from Pinellas County, Florida, as a result of Hurricane Elena in 1985. They circulated a short questionnaire, which was filled out by nursing home administrators at the 19 nursing homes that were evacuated. In addition, the third author was personally involved in the evacuation process. Considering the late night evacuation in increasingly inclement weather conditions, the overall evacuation process was fairly successful. The main problem was waiting for buses to be dispatched. The authors urge better pre-disaster coordination between bus and other transportation companies and nursing homes to ensure a more orderly evacuation. Serious problems ensued, however, once the evacuees had been relocated to temporary shelters. Evacuees, many of whom were separated from caregivers at their nursing homes, were left to fend for themselves, often without appropriate food or medications. Another serious problem was the lack of personnel to change clothing for those who could not do so themselves. Staff members at the temporary shelters sometimes had trouble physically getting inside because they did not have proper identification. The authors suggest that nursing home patients should be housed in the temporary shelter with people from their nursing home in order to facilitate care delivery.

**McKain S, Henderson A, Kuys S, Drake S, Kerridge L, et al.** (2004). Exploration for patients' needs for information on arrival at a geriatric and rehabilitation unit. *Journal of Clinical Nursing*, 14, 704-710.

The study's authors—three nurses, a gerontological social worker, and a physiotherapist in Queensland, Australia—conducted semi-structured interviews with nine patients in a convenience sample after admission or transfer to a rehabilitation unit. The aim of the study was to determine if patients received adequate information, considering their condition and expectations, upon admission to the rehabilitation unit. The interviews revealed that upon arrival to the rehabilitation unit, patients received very little information, although they did not judge this as being problematic because they assumed that the rehabilitation unit was their “ticket out of [the] hospital.” In situations where elderly patients are victims of stressful disaster situations, care should be taken to ensure that they receive adequate information upon arrival at the rehabilitation site.

**Melick ME, Logue JN.** (1985). The effect of disaster on the health and well-being of older women. *International Journal on Aging and Human Development*, 21(1), 27-38.

Researchers used a 30-page questionnaire to gauge the physical and psychological stress levels of 145 female flood victims and 45 control females five years after flooding occurred in the Wyoming Valley. During the recovery period, as expected, the flood victims experienced greater physical and psychological symptoms than the control group. In the post-recovery period, however, although flood victims initially reported higher levels of mental distress that lasted for an extended period of time, further testing using Lagner's 22-Item Scale, Zung's Self-Rating Depression Scale, and a Self-Report Symptom Inventory showed that flood victims actually fared better compared to the controls. The study, however, is flawed in that research was not begun until five years after the event. Self-report items, therefore, are subject to bias and inaccuracies.

**Miller J, Campbell J.** (2004). Elder care supportive interventions protocol, *Journal of Gerontological Nursing*, August, 10-18.

In a 34-bed geriatric medical unit of an academic hospital, the researchers tested the effectiveness of the Elder Care Supportive Interventions Protocol (ECSIP), nursing and family intervention strategies to reduce discomfort in patients suffering from delirium and dementia. Sampling limitations and a small nursing staff may have led to bias in the results, which showed no significant differences between the baseline and treatment conditions for physical function, acute confusion, and length of stay for the patients observed in the study. One significant finding, however, was that undergraduate nursing students serving as elder care assistants both lower hospital costs and positively affect family and staff satisfaction.

**Mudur G.** (2005). Aid agencies ignored the special needs of elderly people after tsunami. *British Medical Journal*, 331, 422.

The Asian tsunami in December 2004 killed 300,000 people and displaced 92,000 adults over the age of 60. This article discusses the issue of elderly peoples' special needs during the relief efforts: relief workers were unaware of special dietary needs that some elders have and that elders had a difficult time getting cash allowances that were being distributed by different state governments. More specific attention must be given to the needs of frail and vulnerable elders after natural and man-made disasters.

**Nates JL.** (2004). Combined external and internal hospital disaster: Impact and response in a Houston trauma center intensive care unit. *Critical Care Medicine*, 32(3), 686-690.

Tropical storm Allison caused severe damage to the Houston Medical Center when it produced three feet of rainfall in June 2001. This report describes the failure of the emergency system at Memorial Hermann Hospital, one of Houston's two level I trauma centers, and how its staff responded effectively to the crisis in spite of loss of all electricity and hospital functions. The author outlines nine factors that are essential to address internal problems in the wake of an external disaster: coordination of human response, electricity, communications, protection of essential services, patient ventilation, water and other essential supplies, a patient-logging system, an evacuation plan, and media communication.

**Phifer JF, Norris FH.** (1989). Psychosocial symptoms in older adults following natural disaster: Nature, timing, duration, and course. *Journal of Gerontology: Social Sciences*, 44(6), S207-217.

The authors used an ongoing longitudinal study of the mental health of older adults to study the impact of 1981 and 1984 severe flooding events in Kentucky on elderly victims. Measures used included flood exposure, sociodemographic variables, and psychological symptom measures. Researchers discovered that both floods caused psychological consequences for elderly victims, with personal loss triggering mild to moderate levels of distress. However, differing effects were observed at different times, suggesting that effects of flood exposure may vary based on the disaster's severity, the length of the follow-up intervals, the proximity of the follow-up intervals to events that may trigger specific responses (such as an anniversary of the event), and the type of measure used.

**Rockwood K, Song X, MacKnight C, Bergman H, Hogan D, et al.** (2005). *Canadian Medical Association Journal*, 173(5), 489-495.

The authors measured levels of frailty in a prospective study of 2,305 elderly patients who participated in the second stage of the Canadian Study of Health and Aging (CSHA). Their goal was to certify the effectiveness of the Clinical Frailty Scale by following this cohort of patients five years after they had taken the CSHA. The authors did prove that the Clinical Frailty Scale is an effective tool to adequately assess a patient's level of frailty. Furthermore, it is easy to use and easy to train others to use. One of the study's weaknesses was that it overrepresented institutionalized patients and patients with cognitive impairments. For this reason and to ensure inter-rater reliability, it would be helpful to conduct further studies on the Clinical Frailty Scale. It is clear, however, that it would be an effective tool to measure frailty in elderly disaster victims.

**Romano M.** (2005). At capacity and beyond: Ideas such as "surge" hospitals are getting a more careful look as health-care wrestles with planning for large-scale disasters. *Modern Healthcare*, 35(39), 6.

In the wake of September 11, 2001, and more recent natural disasters, healthcare officials are struggling to develop effective solutions to speed healthcare response and delivery for future emergency disasters. Surge hospitals, a developing model that will allow hospitals to either

expand their services at existing facilities or at nearby sites to handle increased numbers of patients in a short time period, are one possible solution. In Washington, DC, one section of the entire Washington Hospital Center is in the process of transformation into a surge unit with the capacity to treat 350 patients simultaneously. Surge hospitals should not necessarily be defined as treatment areas within the confines of a traditional medical facility: The healthcare facility set up at the Astrodome in September 2005 is one recent example of a successful surge hospital.

**Saltvedt I, Opdahl Mo E-S, Fayers P, Kaasa S, Sletvold O.** (2002). Reduced mortality in treating acutely sick, frail older patients in a geriatric evaluation and management unit. A prospective randomized trial. *Journal of the American Geriatric Society*, 50, 792-798.

The researchers conducted randomized trials in the University Hospital of Trondheim (Norway) to determine whether being treated in geriatric evaluation and management care units (GEMU) reduced patients' mortality rates. The GEMU staff included one geriatrician; one and, at times, two residents; nurses; an occupational therapist; and a physiotherapist. Patients were selected for participation in the study based on level of frailty as assessed by guidelines outlined in the article. The mean age of the participants was 81.8 years in the GEMU and 82.4 years in the general medical wards. Being treated in the GEMU considerably reduced early mortality, although, after two years, the mortality rates had evened out between the two groups of patients. This study's strength, and possible application to frail elderly disaster treatment, is that acutely ill and frail patients were targeted and that their medical conditions improved when they were placed in a specialized unit for geriatric patients.

**Thompson MP, Norris FH, Hanacek B.** (1993). Age differences in the psychological consequences of Hurricane Hugo. *Psychology and Aging*, 8(4), 606-616.

This three-wave study of 1,000 adults affected by Hurricane Hugo illustrates that it is middle-aged and not older adults who suffer most from a natural disaster through the burden effect that predicts they have more to lose financially than both older and younger age groups. Older adults displayed fewer distress symptoms than the other two age groups (with the exception of somatic complaints), which indicates they were less affected than both middle-aged adults and younger persons. In conclusion, the authors suggest that elderly persons, because of their

life experience and resilience, would be helpful in victim advocacy efforts, house-sitting, child care, preparing meals, and other activities that are not physically burdensome. The researchers failed to discuss the demographic breakdown of the elderly population they surveyed. Taken separately, in the case of frail elderly disaster victims, these data would most likely illustrate a higher level of burden and distress.

**Ticehurst S, Webster RA, Carr VJ, Lewin TJ.** (1996). The psychosocial impact of an earthquake on the elderly. *International Journal of Geriatric Psychiatry*, 11, 943-951.

This longitudinal report on 845 adults who participated in the Quake Impact Study following an earthquake near Sydney, Australia, found that older people are in fact more vulnerable to psychological stressors following a natural disaster. Researchers also discovered that the more exposed the elderly persons, the more distress they experienced as a result of the earthquake. Elderly women in this study were found to have experienced more stress than other groups. Furthermore, although they clearly showed more signs of distress, elderly persons were unlikely to seek out disaster-related counseling services and other forms of support, and should thus be targeted specifically for post-disaster counseling services. The researchers conclude that following natural disasters, elderly victims should be specially targeted for services.

**Topinkova E.** (1994). Care for elders with chronic disease and disability. *The Hastings Center Report*, 24(5), 1-4.

The author discusses issues of long-term care for elderly patients with chronic diseases. While there is no universal model, she recommends "normalization" and "substitution," which favor home over institutional care. Normalization allows the patient independent living and a better quality of life; substitution replaces costly services with less costly ones. Home care, however, is not a complete substitute for institutional care. This article is relevant to the issue of frail elderly disaster victims only in that it stresses a medicosocial approach that balances institutionalization and long-term home care.

**Watanabe C, Okumura J, Chiu T-Y, Wakai S.** (2004). Social support and depressive symptoms among displaced older adults following the 1999 Taiwan earthquake. *Journal of Traumatic Stress*, 17(1), 63-67.

Researchers conducted a longitudinal study at six months and one year following the 1999 earthquake in Taiwan to examine depressive symptoms in displaced older adults. Although the scope of the research was limited by a small sample size, in general, depression levels did not change between the six and twelve month period directly following the earthquake. They also discovered that, in the short term, displaced persons had higher levels of depression than nondisplaced persons. Those with more immediate familial support had lower levels of depressive symptoms. One year following the earthquake, level of depression was negatively associated with social support received from extended family, friends, and neighbors. The implication is that, even if family is not available to provide support in the short term, depressive symptoms decline when displaced persons interact with friends and neighbors during the recovery process.

**Winograd CH, Lemsky CM, Nevitt MC, Nordstrom TM, Stewart AL, et al.** (1994). Development of a physical performance and mobility examination. *Journal of the American Geriatrics Society*, 42, 743-749.

Researchers assessed the validity and reliability of the Physical Performance and Mobility Examination (PPME) at research hospitals in California. The PPME is an observer-administered test that uses both a pass-fail and 3-level scoring scale (high pass, low pass, and fail) to assess physical functioning and mobility through six categories in hospitalized, specifically frail, older patients. Inter-rater reliability and test-retest reliability were assessed through a team of three trained raters. The PPME was evaluated as reliable using both rating tests, although test-retest evaluations showed lower reliability than inter-rater trials. The PPME can be applied to the work of both physicians and researchers, as it uses both pass-fail and 3-level scoring scale systems.



**RECOMMENDATIONS FOR BEST PRACTICES**  
*in the Management of Elderly Disaster Victims*