

Literature Review: The Roles and Responsibilities of Health Practitioners of Older Adults in Emergency Management

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I

Introduction

A significant amount of emergency preparedness literature focuses on the health practitioner's role in emergency preparedness and response. This review reveals the extent of which the literature focuses on health practitioners' roles in meeting the needs of *older people* in emergency management situations such as hurricanes, floods, pandemics, and terrorism.

The aims of the project were to:

1. Review a specified selection of literature related to five key knowledge areas required by health practitioners across disciplines regarding roles and responsibilities in emergency management in health care settings with a large concentration of older adults.
2. Provide a discussion of the key findings in a report that will be useful to inform the development of future work of the Public Health Agency of Canada's Seniors and Emergency Preparedness Working Group on Health Professionals and Continuity of Health Services.
3. Offer recommendations for addressing gaps in knowledge.
4. Provide a list of recommended national and international candidates for key informant interviews.

To accomplish these aims, an extensive review of the literature was conducted using the following research methods.

Research Methods

Project Team

Dr. Kelly Fitzgerald was responsible for the overall project, making sure it met the study scope and deadlines. She contributed a significant amount of time in the data collection, review, and reports.

Dr. Nina Maxwell was appointed the Research Officer for this project. Using her extensive experience in systematic literature reviews, she contributed to the data collection, review and reports.

We would like to thank Paul Nash, Professor Vanessa Burholt, and Dr. Christine Dobbs, members of the Centre for Innovative Ageing, for their contribution towards the project development, data collection, and report editing.

Search Strategy

To identify possible papers to be included in the review, the following five databases were used for key word searches:

- Ageline
- ASSIA
- CINAHL
- PubMed (includes Medline)
- Sociological Abstracts (IBSS)

After an initial review of searches, three databases were eliminated from the original list of proposed databases for the following reasons:

- Academic Search Premier was removed because IBSS, CINAHL, and Ageline would retrieve all of the relevant documents that would be included in this database.
- The relevant database within ProQuest called ‘Nursing and Allied Health Source’ is smaller than CINAHL and covers the same research areas as CINAHL.
 - PsycINFO (psychological papers) was eliminated because CINAHL and PubMed, both large databases, include a significant number of psychology references.

Key words were revised to ensure inclusivity of appropriate papers but that did not result in a massive number of irrelevant hits. The key words that were included in the search were:

Table 1: Search terms for ‘Older People’ population

Population	“old* people”, old* adult, elder*, geriatric, “later life”, senior, pensioner, retirement, “senior citizen”, aged
Event	emergenc*, disaster, catastroph*, flood, “heat wave”, tsunami, earthquake, tornado, volcano, “winter storm”, terrorism, pandemic, hurricane
Sites of Care	“long term care”, institution, “congregate care”, “assisted living”, retirement, communit*, resident*, “nursing home”

Table 2: Search terms for ‘Health Care Practitioner’ population

Population	health, “health practitioner”, “health worker”, “health care”, “health provider”, “health service”, “provision of care”, “accessibility of care”, “allocation of care”, “home care”, “scope of responsibility”, “health care decision”, doctor, “nursing assistant”
Event	emergenc*, disaster, catastroph*, flood, “heat wave”, tsunami, earthquake, tornado, volcano, “winter storm”, terrorism, pandemic, hurricane
Sites of Care	“long term care”, institution, “congregate care”, “assisted living”, retirement, communit*, resident*, “nursing home”

The following websites were also reviewed:

- Institute for Catastrophic Loss Reduction, <http://www.iclr.org/research/publications.htm>
- Public Entity Risk Institute (US), <http://www.riskinstitute.org/peri>
- Natural Hazards Center, University of Colorado at Boulder, <http://www.colorado.edu/hazards/library>
<http://www.colorado.edu/hazards/pubs>
- Public Safety Canada, <http://www.publicsafety.gc.ca/index-eng.aspx>
- Regional Geriatric Programme of Toronto, <http://rgp.toronto.on.ca/node/92>
- Public Safety and Emergency Preparedness Canada, <http://www.psepc-sppcc.gc.ca/chan/com/index-en.asp>
- Public Health Agency of Canada, <http://www.phac-aspc.gc.ca>
- Canadian Centre for Emergency Preparedness, <http://www.ccep.ca/cceppubl.html>
- Canadian Risk and Hazards Network, <http://www.crhnet.ca/>
- US Government Accountability Office, <http://www.gao.gov/index.html>
- US Administration on Aging, <http://www.aoa.gov/index.aspx>
- Pan American Health Organisation <http://www.paho.org/english/dd/ped/home.htm>
- International Federation of Red Cross and Red Crescent Societies, <http://www.ifrc.org/>
- World Health Organization, <http://www.who.int/en/>
- HelpAge International, <http://www.helpage.org/Home>

Two websites identified in the proposal were not reviewed because the Ageline database includes AARP documents and Medscape items would be found in the PubMed database.

Search limiters

During the review of the databases and websites, decisions were made on how to determine if papers should be included. These decisions included:

- Inclusions
 - There were two target populations:
 - people aged 65 and over
 - health care practitioners
 - The target location was health care settings where a large proportion of older adults may be located during an emergency such as long-term care institutions, congregate care centers, assisted living residences, and community residing older adults that receive home support and care.
 - If an abstract was unavailable, then the keywords provided in the search database were used to determine if the paper might be relevant.
- Exclusions
 - People under the age of 65 (except where studies span across the older age groups, e.g. a study which includes people aged 60-70).
 - Literature written in a language other than English.

- Papers on AIDS/HIV pandemics, fire safety, facility infectious disease outbreak, and seasonal influenza were not included because they do not fit into the remit of this paper—they would not be classified as events that would require emergency management needed for a large scale event. For the purpose of this report, it is assumed that facilities and health care practitioners should already be prepared for these types of events.
- Several papers identified ways to respond in an emergency. These included papers for hospitals and home health care. Unless the papers specifically stated the response was for people over the age of 65, the paper was not included. Although many of the patients seen by these health care providers may be older, the information was deemed to be applicable to the general population and not specific to the older population.

Search Results

Using the five databases, approximately 5,600 key word searches were performed for the ‘Older Population’ and approximately 7,800 key word searches were performed for the ‘Health Care Practitioner’ population. During the initial scan of the databases, the papers that were found to have some relevance to the topic of this project were imported into the Endnote database. After elimination of duplicates, over 700 potential documents were identified. An additional 23 papers were identified in the websites. A second review of the papers in the Endnote database was conducted to determine if the papers were highly relevant. Once all non-relevant papers were removed, the database included 287 papers. After reading and evaluating each paper, 74 papers were included in this report and are listed in the reference section.

Findings

The literature was reviewed for information that answered the five key questions:

1. What is the role of health practitioners regarding seniors in their care in the context of emergency management?
2. What is/should be their scope of responsibility?
3. What are/should they be expected to do?
4. Who do/should they work with?
5. How do/should they make health care decisions during an emergency situation?

In general, health practitioners should be responsible for knowing their organization’s emergency/disaster plan and should be prepared to act in an emergency situation. Beyond this basic knowledge, it would be helpful if they knew their community’s response plan. It is expected that the reader of this paper will know the basics for response for all populations (facility or community based) and that the following items are included to identify specific ways in which health practitioners should respond to older people in an emergency management situation.

Following each of the five questions (listed above) are important findings identified within the literature. These findings are sorted according to the health care setting. Each section starts with an overview of the points identified for the question. Following this, the first subtitle 'General' includes the general findings that can apply to all settings. The second subtitle 'Facilities' contains findings for facilities such as nursing homes and residential care homes. The third subtitle 'Home Care' includes findings for home care settings. Many of the findings overlapped or could apply to more than one question but were placed in the most appropriate section.

Health practitioners' role in care

In general, health practitioners should avoid prejudices about age and culture. They need to understand the role of DMAT (described below); understand in what situation care can be provided; be able to conduct health, social financial, and services assessments; provide outreach services; know the risk for disaster related diseases; know how to accurately diagnose and recognize health-related consequences of the event; receive education; know how to provide assistance during an evacuation; be able to recognize cognitive decline; and understand how age-related health issues can impact how people prepare, respond, and recover. Practitioners need to be able to recognize when people cannot access food and resources like dialysis. They need to recognize the need for medications and related items; receive vaccination for influenza; provide provision for care; arrange transportation; monitor shelters; recognize mobility issues; and provide mental health support.

Facility staff should complete assessments to ensure that shelters used by their residents meet their needs and that supplies are always maintained. Staff in these facilities should undergo regular training and drills to practice their skills ensuring they are able to: appropriately triage older people, respond to specific events like heat, and know how to monitor residents and control their fluid intake. Facilities should also have staff members trained in the use of non-pharmaceutical interventions for pandemics and understand the effects of transferring residents.

In home care, practitioners need to be aware that older adults may be overlooked in terms of assessments and during relief operations. Health care needs are generally underserved and medications and other resources for chronic health and disability problems may be unavailable. Agencies need to identify high-risk clients and assist in planning provisions for vulnerable older people. This strategy should also include the co-ordination of multi-agency disaster planning and response. Further to this, agencies should provide materials to educate both staff and clients in their responses to such situations including the protection of important records.

General

- By failing to consider the impact of chronic, age-related health issues, health staff members assume that older people are not ill, but rather just old. Health staff operate within cultural prejudices about the kinds of services older people seek to access as well as the health issues which concern them (Klynman, Kouppari, & Mukhier, 2007).
- The Disaster Medical Assistance Teams (DMATs) are prepared for the more critical needs as opposed to the more basic needs such as prescription refills, oxygen needs, water, shelter and hope. Without a full pharmacy, pharmacists have to devise

replacement medications. Even for a short amount of time, this was a concern of medical staff following Hurricane Charley (Cohen & Mulvaney, 2005).

- Practitioners need to understand when it is acceptable to provide care. In the aftermath of Katrina, even when nurse volunteers had appropriate education and credentials, many were not allowed to provide care at Red Cross shelters because of “red tape” (Gibson & Hayunga, 2006).
- Assessments for older adults should include information on health conditions, social support needs, caregiving responsibilities, and available means to meet basic living needs, including access to food and health services, treatment, and medicines. These assessments must be coordinated across primary health care, rehabilitation, long-term care and social services to meet the needs of older people. In addition, outreach services should be implemented and referral mechanisms created to identify and ensure care for hidden or stay-behind older people (Hutton, 2008).
- Practitioners should understand that the risk of infectious diseases can increase post-disaster (earthquake, floods and hurricanes) because of changes in the environment, disrupted access to potable water and flushable toilets, crowding, and unsanitary conditions (Nomura et al., 2008).
- Health professionals and caregivers need education on geriatric issues to help them respond appropriately to older adults during a disaster. For example, the changes in pharmacokinetics may cause more susceptibility to chemical agents, and older individuals may become ill with smaller doses of agents. They are at increased risk of side effects and drug–drug interactions from antibiotics used for treatment or prophylaxis in the case of an infectious agent (Lach, Langan, & James, 2005).
- Altered presentation of illness is common in older adults and can confound the accurate diagnosis of a biologic agent by the patient’s health care provider. Although an older adult might have a quicker and more severe response to an agent, it still may take longer to identify a biologic agent as the cause of an illness. As a result, the window of opportunity to make the diagnosis before others are exposed may be missed, and this can delay action to prevent further contamination (Lach, Langan, & James, 2005).
- When helping older adults who require assistance during evacuation, it is important to speak clearly, to not shout, and to face the individuals so they may lip-read if they are hearing impaired. There may be confusion about what is occurring, causing older individuals to struggle against needed treatments, safety equipment, or evacuation. The health care providers’ personal protective equipment can be frightening. Health care providers must remain calm and reassuring, yet firm in their directions. It is important to move quickly and confidently, without causing panic and further disorientation (Lach, Langan, & James, 2005).
- Following a disaster, older people are more likely to suffer health-related consequences and to require longer periods of recovery. Examples of this include the onset of hypothermia or hyperthermia where disasters involve environmental extremes that make maintaining body temperature difficult. There are also problems associated with transferring older people to shelters or nursing homes without any instructions or medical records. Conditions such as dementia compound the ability of staff to obtain rudimentary health information and healthcare providers may dismiss diminished mental capacity following a disaster as purely a factor of age (Fernandez, Byard, Lin, Benson, & Barbera, 2002).

- Older individuals are more vulnerable to agents absorbed through the skin, such as vesicants and corrosives, which may produce greater skin damage. They are also more vulnerable to changes in fluid volume and electrolytes because of cardiovascular changes and the kidneys' decreased efficiency in regulating fluids. As a result, agents that induce vomiting or diarrhea can cause rapid dehydration and electrolyte imbalances. Rapid infusion of fluids coupled with the biologic or chemical agent can compound the effect of either and result in fluid overload, heart failure, or respiratory and renal complications. Hence, disaster responders need to monitor older adults closely (Lach, Langan, & James, 2005).
- Understand that cognitive decline (which may already be present or may be a temporary response to the disaster) can hinder understanding of evacuation or emergency information (Pekovic, Seff, & Rothman, 2007).
- Understand that older adults with cognitive problems may become agitated during a crisis or feel overwhelmed by the crowding, noise, and lack of privacy in a shelter (Aldrich & Benson, 2008).
- People with Alzheimer's disease are particularly vulnerable because they often are unable to advocate for their wishes and needs. In addition, their difficult behaviors are likely to be exacerbated during a disaster because they may lack regular medications and a familiar environment (Gibson & Hayunga, 2006).
- Understand the 'multiple risk factors for injury and their relationship with each other' can improve search and response (Peek-Asa, Ramirez, Seligson, & Shoaf, 2003) (page 66).
- Understand that conditions such as arthritis, hypertension, heart disease, diabetes, and respiratory disorders are common amongst adults aged over 65 and can impair their ability to prepare, respond, or recover from a disaster (Aldrich & Benson, 2008).
- Understand that after a disaster, elderly people are less able to compete for food and other survival resources, cannot travel long distances to where resources are available, and are unable to stand for hours in long relief supply lines (Pekovic, Seff, & Rothman, 2007).
- Understand that during emergencies, older people's vulnerability to hunger is often heightened by inaccessible food distribution points, difficult-to-digest foods, inability to prepare foods, and many older people's tendency to share scarce food rations with family members (Hutton, 2008).
- Where physician offices and healthcare facilities close due to disasters, patients lose access to life-sustaining medical care. Like during the 2005 hurricane season, due to communication disruption, patients requiring dialysis may be unable to find healthcare services that could provide them with the necessary care (Kleinpeter, 2007).
- As part of preventative care, provision should be made for pre-disaster care and follow-up care for acute or chronic illnesses (Lafuente, Eichaker, Chee, & Chapital, 2007).
- The most common needs for older people following Hurricane Marilyn was anti-hypertensive medications and insulin-loaded syringes (Leonard, Spangler, & Stringer, 1997b)
- To prepare for an influenza pandemic or epidemic, health care practitioners (because they can easily transmit a virus) and the elderly (who are more prone to being affected) should be vaccinated (Kasten & Poland, 2008).
- Older adults need assistance with transportation, preparation, and support for serious health problems in order to evacuate (Rosenkoetter, Covan, Cobb, Bunting, & Weinrich, 2007).

- Practitioners may need to arrange transportation for elderly patients to receive care (Reed, 1998).
- Practitioners should place older people in shelters that are closely monitored (may be separate from the central shelter) (Reed, 1998).
- Mobility assessments should be included in an evaluation of an older disaster victim. Mobility aids should be considered lifesaving and be included in stored supplies like medications. Special cots, adjustment of the environment in a shelter to reduce physical hazards, and mobility aids should be made available when possible, for example in special needs shelters (Rothman & Brown, 2007).
- Elders and persons with disabilities may need more preparation time, a variety of communication and warning modalities, availability of oxygen and respiratory equipment, training in alternative transfer techniques and exit routes, and assistance to maintain regularity in medication and treatment regimes (Johnson et al., 2006).
- Mental health workers can support the elderly by way of telephone calls, visits, and computer communication. A plan should be in place for communicating with the older client during a crisis in terms of who to contact, where to go, or who will come to the aid of the elder (Monahan & Lurie, 2007).
- It is important to reduce patients' anxiety over their health as this could have long-term effects. Temporary displacement or homelessness along with loss of control over the basic aspects of their lives can lead to feelings of uncertainty which could have effects upon mental health (Lafuente, Eichaker, Chee, & Chapital, 2007).

Facilities

- Practitioners should practice skills necessary to respond to any type of disaster regardless of the type of facility (Williams, 2006), (Verona, 1992).
- For older adults with disabilities or in nursing homes, disaster preparation and evacuation can be complicated and even life-threatening. Responses to Hurricane Andrew in Miami in 1992 clearly demonstrated this as shelters were inaccessible, personal assistance was insufficient, interpreters for the deaf were not available, there were inadequate arrangements for medication management, and electricity was not sufficient for medical appliances (Rosenkoetter, Covan, Cobb, Bunting, & Weinrich, 2007).
- The Bilioxi Community Living Center (BCLC) certified special-needs shelter for the elderly in emergencies to weather Hurricane Katrina in relative comfort. The 240-bed skilled nursing facility in Mississippi had a certified special needs shelter, had its own generator as well as being able to supply 7-14 days worth of bottled oxygen, water, pharmaceuticals and medical supplies all of which were checked regularly to ensure that they are not out-of-date. The certified shelter also had access to a call-up list of staff who were available in an emergency. The facility always had disaster drills so staff and residents were prepared for the real thing. The only lesson learned from Katrina was the need for a satellite phone as the cell towers were knocked down by Katrina (Hoban, 2005).
- Recognize that an influenza outbreak in a nursing home may occur during a heat wave. This could be the result of assembling all of the residents in a confined, cool room allowing for the quick spread of the virus (Gaillat, Dennetiere, Raffin-Bru, Valette, & Blanc, 2008).

- Be aware that there are different recommendations for triage during a disaster. For example, an American College of Chest Physicians task force recommended practitioners should not treat patients over the age of 85 (Anonymous, 2008b). Conversely other emergency department experts state that practitioners should treat on an individual basis and should not categorize patients to receive care based solely on older age but rather on other variables like survivability, resources, and the type of disaster (Anonymous, 2008b).
- Non-pharmaceutical interventions may be useful for residential facilities to protect residents and staff from a pandemic. This type of intervention may be the only option available in some countries or the first step in economically developed countries prior to receiving pharmaceutical resources (Nuno, Reichert, Chowell, & Gumel, 2008).
- Older residents may experience more problems by evacuating than staying in place. For example, following Hurricane Katrina, those who evacuated experienced more depression, dehydration and skin tears than those who remained in nursing facilities (U. S. Department of Health and Human Services Office of Inspector General, 2006).
- Older adults may experience “transfer trauma” that can result in illness or even death after being moved from nursing homes. Also, some older persons may regard the need to rebuild homes and life patterns, or undertake complex procedures for applying for aid, as too formidable, leading to inaction and potential depression (Gibson & Hayunga, 2006).
- With no air conditioning following Hurricane Andrew, most residents in the Miami Jewish Home and Hospital for the Aged required constant monitoring and increased oral fluid intake by percutaneous endoscopic gastrostomy in tube feeders or by intravenous administration when oral intake lagged. Since the county emergency medical service was overwhelmed by the disaster, the home became responsible for the care of one resident who fell and broke his or her hip and an elderly man who developed an intestinal obstruction (Silverman, Weston, Llorente, Beber, & Tam, 1995).

Home Care

- As older adults may be housebound, they can be overlooked in assessments and relief operations. Thus their health care needs may also be underserved in terms of outreach and accessibility but also in making available medications and other resources for chronic health and disability problems (Hutton, 2008).
- Personal care agencies are unprepared in (1) identifying clients at high risk and assisting them in planning; (2) providing written materials and/or recommendations; (3) protecting records; (4) educating staff and clients; and (5) coordinating disaster planning and response across agencies (Laditka, Laditka, Cornman, Davis, & Chandlee, 2008).

Scope of responsibility

In general, health practitioners need to be able to conduct mental health assessments and understand disaster related risks for falls, malnutrition, dehydration, pressure ulcers, and problems with medications (such as interactions, withdrawal, and side effects). They need to be able to recognize and respond to heat illness, create accurate disaster plans, and provide outreach (with documentation) to older victims.

Facilities need to be part of community emergency plans. Facility practitioners need to be able to triage and know care plans. Staffing, training, transportation, contact with physicians, staff members' role in response, use of facilities as a resource to the community, and mental health care (crisis counseling, diagnosis, assessment, and treatment) need to be part of the facility plan developed with input from practitioners.

In home care, practitioners should help with the restoration of medical services, improve sanitation services, improve safety awareness, involve the use of social networks for support, and help in planning for ways to access victims in the community.

General

- A cognitive and mental health assessment should be conducted for older victims (Rothman & Brown, 2007).
- In a health assessment, health practitioners should ask about recent falls if injuries are present. Multiple injuries may signify abuse or neglect. To preserve function and survival in people with falls, rapid assessment and triage and a “low threshold for transfer of viable geriatric trauma victims to a higher level of care” is important (Rothman & Brown, 2007).
- Malnutrition, dehydration, and pressure ulcers should be evaluated when assessing older victims (Rothman & Brown, 2007). Each of these can be exacerbated, for example, in a shelter. Practitioners should be aware of drug interactions, withdrawal (for example from unavailable pain medications), and medication side effects (Rothman & Brown, 2007).
- During and after Hurricane Katrina, pharmacists faced the following problems: distribution and procurement, locating evacuated residents, admitting displaced residents to other facilities, and gathering information to perform the medication regimen review process (Kaldy, 2007).
- Health practitioners are expected to know how to respond to older people with heat related illness. Faunt et al. (1995) provided a management plan in response to inconsistent clinical practice. This included removing the patient from the heat stress, ensuring airway, breathing, and circulation, providing rapid cooling and monitoring, treating seizures, and providing fluid treatments (Faunt et al., 1995).
- Emergency plans must address systems for locating elders, backing up communication plans, permitting service providers to enter disaster areas, disseminating emergency planning information on a regularly scheduled basis, expanding mental health care, and could include creative ideas such as surveillance by home care workers and the use of older persons as volunteer service-extenders. Older and disabled persons must be prepared for either evacuation or sheltering in place and have correctly assembled emergency supplies (Johnson et al., 2006).
- Medical teams may need to provide outreach to frail and older people. These people may not be able to access medical aid facilities set up following a disaster therefore requiring teams to conduct outreach into the community (Leonard, Spangler, & Stringer, 1997a).
- Failure to record the number and location of older survivors of the 2005 Indian Ocean tsunami meant that this section of the population is likely to be forgotten in plans for recovery and rehabilitation (HelpAge International, 2005).

Facilities

- Disaster preparedness coordinators need to include the needs of frail older people who reside in nursing homes in their planning. Nursing homes should be in an emergency priority category similar to that of hospitals to facilitate having lifelines restored (such as critical utilities) and access to ambulances and other emergency vehicles for evacuation (Laditka et al., 2008).
- Nursing homes should have established triage and care procedures that address the special needs of older people. Nursing homes must ensure that medical information, medications, and medical supplies accompany evacuated residents. Nursing homes need to also have plans to receive evacuees (Laditka et al., 2008).
- Nursing facilities may have problems retaining staff during disasters (although including their families in evacuation can aid this), may have limited access to transportation with wheelchair access, and need clear guidance on when and how physicians should be contacted prior to evacuation (Castro, Persson, Bergstrom, & Cron, 2008).
- Howe (1993) suggested a nursing coordinator (or administrator) should be responsible for leading an emergency response in a long-term care facility. Nursing assistants could be made responsible for activities such as covering patients, closing windows and doors, and securing flashlights (Howe, 1993).
- Nursing homes can become a community resource in a disaster. Following Hurricane Katrina, one nursing home stated that it received more seriously ill individuals compared to the local hospital. Another facility received older individuals because it was the only facility with power for oxygen concentrators (Laditka et al., 2008).
- Facilities like nursing homes should consider if nurses should be trained in first aid, how to treat burns, and other disaster related ailments (Teitelbaum & Wilden, 2001).
- Health care providers should provide crisis counseling services to nursing home residents who require assistance beyond psychological first aid (Brown, 2007).
- After mental health screenings and evaluations, a diagnosis should not be made but symptoms should be addressed and specific prognostic conditions identified. If psychological first aid and crisis counseling are ineffective, then a formal assessment and treatment should be provided (Brown, 2007).
- Older disaster victims should be informed by health practitioners about normal mental health responses and strategies to cope (Brown, 2007).
- To minimise potential adverse psychological affects, the recovery environment must provide for patients emotional needs. Of more than 500 permanent residents in the Miami Jewish Home and Hospital for the Aged, no patients required acute geripsychiatric hospitalization following Hurricane Andrew indicating the effectiveness of careful monitoring and early medical intervention (Silverman, Weston, Llorente, Beber, & Tam, 1995).

Home Care

- Hurricanes can have an effect on pre-existing medical conditions and health care for households with an older adult resident. Local health care providers and public health agencies need to improve the speed with which medical care services are restored, improve sanitation services, improve awareness of safety such as the use of bottled water, and encourage the use of social networks to provide support in the post-hurricane recovery period (Little et al., 2004).

- Providers need to plan for difficult access to their clients. Following September 11th many frail older adults and persons with disabilities were confined for days to their high-rise apartments near the World Trade Center without electricity, fresh supplies, a way to refill their medications, or any way to communicate with the outside world. Home care workers could not get in to the area to visit their clients and community service providers could not get to their offices or access computers with client information. In addition, many frail adults were unknown to community workers because they had never applied for services (Aldrich & Benson, 2008).

Expectations of health practitioners

In general, health practitioners need to be part of extensive disaster planning, especially for special needs individuals, and include training, the proper use of assessment tools and documentation procedures if access to computers is lost. They should also ensure that they have access to lists of contacts for specific events so there are sufficient appropriate staff members. Practitioners need to be knowledgeable of how to handle disaster related illnesses and be able to provide outreach into the community. Mobile medical units should also be available to provide outreach care and ensure patient privacy even outside of permanent premises. They should make available mental health providers with knowledge of older people's needs in the direct aftermath of any disaster situation.

In facilities, health practitioners should contribute to detailed facility plans and participate in the development and delivery of staff training. They should be knowledgeable about needs of older people and services in the community and have identified daily procedures that can be adjusted to meet the needs in disasters. They need to understand how important it is to attempt to bring a sense of normality back to the lives of evacuees (e.g. social networks). Health practitioners should be able to effectively triage and have sufficient resources to be self-sufficient in the aftermath of a disaster. They should also ensure that pharmacists visit all non-evacuating facilities to maintain sufficient levels of health care provision.

In home care, health care practitioners should assist in planning prior to a disaster situation. During and immediately after a disaster, they should participate in the search for older people and conduct effective assessments and triage and know how to prioritize.

General

- It has been recommended that there should be: backup communications systems, and copies of essential information in two locations; a citywide emergency plan for older adults and people with disabilities that includes a separate shelter area for them; an evacuation system that includes transporting their medications and supplies with them, a network of emergency pharmaceutical services, and a system for evacuating pets; provide appropriate public information on emergency preparedness in appropriate formats to older adults and people with disabilities; establish a secure system of photo identification and permits for professional health care and senior service workers that will enable them to reach their homebound clients in an emergency; develop an emergency support system for in-home services, including emergency respite care and communications systems for in-home caregivers; create a list of volunteers willing to help in an emergency; arrange

with local restaurants to provide food to older adults during an emergency; and improve identification and tracking methods for older adults and their health information (Aldrich & Benson, 2008).

- Poor coordination in disaster planning for Hurricane Katrina in Louisiana and unreliable communication lines prevented timely deployment of life-saving resources. Shelters were unequipped to handle a large population with large numbers of persons with disabilities and chronic illnesses (Plouffe, 2008).
- In Kashmir, local emergency providers received training to offer psychosocial support following an earthquake. In addition, mobile medical units provided effective response through immediate assessment of needs, primary health care, and referral and health clinic services, especially in remote communities. The World Food Program set up a no-queue system to distribute food to older persons and in Cuba, during hurricanes, nutritional assessment and appropriate food is assured (Plouffe, 2008).
- Following their work caring for Hurricane Katrina evacuees, geriatricians from Baylor College of Medicine recommended the development of a disaster plan for the special needs of the elderly which included the development of a system for keeping track of elderly survivors at evacuation centers, devising a triage tool to screen elderly individuals based on a functional assessment, involving healthcare specialists with a knowledge of geriatric care, taking action to prevent fraud and abuse of elderly evacuees, fostering coordination of actions by agencies and organizations with the expertise and resources to aid older individuals, and performing disaster drills to improve preparedness (Cherniack, 2008).
- Practitioners are expected to be able to identify and include essential medicines for older people in an emergency kit and develop disability aid packages with equipment such as eyeglasses and walking sticks (Hutton, 2008).
- For specific kinds of disasters, health professionals and older adults need to know who to notify about emergency situations, what their distinct roles are in preparing for and responding to disasters, when and how to evacuate, and who to call for assistance. An essential element is to emphasize the necessity for personal preparedness, a family emergency plan, emergency supplies, medications, treatments, and assistance for those with disabilities (Lach, Langan, & James, 2005).
- Agencies frequently mention the lack of proper assessment tools that can capture the particular needs and capabilities of older people (Maerten, Maccoll, & Suwannakarn, 2006).
- There is a shortage of mental health practitioners experienced in working with older clients and a lack of general knowledge about how mental health problems are manifested in older people (N. O'Brien, 2003). One example of how to overcome this might be by providing health practitioners with the guidelines discussed in the next point.
- A very small study developed eight guidelines for mental health providers following the attacks on September 11, 2001: reduce isolation, discuss the trauma and the client's individual perception, allow for the expression of grief, monitor physical, emotional, and psychological symptoms, monitor anniversary issues, honor old rituals and develop new ones, include family members and community resources in networking and planning, and recognize and encourage resilience and spirituality (Monahan & Lurie, 2007).

- The DMATs are responsible for setting up mobile hospitals and/or units at participating hospitals in both affected and unaffected areas. The team is able to function in tents or under tarpaulin and have full critical care capabilities, with cardiac monitors, defibrillators, portable ventilators, and intravenous infusion pumps. The staff members have the expertise to carry out invasive procedures as well as have access to a full pharmacy with pharmacists able to dispense and mix medications. The team can also help with patient care and transport from a disaster site to unaffected areas (Cohen & Mulvaney, 2005).
- Lack of privacy can be difficult and frustrating for health care providers to adequately assess patients (Lafuente, Eichaker, Chee, & Chapital, 2007).
- Providing care can be hindered by loss of computer access and lack of patient records, as well as the need for consultation paper forms. This can all lead to lengthy delays in providing primary care (Lafuente, Eichaker, Chee, & Chapital, 2007).
- In 2005 the UK Department of Health sent nurses into the community and facilities with “leaflets urging them to identify vulnerable patients and to make preparations” for a heat wave (Strachan-Bennett, 2005). The nurses and health visitors were expected to monitor “the effects of heat-related illness” (Anonymous, 2005a).
- Following Hurricane Wilma, mobile medical vans treated 3,218 individuals, including the elderly with chronic medical conditions, by providing vaccinations, medications, and routine and emergency treatment (Cherniack, 2008).
- Employees of the Veterans Administration Medical Centre in New Orleans were asked to call a 1-800 number to notify management of their whereabouts. The employees who responded were recalled from their evacuation places in order to assist in the disaster relief efforts and to staff mobile clinics following Hurricane Katrina (Lafuente, Eichaker, Chee, & Chapital, 2007).
- Eighteen months after the Aceh tsunami, there was a shortage in geriatricians and medical staff lacked general knowledge about age-related ailments. Time constraints of medical and paramedical staff did not allow for sufficient time to make holistic diagnoses regarding older patients (Maerten, Maccoll, & Suwannakarn, 2006).
- Gastroenteritis and norovirus may present itself in shelters therefore requiring practitioners to instruct shelter residents about washing and disinfecting (Nomura et al., 2008).

Facilities

- Nursing home evacuation planning must include details such as the provision of supplies and transport of records, medications and belongings. In addition, they should have an agreement with the host facility and plans for re-entry after the evacuation (U. S. Department of Health and Human Services Office of Inspector General, 2006).
- Essential training for a nursing home disaster plan includes teaching staff how and when to call 911 or the local emergency medical services number for emergency help, show each staff member how and when to turn off the water, gas, and electricity at the main switches, teach staff members how to locate and use fire extinguishers, and teach staff members how and when to check smoke detectors (Rhoads & Clayman, 2008).
- Nurses working in long-term care facilities carry a great responsibility to keep abreast of all information that would relate to the well-being of their patients and residents in the event of a disaster. Even when residents have access to this information they may not

heed it or understand it making nurses an important source of information (Rhoads & Clayman, 2008).

- Mental health providers should be knowledgeable of community services and the needs of elders during the different phases of a disaster. In nursing homes, staff should be trained in a modified version of psychological first aid and knowledgeable about symptoms of trauma related to evacuation and sheltering in place (Brown, 2007).
- Residential facilities should have the resources to be self-sufficient for 72 hours post-disaster. Medications, food, and any other supplies should be available for that time and portable so they can accompany residents if relocation becomes necessary. Evacuation plans should be specific and address where residents and staff should go, how they will get there, and the details of evacuation. Medications for older residents are a significant challenge during and after a terrorist attack or disaster. A portable case containing medications for each unit or floor's residents should be ready to be evacuated with residents. Individual medications could be placed in secure containers with medical and medication history and attached to wheelchairs. To assure that medications are current, they would need to be checked regularly by a professional nurse (Lach, Langan, & James, 2005).
- Examination of existing items, such as the Medicine Administration Record (MAR), should be conducted to determine medication use and portability during a disaster. The MAR, which often includes a photo of the resident, would be very useful if residents are relocated to an evacuation center where nurses unfamiliar with these residents have to administer medications (Lach, Langan, & James, 2005).
- Registered nurses should be available in nursing homes to triage evacuees on arrival, immediately assessing their medical needs (e.g., performing "finger sticks" for blood sugar levels) (Laditka et al., 2008).
- Pharmacists visited facilities that did not evacuate immediately after Hurricane Katrina and inventoried medical supplies, routine medications, and emergency drug kits to ensure that facilities could meet the demand. Pharmacists also needed access to hydration medication because of the high temperatures and no access to utilities for two weeks (Kaldy, 2007).
- Once residents have been evacuated to a new facility, various services such as doctor appointments, hairdressers, dental exams, and so on can be established as appropriate. The evacuation facility contact can provide names and addresses of all outreach programs that could be contacted to meet with residents and their families and provide them the services they may need. The emotional aspect of relocation also needs to be addressed. To help reduce the negative impact on the residents, every effort should be made to relocate them where informal support networks can provide care, reassurance, and feelings of security. All attempts should be made to minimize the number of moves (Rhoads & Clayman, 2008).

Home Care

- Nurses' roles in disaster preparation are to assist older adults, family, and friends in understanding the critical importance of early planning and the potential consequences of lack of planning, and to assist them with the development of evacuation plans and personal survival kits. It is not uncommon for hospitals to discharge patients to their homes or homes of family members when a disaster is pending. Such individuals warrant

additional considerations because they may not be able to relocate without assistance (Rosenkoetter, Covan, Bunting, Cobb, & Fugate-Whitlock, 2007).

- Older people can become trapped in buildings post disaster. The Visiting Nurse Service (VNS) of New York searched for elderly residents around Ground Zero after the September 11, 2001 attacks (Belcher, 2002).
- During a bioterrorism event, hospice and home health care practitioners will be expected to triage, prioritize, and conduct a concise assessment of their patients (Citarella, Marble, & Mueller, 2002). They must use infection control practices and be knowledgeable about biological agents, agency protocols when something unusual is identified, and the agency's documentation system that will be used in an event (Citarella, Marble, & Mueller, 2002).

Collaboration with other groups/individuals

In general, practitioners need to be aware of medical outreach teams like DMATs and medical mobile units, understand procedures for identification of special needs individuals in the community, and collaborate with appropriate organizations, facilities, and teams like palliative care teams (including specific team members).

Facility health practitioners need to be part of an internal disaster team, work with pharmacies, contribute to outreach teams like SORT, and provide training like PREPARE.

In home care, practitioners need to provide outreach, conduct mental and medical health assessments simultaneously, work with established elder services, involve social workers in response, and involve older people in community disaster planning.

General

- The DMATs are part of the National Disaster Medical System within the US Department of Homeland Security, Federal Emergency Management Agency (FEMA), response Division, Operations Branch. The 35-member team consists of doctors, nurses, physician assistants, nurse practitioners, pharmacists, paramedics, and logistics and communications staff (Cohen & Mulvaney, 2005).
- Medical outreach teams are able to provide care for homebound patients or nursing home residents too infirm to reach medical aid stations. These teams should consist of a registered nurse, paramedic, respiratory therapist, public health specialist, and a local authority specialist who is familiar with the area and residents with a physical disability (Leonard, Spangler, & Stringer, 1997b).
- The collaborative practice (doctors, nurses, pharmacists, psychologists, social workers and others) of the mobile medical clinics provided by the Veterans Administration Medical Center staff provided greater opportunities for adherence to treatment regimes following Hurricane Katrina (Lafuente, Eichaker, Chee, & Chapital, 2007).
- Having pharmacists within mobile health clinics following Hurricane Katrina increased patients' willingness to be counselled on medications and possible side effects. This may have reduced non-compliance with medications and reduced the number of visits to emergency rooms and hospitals (Lafuente, Eichaker, Chee, & Chapital, 2007).

- Due to multiple physical, psychological, and social considerations, geriatric care can best be provided by an interdisciplinary team. The interdisciplinary team interaction is also vital in planning and responding to emergencies (Johnson et al., 2006).
- In Florida, health department staff pre-register and identify individuals to be placed in “special needs” shelters well before a hurricane. Each county health department is responsible for defining “special needs” individuals in its communities, working in conjunction with the local hospitals, local nursing homes, emergency responders, and members of the community (Gibson & Hayunga, 2006).
- Long-term care providers, lay volunteers, retired health care professionals, and palliative care providers should be trained to provide palliative care services and to work together when providing services during a disaster (Matzo, 2009).
- Palliative care and mental health care providers should be integrated in disaster planning and training so that services can be provided to the public and the disaster response personnel (Matzo, 2009).

Facilities

- In a disaster, nursing home teams should include residents, administrators, resident family members, and nurses. This team should work with the fire department, Red Cross, and power company personnel, water board representatives, police, social workers, and doctors. Plans should be made to account for absentees, with backup members or a second call roster (Rhoads & Clayman, 2008).
- Staffing was a major problem within the Miami Jewish Home and Hospital for the Aged preceding and immediately after Hurricane Andrew. The majority of nurses and nursing aides were unable to reach the hospital due to personal difficulties or impassable roads. Delivery of care to residents and those evacuated to the facility fell upon a small group of administrative staff, nursing staff, dietary service staff and various other employees and volunteers (Silverman, Weston, Llorente, Beber, & Tam, 1995).
- Nursing homes should inform pharmacies that they are evacuating so that prescriptions can be filled prior to evacuation. They should also notify a main pharmacy and back-up pharmacies where they are evacuating to with information about patients and medication regimens (Kaldy, 2007).
- Special Operations Response Team (SORT), a certified DMAT based in North Carolina, has an 80-bed self-contained mobile hospital. Team members from SORT worked with community health professionals to create outreach teams that visited nursing homes in St. Thomas (Virgin Islands) following Hurricane Marilyn. These teams, which were made up of health professionals, were responsible for identifying special needs residents and completing medical evaluations to determine if care was required (Leonard, Spangler, & Stringer, 1997a).
- Long-term care health practitioners are eligible to receive training from the PREPARE program (Bioterrorism Training for Long-Term Care Workforce). An evaluation of the PREPARE program indicated that participants increased their knowledge of preparedness and worked with their facility to improve its disaster planning (C. O'Brien, Selod, & Lamb, 2009)

Home Care

- SORT was sent into the community to identify patients who needed care and then provided care to them for a short period following the hurricane. If a person was found by the teams that needed more care than could be provided by the teams, the person was transferred to a medical aid station. Otherwise, the team would return to the person the next day with the required medical supplies (Leonard, Spangler, & Stringer, 1997a).
- To overcome the barriers of accessing disaster mental health services, it was suggested that mental health and medical health assessments be conducted at the same time. Mental health services could also be provided with other basic necessities. Working with established elder services like AARP and Councils on Aging to provide outreach to community-dwelling older adults may increase usage of mental health services (Brown, 2007).
- Social workers play a key role in assisting older adult victims. Through the use of psychotherapy, crisis intervention, advocacy, and community referrals social workers are able to assist in addressing much of the trauma that can occur in the aftermath of a disaster, such as losing one's home, possessions, and even family members and friends (Sanders, Bowie, & Bowie, 2003).
- According to Plouffe (2008) the most comprehensive emergency planning that includes older persons' needs and contributions has been developed in Cuba (hurricanes). In Cuba, preparation is provided to all emergency responders and to the general population every year just prior to hurricane season. Local health clinics and providers are closely involved in identifying and planning services for vulnerable older persons in the community. Older persons actively participate on local emergency committees, making the community aware of their potential needs and contributions (Plouffe, 2008).

Making health care decisions

In general, practitioners need to be trained on proper assessments, prioritization, and response to special needs. They need to recognize that needs may not be met by general aid. Screening tools, quality of life measures for assessments, tools to establish mobile clinics, and psychological assessments should all be used by health practitioners. Integrating physical and mental health services together, understanding cultural differences and expectations, recognizing specific responses to disasters, knowing when to keep a patient and to not send them home, understanding recovery issues may need to include treatment for chronic conditions, and adapting access to services to meet needs like mobility are all ways to aid in decision making.

In facilities, health practitioners need to know problems with transfers, what residents should take with them including identification and medical records, provide care to those who can not be evacuated but require special care, recognize that older people are not high priority for the influenza vaccine, understand the need to separate older people in settings like shelters, and the need for staffing during recovery.

No relevant papers were identified and reviewed for home care practitioners.

General

- Health care providers, emergency workers and community volunteers should be trained to assess and prioritize older people's needs and to take appropriate measures when disaster strikes (Plouffe, 2008).
- The Texas Consortium Geriatric Education Center (GEC), the Gateway GEC of Missouri and Illinois, and Harvard/Upper New England GEC conducted a national needs assessment of health care workers. It found that fewer than 50% of the 282 respondents had any formal training in bioterrorism and only 10% had any geriatrics-specific training. These low percentages become especially problematic when compared with the result of a multiple-site survey done by Gateway GEC of 500 retirees. That survey revealed that over 80% of the respondents expected their healthcare providers and emergency departments to respond with relevant information and care in the event of an emergency (Johnson et al., 2006).
- During and after emergencies, older people have particular needs that differ from those of younger members of the community. These require special consideration particularly in the areas of physical and mental health, nutrition, livelihood rehabilitation and access to essential services. Because women live longer and thus are more likely to be widowed and alone, as well as having experienced a lifetime of gender discrimination, older females in particular require additional consideration (Maerten, Maccoll, & Suwannakarn, 2006).
- Careful planning for frail older adults during a natural disaster can reduce adverse psychological and emotional effects (Sanders, Bowie, & Bowie, 2003).
- Older people often have impaired sensory awareness where poor night and peripheral vision can hinder evacuation, poor hearing can cause difficulties in understanding emergency messages where there is background noise, and poor taste may result in some people eating spoiled food (Fernandez, Byard, Lin, Benson, & Barbera, 2002).
- One crucial misconception is that needs can be covered by general aid distributions, whereas in fact older people have particular nutritional, cultural and other requirements that are often not met by general relief programmes (Klynman, Kouppari, & Mukhier, 2007).
- The SWiFT Tool was developed in response to the large numbers of Hurricanes Katrina and Rita older evacuees. This screening tool was used to triage elders located in a shelter without family members to determine if they needed assistance (Mixson, 2007). A report on the tool provided ten recommendations for disaster response (Mixson, 2007).
- Practitioners should use health-related quality of life measures to provide a response that meets the needs of disaster victims (Lin et al., 2002). These measures can be impacted by the level of loss experienced (partial compared to complete loss of home).
- Following Hurricane Katrina, the Veterans Administration Medical Centre established mobile health clinics that used the Acute Traumatic Stress Management Protocol to provide structure during the disaster period. In particular, the first 4 stages of this 10 stage model were used to: assess for danger/safety for self and others, consider the mechanism of injury, evaluate the level of responsiveness, and address medical needs (Lafuente, Eichaker, Chee, & Chapital, 2007).

- Because of the stigma attached to mental health, it may need to be integrated in a health context so that people will have access to mental health services (Prueksaritanond & Kongsakol, 2007).
- Practitioners should understand certain cultures, like the Chinese, believe in special foods and herbs to prevent severe acute respiratory syndrome (SARS). The use of the food and herbs to prevent diseases like SARS is culturally acquired (Wills & Morse, 2008).
- "...Health authorities to consider integrating traditional beliefs and strategies into the fight against infectious diseases like SARS" (Wills & Morse, 2008) (page 66). "Understanding the contagion of diseases from the individual's cultural perspective is vital if one is to provide education about the use of specific strategies in preventing the spread of diseases" (Wills & Morse, 2008) (page 66). If strategies are congruent with health beliefs it may encourage adherence to infectious disease protocols (Wills & Morse, 2008).
- A compromised immune system makes elders more susceptible to stress, no matter what the source. For example, the normal pulse/temperature experienced with aging can mask the common signs of infection by certain biological agents. Thus, as was learned during the recent SARS epidemic, the use of a temperature screen above 100 degrees as a marker of bacterial or viral infections can miss an older person with an emerging infection (Johnson et al., 2006).
- Practitioners should immediately assess the psychological conditions of earthquake survivors (Chou et al., 2003).
- Symptoms such as dehydration and hematopoietic syndrome may be present among older victims of a nuclear or biological event. Understanding the potential effects and knowledge of the lack of physiological reserves needed to recover after these types of events would help guide health practitioners in their response (Skorga et al., 2003).
- In Sri Lanka, some older people reported that dust from open spaces in the camp had led to coughs and intensified asthma. In all camps, weak eyesight and a need for eye clinics was a common problem, as was the lack of disability aids. Although older people often needed special diets due to ailments like diabetes, they reported that these special diets were not available. In many cases camp and relief workers showed no awareness of the dietary problems faced by older people (HelpAge International, 2005).
- Following 9/11, older persons reported physical symptomatology that included insomnia, gastric disturbances, headaches, nervousness as well as emotional difficulties such as frequent bouts of crying and anxiety. A traumatic event may exacerbate existing symptomatology so health care professionals must conduct thorough healthcare assessments (Monahan & Lurie, 2007).
- Topical cortisone preparations were in demand following Hurricane Katrina as heat rash and other dermatitis issues arose from the heat and humidity. Nausea, vomiting and diarrhoea were also common in the storm's aftermath (Kaldy, 2007).
- Suggestions include health practitioners updating themselves (using information leaflets distributed by the government for example) on heat-related conditions to ensure they are able to identify, respond, and provide appropriate care during a heat wave (Anonymous Editorial, 2006). Care staff should identify those at greater risk and look for signs of heat exhaustion and heatstroke while monitoring body temperature, weight, behavior, mental health changes, or sleeping problems during a heat wave (Anonymous, 2005b), (Munro, 2004).

- Older people can find it difficult to manage their health when disasters compromise health care. For example, when Hurricane Floyd struck Eastern Carolina in 1999, 21 out of 29 outpatient ambulatory centers closed due to flooding. This meant that patients on dialysis and chemotherapy had to be taken to other facilities, which can be a major logistical burden. Health and nursing staff were also placed under strain, as they had to treat patients injured in the disaster and manage patients with chronic conditions post-disaster. The example posited is that of patients with chronic respiratory conditions, usually managed at home, but that were hospitalized following a severe snowstorm that damaged electricity supplies. Few of these patients required hospitalization but they could not be discharged (Fernandez, Byard, Lin, Benson, & Barbera, 2002).
- Following a disaster, conditions such as stress, lack of food or water, extremes of heat or cold, and exposure to infection can contribute to rapid worsening of a chronic illness that was under control before the event. Interruptions in medication regimens and needed medical technologies can also exacerbate underlying conditions and increase the risk of morbidity or mortality. Older adults with chronic conditions may also face health risks from either inadequate nutrition or from too much sodium, fat, and calories contained in the Meal Ready-to-Eat (MRE) packages often offered to evacuees (Aldrich & Benson, 2008).
- After the Tsunami, many older people with chronic ailments such as diabetes and cancer faced difficulty in resuming treatment as many had lost their medical histories or had no means of travelling to the hospital (HelpAge International, 2005).
- Where reduced mobility and physical strength or mental stress problems make it difficult for older people to access essential services, it is necessary to adapt these services to preserve equity in the provision of care. Where older people are able to reach centralized relief and service delivery points, they may need protection or other support to access the service if they find themselves competing with people who are more able bodied (Maerten, Maccoll, & Suwannakarn, 2006).
- 'Fast-track' queues to guarantee equitable access for the most frail and vulnerable at service delivery points should be developed (Maerten, Maccoll, & Suwannakarn, 2006).
- Following 9/11, inability to refill prescription medications was a critical problem for older people. Local pharmacies were closed, doctors' offices were difficult to reach, and older people could not physically get to other pharmacies to pick up their medications (N. O'Brien, 2003).

Facilities

- Practitioners need to understand that abrupt moves from one facility to another can be disorienting and confusing for older people (Pekovic, Seff, & Rothman, 2007).
- Ill community-residing patients, some languishing in evacuation shelters or hastily erected tents, were admitted to the Miami Jewish Home and Hospital for the Aged after Hurricane Andrew. Some of these patients were in need of medication and treatment but lacked transfer data. Inadequate patient identification and the monitoring of a large number of patients was a concern (Silverman, Weston, Llorente, Beber, & Tam, 1995).
- When evacuating older persons, the entire medical chart, or at least the last month's chart and not just a transfer sheet, should be taken for each resident (Laditka et al., 2008).
- When evacuating nursing homes it is important that the receiving home has the evacuee's medical information. For example one receiving facility did not know that it was

receiving patients with Alzheimer's disease. It took the home fifteen hours to locate all of the patients (Dosa, Grossman, Wetle, & Mor, 2007).

- For those who evacuated during Hurricane Katrina, pharmacists had to deal with the medication needs of around 350 residents, virtually overnight, with no clinical, billing, or demographic information. Some residents were transferred without charts forcing medical staff to start from scratch to determine the patient's needs. Before the storm, some pharmacies had trailers and rental trucks loaded with necessary supplies and medications to ensure that facilities could manage and care for their residents (Kaldy, 2007).
- Many pharmacists used emergency phone trees to keep track of patients so that they knew when patients returned to their home facilities so that medications could be sent to the right location until their usual pharmacies were up and running. The Hurricane Katrina Relief Fund helped pharmacies to distribute medications without financial losses and Medicaid helped to find coverage information for recipients (Kaldy, 2007).
- One of the main problems for pharmacists was establishing contact with physicians and medical directors in an emergency. However once pharmacists had established email contact with physicians, the level of their support was very high. In the future, pharmacies should receive a faxed list of evacuated residents with as much information as possible (Kaldy, 2007).
- Practitioners should know how to care for nursing home residents who would normally be sent to the hospital for care but are unable to go because of a quarantine (due to pandemic) (Bonn, 2007).
- Nursing home residents will not be in a high-priority group for receiving influenza vaccine. The only specific drug treatment option for influenza during a pandemic will be antiviral medications, which must be started within 48 hours of the onset of symptoms. These antivirals will also be in short supply, and distribution may be chaotic. At the same time, nursing homes will face an anticipated shortage of antiviral medications and be expected to provide surge capacity for overwhelmed hospitals (Mody & Cinti, 2007).
- A factor affecting specialized groups is that of segregating clients from the general population. The separation within health care facilities is both physical for health and safety concerns as well as psychological (Vogt, 1991).
- It can take a long time for patients returning home after evacuation to improve their level of health and some may never return to their previous health status. Staffing is a consideration in caring for returning nursing home residents. Nursing homes may be able to re-open, but may not be able to provide care to the full extent of their license due to insufficient numbers of certified nursing assistants and other care professionals. For example a 300-bed nursing home might only be able to take 150 returning patients due to staffing limitations (Florida Health Care Association, 2007).

Home Care

None of the papers referred specifically to providing care to individuals in their home in the community. There were articles that addressed decision making by home care providers but these papers did not specify decision making for an older population.

Discussion

“Older people throughout the world are poorly served in terms of disaster preparedness and response. Far more needs to be done to tackle the false assumptions and discrimination that blight their chances of survival and recovery” (Klynman, Kouppari, & Mukhier, 2007) (page 81).

Predominantly in the last ten years, the amount of literature has increased on how facilities and health care agencies should plan for an emergency. This type of literature is very generic in the specific roles and responsibilities of health practitioners. For the most part, the literature generally does not identify practitioners as the individual that should be responsible for a specific activity especially in regards to responding to older people. Many articles found during the review were not formal research studies but best practices identified by experience. Therefore, this report has identified research studies and best practice articles in which suggestions were made by authors who were involved in an actual disaster response or who were considered to be knowledgeable in this area. Each event will dictate how health practitioners will need to respond to older people. Therefore it was viewed that although many of the papers included in this paper are not significant research studies, best practices can come from actual experiences in which the response was positive and beneficial to older victims.

Many of the relevant papers were generic in that they did not focus on one type of health care setting. This is useful in that the findings could be applied across all settings. The problem lies in responding to events in specific health care settings. The literature on how long-term care facilities should prepare and respond is increasing but frequently it does not provide guidance specifically to the health care providers—just the overall facility planning. The roles and responsibilities are even less clearly defined in community settings. Although there is literature available for home health care providers, most of it did not state it was specifically for older clients. It is expected that a large portion of these clients are older because people are delaying their entry into nursing homes. Therefore one could attempt to apply the guidance provided by the papers to older people. For the purpose of this report, unless the paper specifically stated the activity was to meet the needs of older people, it was not included.

Although all types of disasters were considered, many of the relevant reports that were reviewed focused on hurricanes and floods with a few that addressed other types of disasters like earthquakes, pandemics and tsunamis. This is an example of how skewed the literature is towards specific types of events.

When considering the health practitioners’ role in care, the scope of their responsibility, expectations of them, how they should collaborate with other groups/individuals, and how they should make health care decisions in both community and facility health care settings, several themes arose from the literature review. These themes are divided into the following eight categories and a brief example is given.

- TRAINING – need training in older peoples’ needs and medical conditions (during non-emergency and emergency related), and recovery issues.

- COMMUNICATION – work with other organizations to provide a complete package of care. A list of health care staff that can treat older people should be available for contact in the event of a disaster.
- MEDICAL RECORDS– identification and medical records should be evacuated with residents.
- SUPPLIES - supplies should include routine medications for those suffering acute / chronic conditions.
- LOCATION - a means for locating older people before and following a disaster must be established (e.g. they may not have the means to evacuate prior to or after a disaster).
- INFORMATION – there needs to be a means for accessing medication and patient information for older people when they are evacuated and when computer systems are unavailable.
- MULTIDISCIPLINARY – geriatric care for outreach and assessment can best be provided by a multidisciplinary team.
- RELIEF – any attempts at providing relief must consider the ability of older people to access it and the suitability of the relief to meet their needs (e.g. food).

Gaps in Literature

Several gaps in the literature were identified. Future research could be conducted to minimize these gaps.

- Samples for many of the studies were small and the results could not be generalized. There was also a lack of consensus across disaster types and their impact on older people. This can have implications on how health practitioners might need to respond.
- Is there a tool for rapid health assessment specifically for older people? Tools such as SWiFT have been developed but can this tool be applied to other locations besides a shelter? Additional research on the tool needs to be conducted to determine if it's the best suitable option.
- Although the SWiFT Tool was tested prior to use, the tool needs to be tested for inter-rater reliability and validity (Mixson, 2007). The report which reviewed the SWiFT Tool suggested future research on “the efficacy and outcomes of early versus late transfer of nursing facility patients, technology-based coding, and tracking systems” (Mixson, 2007) (page 90).
- Responding specifically to older people in quarantine in their homes includes handling stigma, public messages, appropriate surveillance, and support. One study had only a few older participants so the results could not be generalized to the older population but suggest that this area needs to be further addressed (Cava, Fay, Beanlands, McCay, & Wignall, 2005).
- There are concerns that legal action could be taken against health practitioners during and after a disaster. Following Hurricane Katrina several lawsuits were filed which may cause health practitioners to cautiously proceed with care in the future if they are unsure they are legally protected (Anonymous, 2007a), (Zigmond, 2006a), (Zigmond, 2006b). (There

are other examples of evacuation accidents that have led to civil action (Williams, 2006)). Although Louisiana has now passed new legislation meant to protect health care providers in a disaster situation (Anonymous, 2008a), there still may be concern by providers in Louisiana and other states or countries.

- Mather LifeWays developed an award-winning comprehensive educational program called PREPARE (Anonymous, 2007b). This program offers tools and resources to long-term care providers to effectively respond in a disaster. Is this program effective? O'Brien et al. (2009) suggests that it is beneficial. Are there other programs that provide the same or higher level of training?
- The role and function of long-term care facilities, and even more specifically health care providers, in disaster preparedness remains undefined (Castro, Persson, Bergstrom, & Cron, 2008).
- Current influenza pandemic response plans do not include nursing home residents in their priority group for vaccine distribution. Whether nursing home administrators are aware of the need to ration if faced with a pandemic and ensuing scarcity of vaccine, or have made contingency plans to sequester their patients in the event of an outbreak, is unknown. In fact, the extent of influenza pandemic preparedness in nursing homes is unknown, and research in this area is notably absent (Mody & Cinti, 2007).
- Because nursing facilities can be used as an alternative to a hospital, the appropriate role of nursing facilities and alternative support services should be further reviewed (Saliba, Buchanan, & Kington, 2004).
- There is scant data available to inform evacuation decisions concerning individual residents of nursing homes in the setting of natural disasters (Dosa et al., 2008).
- Following multiple hurricanes in Florida, nurses were sent out to assess public health threats in the community and to make sure those who did not evacuate were safe (Trossman, 2004). This activity was not specifically done for older people but the general public. Several articles raised the issue of outreach into the community. Should there be a team that assesses older people in the community? SORT is an example of a team that could be developed to do this.
- Research and disaster planning in community home care needs to be significantly increased.
- One idea in development for emergency situations is radio frequency identification (RFID) technology that involves implants under a patient's skin that can be read with a scanner. This technology could be active so that it tracks wherever a wearer goes so that the right medication is sent to the right location. It could also be passive so that it simply stores the individual's identification, vital statistics, medical history, and medication regimen (Kaldy, 2007).
- Maerten, Maccoll and Suwannakarn's (2006) desk review revealed very few references to the situation of older people. Despite being recognised as a vulnerable group at a conceptual level, very few, if any, references have been made to the needs, vulnerabilities, capacities and contributions of older people and how they could be supported or utilised. While data collected on tsunami-affected persons is mostly disaggregated by age and gender, it remains the only age-related variable. Assessment tools often fail to sufficiently capture basic data, needs and issues confronting older people. Unlike the wide range of aspects probed in relation to the needs of children, templates fail to consider relevant aspects for older people. As a result, older people's

particular needs and vulnerabilities remain hidden and thus are likely to be forgotten in the planning for recovery and rehabilitation. Elements to consider during the data collection include, for example, mobility aids for accessibility, access to bathrooms, food preferences (for easy digestion), sleep disturbance, clothing, etc. (Maerten, Maccoll, & Suwannakarn, 2006). This is a potential area for further research.

- In 2005, HelpAge India observed a massive gap in post-tsunami service provision: there was no specific component for older people in the relief operations of state governments, non-governmental organizations (NGOs) or multilateral agencies. Older people make up over 7% of the population, but they were not singled out as a vulnerable group and were unable to access food, health care and cash due to discrimination and a lack of information or support mechanisms (Klynman, Kouppari, & Mukhier, 2007). Therefore, service provision needs to be reviewed in countries such as those affected by the Indian Ocean tsunami.

Recommendations

Although there is much work that needs to be done before health practitioners will have all the knowledge, resources, and tools required to provide adequate care to older victims in disasters, the following four recommendations are given to provide a starting point in developing the health practitioners' role and responsibilities to older people in emergency management.

1. **COLLABORATE:** The collaboration of medical, social, volunteer, and local emergency response organizations needs to be increased in disaster planning and response (Mixon, 2007). Further research on how these different organizations should work together in the community and with facilities is imperative if health practitioners want to provide the best level of care to older victims in any setting.
2. **INVOLVE GERONTOLOGISTS:** To ensure the various yet specific needs of older adults are met by health practitioners in response to a major emergency, gerontologists should be involved in disaster planning, training, and care provision (Mixon, 2007). They should be involved at the individual level, the community level, and the national level of emergency planning and response. It is recommended that gerontologists be given the opportunity to work collaboratively with emergency management and health care providers when developing the roles and responsibilities of health care professionals.
3. **COMMUNITY RESPONSE:** This literature review has shown that awareness and research regarding appropriate responses to older people in the community needs to be significantly increased. This is increasingly important as the population ages and people are living longer in the community. It is therefore recommended that this area of emergency management needs to be further explored.
4. **AVAILABLE PROGRAMS:** Overall there were three formal programs that were identified in the literature that could be further reviewed to determine their appropriateness and reliability to provide adequate care. It would benefit health

practitioners significantly if they understood their roles in programs such as these so that they could use those skills in other settings or situations. The programs included PREPARE, SWiFT, and SORT.

- a. It would be useful to review the PREPARE training program to see how it can be used to increase practitioners' knowledge and awareness and to determine if it could be revised for community health care providers.
- b. SWiFT was shown to be useful in conducting assessments of older people in shelters. Recommendations from the SWiFT tool report could be used to identify areas that need to be improved upon. The tool might also be adaptable for other settings in which large numbers of older people have congregated during an emergency.
- c. SORT was developed as a multidisciplinary team that provided health care assessments in the community. It would be useful if a team were developed to specifically work with facilities and older people in the community to ensure this type of resource is available during any type of emergency.

Conclusion

The amount of research that has been conducted on the roles and responsibilities of health practitioners of older adults in emergency management is limited and needs to be significantly increased. If health practitioners are to be able to provide a much-needed service to older people in a disaster, it is imperative that they understand the needs of older people and the best way to meet their needs. This literature review clearly shows that until further research is conducted, response by health practitioners in emergency situations may be inconsistent and potentially insufficient therefore leaving older people at risk in the event of a major emergency.

Potential Contacts

It may be useful to contact the following individuals. In the literature review, they were identified as people with knowledge about the needs of older adults as well as appropriate responses to be provided by health practitioners.

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