A Community-Based Nursing Plan to Help Seniors Safely Evacuate from an Independent Living Facility in an Emergency

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Abstract

Community Health Nurses are in a prime position to assist our senior population with planning and implementing safe evacuation procedures that are suited to meet their many needs. This is intended for community health nurses to implement in their communities for the protection of our seniors. Chapter II, the literature review, describes the barriers to safe evacuation faced by this population as well as recommendations for an emergency plan. Chapter III conceptualizes an emergency evacuation plan that can be applied to many independent living facilities that have residents who are impaired.

Chapter I:

Introduction

Aging is an inevitable part of life. People are living longer than ever before, and this is reflected in the world's population. Researchers anticipate that the aging population will put an overwhelming strain on our healthcare system, a phenomenon referred to as the "Silver Tsunami" (Alliance for Aging Research, 2006). In 2009, nearly 13% of the American population was aged 65 years and older (U.S. Census Bureau, 2009). Furthermore, the Alliance for Aging Research anticipates that on a daily basis approximately 10,000 adults will turn 65; this trend is expected to continue for the next 20 years (2006). Regardless of health status, individuals age 65 and over are considered to be older adults (World Health Organization, 2010) and are also described within the nursing framework as a vulnerable population. The senior population is at risk for injury and/or death related to impairments that are a barrier to safe evacuation.

Community can be defined as a group of people that share a common physical environment, interests, characteristics or health status (Martin, 2005; Allender et al., 2010). A community health nurse serves the community as client, which means that it becomes the focus of the nursing care (Allender et al., 2010). The community health nurse will educate, care, and advocate for the client within the community or for the community as a whole. Additionally, these nurses collaborate and manage resources in order to get the client the care it needs and deserves.

Purpose.

The purpose of this thesis is to develop a conceptual plan that community health nurses can utilize to assist seniors in independent living facilities to safely evacuate in an emergency. Aims are to describe limitations and barriers to safe evacuation, describe components necessary for safe evacuation, and introduce a general emergency evacuation plan for senior residents' of independent living facilities that can be introduced and implemented by community health nurses.

Key Terms Defined.

The literature uses the terms elderly, seniors, and older adults interchangeably. For the purposes of this manuscript, these terms will refer to the population of people that is aged 65 years and older, as suggested by the World Health Organization (2010). Safety commonly refers to the avoidance of harm, and safe evacuation refers to the egress from a living environment while avoiding harm (Allender, Rector & Warner, 2008). Emergency is defined as a sudden, unforeseen crisis which demands immediate action (Allender et al., 2008). Disaster can be defined as natural or man-made events that negatively affect life, property, livelihood, or industry often resulting in permanent changes to human societies, ecosystems and environments (American Red Cross, 2010). Also for the purposes of this manuscript, impairment is defined as any disorder in structure or function resulting from anatomic, physiologic, or psychological abnormalities that interfere with normal activities (Mosby, 2010). These definitions can be applied when discerning this text.

Seniors are a vulnerable population. Within the nursing framework, vulnerable populations are those populations with limited resources and consequently at greater risk

for adverse health outcomes (Flaskerud et al., 2002). In critical situations such as a disaster or emergency, vulnerable populations are described as a group of people who do not have the physical or cognitive capacity to plan or implement emergency preparedness, response, or recovery (Kansas Association of Local Health Departments, 2006). Older adults who are frail, disabled, or with functional limitations are considered vulnerable, and likely to become victims during a disaster.

Many seniors live with disabilities and functional limitations. According to the US Census Bureau, 37.4 percent of those aged 65 and over have at least one disability (2009) and 80 percent of those with a disability also have at least one chronic health condition (Center for Disease Control [CDC], 2007). These statistics help to illustrate why the population of seniors is considered vulnerable.

The process included conducting a comprehensive literature review, which is presented in Chapter II. The literature comprehensively describes seniors as a potentially vulnerable population, especially when evacuating in an emergency. The needs and limitations of this population are discussed and each step of the nursing process is described in the development of an effective evacuation plan. The manuscript provides conclusion statements including how the information from the thesis can be used to guide nurses working in community settings as to how best assess and provide interventions to facilitate safe evacuation of seniors in an emergency.

Significance of the Problem.

The population of seniors is at risk of adverse consequences during and after a disaster. For example, approximately 73% of Hurricane Katrina related deaths were among those aged 60 years and older, although they only comprised 15% of the New

Orleans population (U.S. Senate Committee on Health, Education, Labor, and Pensions, 2006). The U.S. Fire Administration (2001) has identified that 1,200 older adults die annually from fire; fire is the 6th leading cause of death among older adults. Finally, 85 percent of fire deaths in 2009 occurred in homes and cooking was the primary cause (Karter, 2010).

There is a dearth of measures to protect the population of older adults even though they are considered vulnerable. They are at significant risk for injury and death during disasters, especially when there is not an evacuation plan in place or when the plan is not clearly understood by members of the population. Community health nurses can contribute to the safety of this population by becoming more involved in community emergency response.

The Hurricane Katrina disaster is a perfect illustration of the planning deficit when it comes to the safety of our seniors. One facility for seniors in Saint Bernard Parish, Louisiana was severely damaged during Katrina, and 35 of the 59 residents were killed; while the owners of the facility were ultimately charged with negligent homicide for failing to have a safety plan in place, such an atrocity could have been avoided through planning and education (Whorisky, 2007). Community health nurses may be in prime position to address the safety of older adults during evacuation, thereby reducing the risk of repeating atrocities of disaster.

Nursing Process.

Community health nurses can play a pivotal role in addressing the safety concerns of older adults. Nurses use their critical thinking skills and clinical reasoning to assess,

diagnose, plan, implement and evaluate problems and deliver care (Perry & Potter, 2009). It is the foundation of the nursing profession.

One role of the community health nurse is to assess the needs of those people that live in the community. A needs assessment is designed to explore and understand what is going on in the community and how it affects those who live there (Allender et al., 2010). There are many different ways to assess the community and gather information. The idea is to gather as much information as possible in order to analyze and define the problem and begin making changes.

The diagnosis that is made is specific to the nursing profession, and is called a "nursing diagnosis". This is designed to state the problem clearly and specifically, and to describe causation for each problem (Ackley & Ladwig, 2008). Only with an accurate nursing diagnosis can an effective plan be developed. In most situations, multiple nursing diagnoses are developed, and each warrants a goal statement.

The plan is developed based on the needs assessed, and the nursing diagnosis developed; successful outcomes depend upon the nature of the plan. This can be a very creative process in which a nurse can fashion a strategy that has the potential to transform the lives of other people and communities. Goals are stated and are detailed according to each nursing diagnosis. All goals should reflect the needs of the client rather than the nurse (Ackley & Ladwig, 2008). Interventions are developed and then implemented (Perry & Potter, 2009).

Implementation may possibly be the most challenging and the most important part of the nursing process. It is the action phase of the nursing process. This is when the plans developed in the previous stages are executed (Ackley & Ladwig, 2008). The

client's response to interventions and outcomes are significant, and should be documented during this phase.

Evaluation is the final step of the nursing process. The outcomes are evaluated in terms of successfully achieving goals. The nurse and the patient review the outcomes and determine which parts of the plans were successful and which aspects might need revisions. Any revisions are developed by returning to the nursing assessment and reflecting on the nursing diagnoses (Ackley & Ladwig, 2008).

Community health nurses can save many lives with dedication and compassion. The community is the patient. It is a primary role to care and advocate for the patient, just as any other nurse in the hospitals (Allender et al., 2010). Community health nurses are in prime position to help craft plans that reduce the vulnerability of older adults during an emergency; effective planning and patient education can reduce the risk of injury and death due to disasters such as hurricanes, building fires, and earthquakes.

The next section contains the literature review, which addresses the population of seniors. The health of seniors is described, and common disabilities and physical challenges are identified. Components necessary to enact safe evacuation for this population are described. Senior residents' ability to evacuate safely in a disaster is then considered, along with factors that may hinder safe evacuation and enactment of emergency procedures. The disabilities and limitations of other age groups or populations are not in the scope of this study and therefore will not be discussed.

Chapter II:

Literature Review

The literature review describes the population of seniors, the common limitations that affect them and their ability to evacuate in an emergency. Demographics add to the description of the population. Physical and cognitive factors commonly noted among seniors are described. Components to safe evacuation are identified. Finally, the literature is used to analyze seniors' ability to safely evacuate in an emergency in the face of physical and cognitive limitations.

Demographics.

Although there is a significant amount of research that suggests that older adults are healthier and more active than ever (Federal Interagency Forum on Aging Statistics [FIFAS], 2008), the effects of aging cannot be completely avoided. In fact, according to the United States Census Bureau, 37.4 % of older adults have at least one disability (2009), and approximately 80% of the adult population that is 65 years and older live with at least one chronic condition (CDC, 2007). Included in these statistics are impairments such as mobility, visual, auditory, and cognitive, that would affect one's ability to successfully evacuate in the event of a disaster.

Impairments and Limitations.

Mobility Impairment.

The issue of mobility impairment brings up many challenges for older adults in evacuation. There is a sizeable portion of this population that use assistive devices such as canes, walkers, and wheelchairs or scooters to go from one place to the other. Approximately 38% of non-institutionalized Medicare enrollees 65 and older use

assistive devices; this represents an increase of 10% between 2005 and 2007 (FIFAS, 2008). These individuals would possibly have considerable difficulty when maneuvering through escape routes especially if they live higher than the ground floor. Persons with mobility impairment may be at high risk of falls as they attempt to descend stairs. While elevators are the safest route of evacuation for those with mobility impairments, elevators are inoperable and inaccessible during a fire or other disaster.

A barrier to mobility and evacuation is the inability to digitally manipulate locks, latches, and/or handles that are found on many emergency escape routes. Demographics of 2008 indicate that 42% of older men and 55% older women have arthritis (FIFAS). Arthritis is an inflammatory condition of the joints that can affect the ability to use the hands and the ability to grasp. Safe evacuation could necessitate unlocking or unlatching a door; a senior with arthritis may be unable to unlock or unlatch a door, thus hindering safe escape. Neurological disorders such as Parkinson's disease cause uncontrollable trembling of the hands, making it difficult or even impossible to operate locks and latches.

Seniors with respiratory dysfunction may experience difficulty with evacuation. Respiratory dysfunction impairs oxygen exchange, therefore those who suffer from respiratory illness and dysfunction can quickly become short of breath (Perry & Potter, 2009). A shortage of oxygen causes symptoms such as dizziness, inability to concentrate, and fatigue, all of which are barriers to a safe evacuation. When fire and smoke are present, symptoms of respiratory dysfunction and distress are exacerbated. Many individuals with chronic respiratory dysfunction carry portable oxygen tanks; having to tow an oxygen tank further complicates escape and evacuation.

Sensory Impairments.

Many older adults experience visual disturbances. FIFAS reports indicate that 15% of older men and 19% of older women experience visual difficulties (2008). Such visual disturbances would affect one's ability to see and read signs that are pertinent in understanding where to go and what to do during an evacuation. Furthermore, being in a dark building or having to evacuate during the night poses additional challenges. Individuals who wear glasses may function without difficulty during daylight hours, but glasses may be forgotten or nowhere to be found when needed in an emergency.

For those with an auditory impairment, there is a question about whether or not they would hear a sounding alarm during an emergency. Those with hearing loss may miss pertinent information regarding the situation or fail to hear vital instructions that assist with safe evacuation. Additionally, facilities may rely on alarm systems with pre-recorded voiced instructions in relation to what to do in an evacuation situation; in such facilities being able to hear the verbal instructions is an imperative to safe evacuation. Some individuals with hearing loss obtain information by lip or speech-reading; in an emergency this would only be of benefit if another individual was available for communication. Just as one may not consider grabbing visual aids such as glasses in an emergency, hearing aids may be forgotten or misplaced. Some alarm systems will include a strobe light for those that are hearing impaired, however there is no guarantee that the occupant would know what action to take upon recognition of the alarm without written instructions.

Cognitive Impairment.

Cognitive deficits can contribute heavily to the lack of safety of older adults during evacuation. There are many different types of cognitive loss affecting the elderly population, with the most common being Alzheimer's disease, dementia or mild cognitive impairment and developmental delays. According to the Alzheimer's Association, 5.3 million Americans have Alzheimer's disease, and as many as 20% of older adults have mild cognitive impairment (2010). Adult illiteracy and retardation are included in this category.

Mild cognitive impairment is a result of aging and happens when there is degeneration of the frontal cortex, decrease in neurotransmitters, and decrease in rate of conduction between neurons (Lewis, Heitkemper, Dirksen, O'Brien, & Bucher, 2007). This can commonly be found among the elderly population; however it may not be substantial enough to warrant assisted living or a nursing home. Some cognitive functions that can be affected by these changes are decreased motor and sensory function, memory loss, and confusion (Lewis et al.). These deficits can affect one's ability to remember instructions or plan, cause difficulty responding to events in an immediate timeframe, and affect their response to stimuli.

Alzheimer's disease is characterized by memory loss, problems with abstract thinking, difficulty finding the right words, disorientation, loss of judgment, difficulty performing familiar tasks, and personality changes (Lewis et al., 2007). An older person with this condition may become disoriented, may not understand the significance of the alarm sounding, or may misinterpret the sound of the alarm and its significance. In this situation, the individual may lose his or her ability to judge environmental cues or safely

plan and execute a safe escape. A disoriented or confused individual may not recognize a neighbor and may even misinterpret helpful behaviors from others as threatening. During egress, a person with Alzheimer's-type dementia may be able to read but may not be able to comprehend the message of the escape signs. Despite these challenges and the inevitable progression of their cognitive decline, such elders may continue to live independently until they are moved by a caregiver or family member.

Developmental Impairment.

Since many independent living facilities for older adults are government subsidized, there may be older adults with mental retardation and literacy challenges that reside there because of their inability to work or function fully in society. Like others with cognitive impairments, these people may get confused, disoriented and scared when an alarm sounds. They may not be able to read the signs that give them the information to make a safe escape. Those having an intellectual disability with other physical disabilities can compound the problems of participating in life situations (Cleaver, Hunter & Ouellette-Kuntz, 2008).

In addition to the impairments that have been discussed thus far, there are other factors that could determine the outcome of evacuation for older adults. These factors are the effects of sleep inertia and medications on cognitive function.

Sleep Inertia.

Sleep inertia can be defined as the decrease or impairment of performance that occurs immediately upon awakening from sleep compared to that prior to sleep (Bonnet & Arand, 1995). Sleep inertia reduces decision-making performance for at least 30 minutes (Bruck & Pisani, 1999). There is evidence to support the concept of sleep inertia

though it has not been thoroughly studied in older adults (Frey, 2008). However, it is a reasonable assumption that any emergency requiring immediate action or evacuation would disrupt sleep and may be associated with reduced decision-making performance. One that is abruptly woken from deep sleep and expected to respond to an emergency or alarm may experience moderate to extreme disorientation and may not be mentally able to make decisions regarding safety. This could be dangerous for anyone who needs to evacuate in a hurry, and could exacerbate any confusion or disorientation.

***Medication therapy*.**

Medications can play an enormous part of whether or not a community member would be able to safely evacuate and respond to emergencies. Older adults may be taking a large quantity of medications on a daily basis that may interfere with reaction time and alertness. The U.S. Fire Administration acknowledges that medications may impair judgment (2001), therefore medication use should be considered when planning and implementing an evacuation for older adults. Drug therapy is much more likely to result in adverse effects (Lilly, Harrington, & Snyder, 2007) and cognitive decline in elderly persons (Wright et al, 2009). A class of medication commonly prescribed as sleep aids and to reduce anxiety among the elderly is benzodiazepines; these include Valium, Ativan, Klonopin and Xanax (Deglin & Vallerand, 2007). Some common side effects of these medications are drowsiness, poor concentration, incoordination, muscle weakness, dizziness, and mental confusion. Having to perform activities that require one to be alert or agile may be nearly impossible for one who is under the influence of these medications. An older adult who is taking these medications may experience

compounded problems during evacuation, especially if there is a co-occurring disability or disorder.

Another common class of medications taken by older adults is sleep inducing medications such as Ambiem, Lunesta, and Sonata. These medications are prescribed to treat insomnia that can be common among the older adult population, and the side effects of these medications are similar to those of benzodiazepines (Deglin & Vallerand, 2007). These sleep aids are often taken nightly; while under the influence of such a medication, the symptoms of sleep inertia can significantly delay one's ability to respond to an emergency.

Safe Evacuation.

There are agencies which outline what constitutes a safe evacuation. One such agency, the U.S. Department of Labor, Occupational Health and Safety Administration (OSHA) has defined what it considers to be the essential components of a safe evacuation (2010). These components should be addressed both when creating an evacuation plan and when evaluating the effectiveness of an evacuation plan. Important components include: knowing when to evacuate and when to stay, having a chain of command in place for emergencies, having specific evacuation procedures, having someone responsible to ensure the plan is in action, and someone who will make a final count and conduct an evaluation (OHSA).

Knowing when to evacuate and when to stay in the building can be very confusing, but can also be life-threatening if the wrong decision is made. Depending on the building, if there is a fire, it could actually be safer for some to stay in their units, especially for those individuals who have moderate impairments (OSHA, 2010). Some

buildings may be built to protect residents from fires, such as having concrete walls, but may be unsafe in an earthquake. Ultimately, the person who makes the recommendation to evacuate or stay put in a disaster must be very knowledgeable about the building, its residents, and the nature of the disaster (OSHA).

In anticipation of an emergency, a chain of command should be in place to facilitate decision-making; to do otherwise may lead to chaos. The community health nurse helps to develop this team in the facility. It is typical for Command Personnel to decide if and when to evacuate, to determine who evacuates and what the outcomes and risks are (OSHA, 2010) Command Personnel also ensure that those who are designated to stay in the building can ultimately evacuate or be evacuated with safety (OSHA). Those who are familiar with the residents and the building, such as the property manager, facility manager, or service coordinator may comprise the Command Personnel of the facility. The managers and service coordinators, with the support of the community health nurse, ensure that there is an evacuation plan in place, that the plan is continually reviewed and revised when necessary, and that the plan is understood and practiced by all who would be affected in an emergency or disaster.

One of the most important evacuation components is that of a specific plan or procedure. Making sure that all of the residents are familiar with escape routes is essential. Merely providing written or verbal instruction upon establishment of residency into an independent living facility may be an insufficient means of ensuring evacuation safety. Therefore, it is essential to practice emergency drills in order to build familiarity especially for those with significant limitations. "Practice solidifies everyone's grasp of the plan, assists other in recognizing the person who may need assistance in an

emergency and brings light to any weakness in the plan." (National Fire Prevention Association [NFPA], 2010a, pg 6). While executing an emergency drill for an independent living facility may be a weighty undertaking, it could mean the difference between life and death for its residents.

The escape route needs to be clearly marked with appropriate signage. These signs should include large font that is colored to stand out against its background. The language should be clear and concise in order to be easily understood by residents. Including reflective material on signage enables individuals to better discern the written message under dark conditions or when there is only a scant amount of light. Reflective markers or lighting should be positioned along the escape corridor so that residents can see where they are going, in order to minimize the risk of injury and falls. Handrails must be in place to assist those with mobility impairments. Detailed mapped escape routes should be posted in plain sight throughout the buildings, such as just outside of the escape route entrance, stairway entrances, and other egress routes (OSHA, 2010).

A concept that has been introduced to assist in an evacuation or emergency is the "buddy system." OSHA defines this as a system in which one individual "buddy" that is physically, emotionally, and cognitively capable of safely evacuating is paired with another who may require assistance during an evacuation; pairs are identified well in advance of an emergency, and the "buddy" takes on the role of alerting the other to the disaster and facilitating safe evacuation for both (2010). Since there are many able bodied older adults living in independent living facilities, the buddy system provides others who have limitations with assistance during evacuation.

The NFPA's Emergency Evacuation Planning Guide for People (2010a) identifies that practicing evacuation is an essential component to successful and safe evacuation. Undertaking the physical exercise of evacuation can give residents a realistic idea of what to expect in the event that they would have to evacuate. Binder, Haughton, and Bateman (2002) further describe that practicing a task or skill builds true mastery, which frees up the mind for performing higher-order activities; higher-order activities involve application and problem-solving instead of becoming overwhelmed in the more basic details. In an emergency situation, those who have a strong understanding of what is necessary for safe evacuation will perform better and will better be able to improvise as needed. Ultimately, practice can save lives.

Seniors and Learning.

Although practice is vital to success, there are other types of education that should be incorporated into this process. When considering educating this population regarding safety in disaster, the community health nurse must take into account their general learning needs. Considering all of the impairments that have been discussed so far, there are many ways to address them while teaching a plan to this population. Incorporating as many senses as possible in the education will ensure that everyone will have an opportunity to learn the way that they learn the best. For instance, some individuals learn better by doing, while others may learn better by seeing, hearing, writing, or verbalizing (Institute for Learning Styles Research, 2010). When providing written material, it is helpful to use a larger font that greatly contrasts with the background colors of the page. Fonts that are basic in nature rather than embellished are preferred. Perry and Potter (2009) suggest incorporating audio, visual, and tactile methods of learning to increase

retention as well as focusing more on concrete material rather than abstract. This contributes to the argument that practice is needed to be successful in evacuation .

Without outside direction, older individuals may be less likely to take the appropriate amount of time needed to learn and practice a difficult task (Souchay & Isingrini, 2004). This suggests that if older adults are left to familiarize themselves with evacuation procedures or safety planning, they may not spend enough time learning the skills needed to develop an adequate understanding of the material. This further illustrates the value of incorporating evacuation drills into safety planning.

There are many older adults that are independent and healthy, and yet there are many that are independent and vulnerable. With the many impairments and disabilities the older population face, their ability to evacuate safely in an emergency is questionable. In the event of an emergency, having practice could make the difference between a successful evacuation and a deadly one. Working within the limitations and the educational needs of seniors is what is needed to create an effective evacuation plan. Community health nurses are facilitators of safe evacuations and should use this information to create feasible emergency plans for the population of seniors in their community.

Chapter III:

Creating a Plan Using the Nursing Process

The nursing process is a widely accepted method and has been suggested as a scientific method to guide procedures and qualify nursing care (Poroski, Moraes, Chiarelli, Costanzi, & Rabelo, 2009). The nursing process is used in the hospital setting as well as the community. The steps are: assessment, diagnosis, plan, implementation, and evaluation. The nursing process can be used to develop an effective emergency plan for the senior population living in independent living communities.

Assessment.

Assessment assists in the discovery of current and/or potential problems that threaten the well-being of the client. In community nursing, there are a few different types of assessment but the same principles of discovery are followed. Allender et al. (2010) describes these as a windshield survey or familiarization, problem-oriented, community subsystem assessment and comprehensive assessment.

In community health nursing, the community is viewed as the patients. Therefore the community health nurse should become familiar with the community that is the patient. A thorough assessment of the residents as well as the building is necessary in order to apply the rest of the nursing process. A key informant is someone who is part of the community or is knowledgeable about the community (Allender et al, 2010). He or she can provide essential data regarding the client that is pertinent to the discovery and investigation of dilemmas affecting the community.

In collaboration with a key informant(s), the community health nurse should assess the residents themselves. If there is no records kept at the facility regarding the

health status of the residents, interviews with the residents may be necessary to gain pertinent information that can be the key to safe escape in an emergency. Determining how many residents are impaired, what the impairments are, and where they are located in the building will be the information needed when planning the implementation of the buddy system.

An assessment of the building itself as well as the alarm system is also necessary to have a full understanding of what steps are needed to ensure a safe evacuation. The National Fire Protection Agency says that having a working alarm system cuts the mortality related to fire by 50 percent (2010a). The nurse must be familiar with the exits, egress systems, and alarms within the building. It is also recommended to document any issues with the building that may inhibit the safe evacuation of residents such as poorly placed or ineffective egress signs, insufficient sprinklers, and broken handrails. These findings should be brought to the facility administration to be addressed upon discovery.

Nursing Diagnosis.

After the assessment stage of nursing process is the nursing diagnosis. Nursing diagnoses are the conclusions or inferences that are formed by the evaluation of the data (Chabeli, 2007). The nursing diagnosis is a three part diagnostic statement that includes the problem, etiology, and symptoms (Ackley & Ladwig, 2008). Based on these diagnoses, nurses prepare interventions that lead to holistic patient care.

The community health nurse should critically analyze the data gathered during the assessment to create nursing diagnoses that are most applicable and of highest priority for their target community. Although there are many nursing diagnoses that apply, listed below are also very important to consider and can be used to formulate a feasible plan:

1. Risk for injury related to impaired mobility limiting safe evacuation.
2. Risk for injury related to sensory impairments creating the inability to receive or interpret emergency messages and safety information.
3. Risk for confusion and disorientation due to sleep disturbances, flashing lights, and cognitive impairment.
4. Risk for death related to lack of emergency evacuation plan.
5. Opportunity for enhanced safety plan related to emergency evacuation as evidenced by recommendation of the buddy system.

Planning.

The priority goal for this population is to be able to successfully evacuate from the facility of residence safely, or without harm. With the help of the local fire department and the facilities command personnel, the nurse can construct an effective plan that will consider how to respond to an emergency taking all of their limitations into consideration. While knowing the building is important in designing an escape route, the focus will be on the residents and assisting their evacuation from any building.

The Buddy System.

There are many ways that a buddy system would be effective in a disaster situation. If it was put into place, there would be a moderate degree of planning that would yield tremendously positive results. First, a list of residents would need to be put together with two categories; those who need assistance and those who can assist. Based on location and degree of assistance needed, a match can be made. Then, these residents would be informed of the match and educated about the buddy system and how it can benefit them and the community as a whole. For example, one resident might mark the

doors of those who have escaped or alert rescue teams to the residents who may still be in their units. While no resident should be in the position of legally assuming responsibility for another resident, such a relationship could build trust and greatly improve escape effectiveness as well as rescue efforts.

The buddies should be prepared to move at a speed that is realistic for the impaired resident. Those with mobility issues may not be able to maneuver as well as their buddy; however there is a much better chance of escape and survival when there are additional individuals available to assist with doors, locks and stairs or whatever the challenge suggests. Conversely, those buddies that are moving at a slower speed must be prepared to allow more able-bodied persons to evacuate ahead of them, even if that means letting those people move ahead of them on the stairwell or going through corridors.

If it has been decided by the person in command that it is safer for the occupants to remain in their units, perhaps it would benefit the matched pair of residents to double-up in a unit. This suggests that the more able person would go to the other's unit to impart assistance, provided that the scene is safe enough for the residents to make that transition. This may also help to keep each other calm and give a feeling of security in an otherwise frightening time.

The buddy system that has been recommended by OSHA is a key ingredient to this plan. This ensures that everyone in the building will be accounted for in some way. Based on the assessment of the residents' health, neighbors will be paired up by the nurse and the command personnel in such a way that one resident can assist the other or there may be mutual benefit.

For those with mobility impairment, it is imperative for the buddies to practice. Some residents may only be mildly impaired and may need minimal assistance, such as only needing someone to stand by and make sure that they do not fall. Others may need more assistance. Practicing some other forms of physical assistance, may be necessary as well. Some assistive postures, such as holding one arm around the buddy's waist and one around the back of the neck may help a resident who is moderately impaired to escape. Residents' who are moderately to severely impaired may not be able to leave their unit at all. In this case, a buddy can mark the door or place some kind of signal, such as a red X on the window to the outside or an X on the door of the unit. If the unit has a balcony, then the resident can stay there on the balcony and make sure that the fire and rescue team knows where they are. This would also be an opportunity to escape smoke if there is a fire. It should be decided during the planning stage which residents will most likely need to stay in their unit. As previously mentioned, there may be times when it is determined safer to remain in the building. At this time, the buddies can pair up to address each other's needs.

For those residents with respiratory dysfunction, the risk of injury becomes significantly higher as they may experience symptoms of oxygen deprivation, such as dizziness and fatigue. The dizziness raises the risk of falls and incurring injury and the fatigue attributes to slower action. The National Fire Protection Association (2010a) considers respiratory dysfunction to be a serious complication. Buddies can assist these residents as they would another who was physically impaired. Also, buddies can help with the transport of oxygen if it is applicable.

Those who are sensory impaired would also benefit from the buddy system. Nurses can be sure that these residents' will also be assisted when in an emergency by implementing this plan. It can pose a problem if the resident cannot find his or her glasses and is forced to act or move without the glasses. It is suggested to these residents that a spare set of glasses or hearing device be placed in an obvious location so to be easily accessible in an emergency since inadequate lighting and signage are barriers to safe evacuation. Also identified in the literature review, visual impairment paired with confusion can significantly raise the risk of injury or death. Although this person may usually be able to navigate through the halls, confusion and fear could lead this person in the wrong direction. For those that are significantly impaired, their buddy can be there to physically assist by holding their arm and directing them out of the building to safety.

Hearing impairments will need to be dealt with differently with the buddy system. These residents may be at increased risk as they may not be able to hear the alerts signifying danger. Depending on the level of impairment, the alarm may not be heard, nor loud knocks on the door from a neighbor trying to warn them of danger. The National Fire Protection Agency (2010a) states that if a person cannot receive some or all of a communicated message regarding an emergency, their ability to safely respond is diminished. A neighbor that is assigned to one of these residents as a buddy may be allowed to enter the unit to alert the resident to the situation if the resident cannot be alerted by the alarm system.

Those affected with cognitive impairments or intellectual disabilities may not be able to interpret environmental cues, read important safety information, or react fast enough to evacuate safely by themselves **(**NFPA, 2010a). The literature suggests that

aging decreases brain function that may affect one's memory (Perry & Potter, 2009). Also mild cognitive impairments affect 20 percent of older adults (Alzheimer's Association, 2010). The nurse should take great care when matching buddies with those residents who are cognitively impaired. The buddies of these residents should be someone that the resident already knows and trusts. The buddy should be one that has been a neighbor for a considerable amount of time. Since these residents are likely to experience confusion and fear during an emergency, there needs to be a familiar person to assist.

Alongside these impairments, there is medication therapy and sleep inertia that increase the level of assistance needed. Residents may have a combination of any of the discussed impairments which creates a need for the community health nurse and command personnel to assess each buddy team to address issues that are specific to them. This way, they plan for these buddies can be tailored to their individual needs.

Team Leader.

A consideration for the community health nurse is to have a team leader on every floor to make sure that all residents are accounted for whether evacuated from the building or secured in their unit. This person could be a resident or one of the command personnel within the facility. A task for this person would be to take a physical count of those who have left the building. A way of marking the unit to alert rescue teams that a resident is still inside is a way to avoid wasting time searching evacuated apartments. Upon safe evacuation from the facility, the team leaders should report to the command personnel which residents have been accounted for and whether they are outside or still in the building.

Command Personnel.

The community health nurse should develop command personnel that have the ability to effectively implement emergency procedures, manage residents during evacuation, as well as be able to access community resources such as local fire department and emergency medical services. A function of this team is to work with the community health nurse to prepare a plan and implement practice of this plan. Command personnel serve as a resource for the residents during practice drills and if there are questions or concerns regarding the plan in general. Development of the buddy system will be a large undertaking for the command personnel.

Practicing the Plan.

Having a plan is essential (NFPA, 2010a). OSHA (2010) and The National Fire Protection Association (2010a) recommend that an emergency plan should be up-to-date and practiced. An important approach to safe evacuation is having knowledge of a plan and practicing a plan. Research that suggests that practice of evacuation and fire drills is vital to its success, especially for populations at risk (NFPA, 2010a).

Implementation.

Implementation occurs when the interventions are being applied for the client, and the nurse and client work toward the objectives that are mutually identified in the goal statement. It is the working phase of the nursing process. This is when the opportunity for achieving desired outcomes is transpiring. With each implementation, data is generated as to outcome.

Practicing the evacuation drill is perhaps the most important piece to having an actual safe evacuation. It will bring to light any glaring misunderstandings and subtle

discrepancies. Documentation of the initial response will help the nurse and command personnel determine what changes need to be made to ensure safe evacuation.

Evaluation.

Evaluation is the last and very important step in the nursing process. The actual outcomes of the plan are compared to the desired outcomes and appraised for success. If the desired outcome is not met, the nurse and the client discuss and determine what part of the plan was ineffective and a reformulation of the plan is developed. An evaluation would be addressing the strengths and weaknesses in the evacuation plan and how the weaknesses could be managed. It can prompt discussion with the residents and possibly generate some ideas about how weaknesses in the plan can be addressed. This may inspire a feeling of community in the residents and therefore increase acceptance and participation. From here, the nursing process can be used throughout the existence of the plan for its revisions and updates when appropriate.

Nursing Implications

Community Health Nurses.

It becomes the community health nurse's role to keep the community safe in emergencies as well as from illness and injury. In the matter of emergency planning, the most important roles of the nurse are an educator, advocate, and manager of resources. The nursing process is the foundation of care for the community, as well as individuals.

As an educator, the community health nurse can make sure that the community is informed and up-to-date with the most current safety information that is applicable to their needs. This may also include creating safety plans, teaching the community, and implementing the practice of these plans. A community health nurse knows that there is

no such thing as being too prepared. The role of advocate becomes important in emergency planning because this population may not know how to help themselves. Also, the community at large may not realize that there is a problem. A manager and collaborator of resources would be able to utilize the help of other community organizations, such as the local fire department and the American Red Cross to accomplish nursing goals.

The student nurse community is strongly encouraged to participate in the care of the community as a whole. The students are in a mindset of learning and all aspects of the nursing process are fresh in their minds. Student nurses are learning the importance of advocating for their patients and can be very instrumental in much needed change.

There are many factors that contribute to the possible danger that may be faced in the event of disaster. Many lessons have presented themselves, especially with the Hurricane Katrina devastation; it is up to the community health nurses to get our communities prepared so that more lives do not have to be lost.

Chapter IV:

Conclusion

Our seniors are at risk for injury and death related to the lack of emergency preparedness on a large scale. Although many older adults are considered to be independent, many also face many disadvantages that include immobility, sensory impairment, and difficulty with cognition, medication-related and sleep-induced confusion.

Community health nurses can make a significant change in how society prepares our elders for disaster. Acting as an advocate, educator, collaborator and manager, community health nurses can save lives. These nurses can advocate for the community by noting and acting upon the need for preparation. As educators, community health nurses can reach out to their communities and create awareness of the possibility of emergency and how to stay safe. Collaborating with key informants as well as other members of the community, the community health nurse can craft a plan that, with practice, is successful.

By assessing the weaknesses and creating plans to emphasize the strengths, community health nurses can make sure that best practices for older adults in emergencies are being emphasized and utilized. Incorporating guidelines from OSHA and The American Red Cross, communicating with command personnel and involving the residents of the community can help the community health nurse to be successful in planning and implementing and effective emergency plan.

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