

**IMPLEMENTING A FALL REDUCTION PROGRAM FOR OLDER ADULTS IN  
FREDERICK COUNTY, MARYLAND**

LEADING COMMUNITY RISK REDUCTION

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## ABSTRACT

This project analyzed the number of unintentional injuries to older adults caused by falls and the use of fire/rescue personnel to conduct a community risk reduction program to reduce the number of incidents in Frederick County (MD). The problem was that the county did not have a community risk reduction program targeted at reducing falls within the older adult population. The purpose of this applied research project was to be proactive and develop a procedure and checklist to enable fire/rescue personnel to assist members of the community identify fall hazards in homes of older adults in Frederick County, Maryland.

The historical/action research methods were chosen to address the following questions:

1. What are the demographics relating to the number of older adults in the United States and Frederick County?
2. What are the injury and mortality consequences of falls with older adults?
3. How can the fire service be more proactive to reduce the number of unintentional injuries to the older adult?
4. What are the qualities of a good community risk reduction program targeted at reducing the number of falls within the older adult age group?

The procedures involved a literature review, an examination of standard operating procedures, a telephone interview and a search of the Internet. A survey was distributed to the current staff to obtain their views pertaining to the problem and implementation of the program.

The results indicated that a community risk reduction program was needed to be proactive, however, the program could not be handled solely by the fire/rescue service. Furthermore, all personnel needed to be polite, courteous and to treat everyone fairly when conducting the program. All personnel needed to be properly trained and an effective records management system was essential. To ensure the program is structured and uniformed, a standard operating procedure and fall assessment and intervention checklist were developed.

Recommendations included (a) the implementation of the community risk reduction program, (b) adoption of the standard operating procedure for conducting the fall assessments, (c) training all fire/rescue personnel to conduct the assessments, and (d) the establishment of a records management system.

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## **INTRODUCTION**

The problem was that the Frederick County Department of Fire/Rescue Services (DFRS) did not have a community risk reduction program targeted at reducing falls within the older adult population.

The purpose of this applied research project was to be proactive and develop a procedure and checklist to enable fire/rescue personnel to assist members of the community identify fall hazards in homes of older adults in Frederick County, Maryland.

The historical/action research methods were chosen to address the following questions:

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## **BACKGROUND AND SIGNIFICANCE**

Frederick County, Maryland is located in the Northwestern part of the State and is bordered by the Commonwealth of Virginia and the State of Pennsylvania. The Potomac River separates Frederick County, MD from Loudon County, Virginia on the southwestern part of the county.

In the late nineteen eighties, the Public Safety Division was created and encompassed the Department of Fire and Rescue Services (DFRS), the Office of Emergency Management, Animal Control, and the Department of Emergency Communications. The Department of Fire and Rescue Services included, Operations, the Office of the County Fire Marshal, and Advanced Life Support. The local fire and rescue departments work with the Department of Fire and Rescue Services to provide fire suppression and emergency medical services to the community. Since the inception of the Office of the County Fire Marshal, focus has been on code compliance with construction of new and existing structures; not fire and injury prevention. In the past, fire prevention activities were left up to the fire prevention committee of the Frederick County Volunteer Fire and Rescue Association (FCVFRA). The FCVFRA is comprised of the volunteer fire and rescue companies in the county. The committee is very active in planning fire prevention activities in October of each year and usually get assistance from the career fire/rescue personnel in carrying out the activities. Recently, some fire/rescue personnel of the Department of Fire and Rescue Services have felt the need to become more proactive and get involved in fire and life safety prevention activities. Therefore, some of them became certified child safety seat technicians; looking out for the welfare of our youngest member in society. Other programs that they have become involved in included a smoke detector program, and cursory home fire safety inspections.

Effective July 1, 2003, the Office of the County Fire Marshal was divided and part of it moved to a new division (outside of the DFRS) to handle all permitting and new construction issues. The remaining staff will remain within the Department of Fire and

Rescue Services to handle complaints, background investigations, fire and injury prevention programs and preventive inspections. In the future, the DFRS, through the Fire Marshal, will be able to expand on the fire and injury prevention programs already in place and develop new programs. The expansion should focus on the older adults since the population statistics are indicating a significant increase within this age group over the next eight to twenty-seven years. The fire/rescue personnel throughout the system will be able to provide more assistance to the customer, provided clear direction is given, regarding the fire and injury prevention. Furthermore, the training and direction for the fire service will become more beneficial as the number of older adults continue to increase.

The significance of this research to the Frederick County (MD) Fire and Rescue Service is threefold. First, the research and results will identify the number and growth rate of older adults living in the county. Second, it will identify that most of the injuries and deaths among the older adults are preventable with some intervention from outside agencies. Lastly, the research will show that there are programs available that the fire service personnel can implement or spearhead to play an active role in unintentional injury reduction.

The Leading Community Risk Reduction (LCRR) course at the National Fire Academy is dedicated to reducing risk in the community. Specifically, chapter one identifies the most common fire and injury risk areas in the United States. Furthermore, it states the preventable injuries are the second highest medical cost; 700,000 deaths occur annually from injuries; \$69 billion is spent on treatment annually; and result in financial costs of \$224 billion per year (FEMA, 2003, p.1-59). Failure to focus on

minimizing preventable injuries will, in the future, tax the fire and rescue service with an increase in responses. By managing risks and vulnerability, the event is prevented and/or its impact to the community is minimized (FEMA, 2003, p.1-60).

## **LITERATURE REVIEW**

The literature review for this applied research project consisted of reviewing research papers, magazines, and books in the Learning Resource Center at the National Fire Academy (NFA) in Emmitsburg, Maryland. Further research was conducted by reviewing department policies, statistics and demographics, and searching the Internet to identify other agencies conducting fall prevention programs for older adults and obtaining data to research questions. I also spoke with Dr. Judith Warren of the Texas Cooperative Extension at the Texas A&M University System regarding the unintentional injuries to older adults resulting from falls and programs that she has presented on the subject matter.

### **1. What are the demographics relating to the number of older adults in the United States and Frederick County?**

America is growing older (Rhoades, 1989, p.2). Contrary to earlier reports, the United States Census Bureau is reporting for the first time in its history, the population 65 years of age and older increased at a slower rate than the general population as a whole (Hetzl & Smith, 2001, p.1). The fastest-growing segment of the aging population (those over 65 years old) is the age group 85 years and older (Rhodes, 1989, p.2). The percentage of people in this age group decreased from 12.6% in 1990 to 12.4% in 2000 (Hetzl & Smith, 2001, p.1). However, in 2000, there were an estimated 35 million people 65 years of age or older and they accounted for almost 13%

of the total population (Federal Interagency Forum on Aging Related Statistics, [FIFARS], 2000, p.1). In 2011, the “baby boom” generation will begin to turn 65 and by 2030 it is projected that one in five will be 65 years of age or older (FIFARS, 2000, pp. 1-2). A look backwards, in 1900 one in twenty-five Americans were 65 years of age or older (U.S. Department of Commerce, 1993). The Federal Interagency Forum on Aging Related Statistics (2000) expects the number of older adults to grow to 70 million by 2030 and the U.S. Department of Commerce (1993) expects the number to grow to 79 million by 2050.

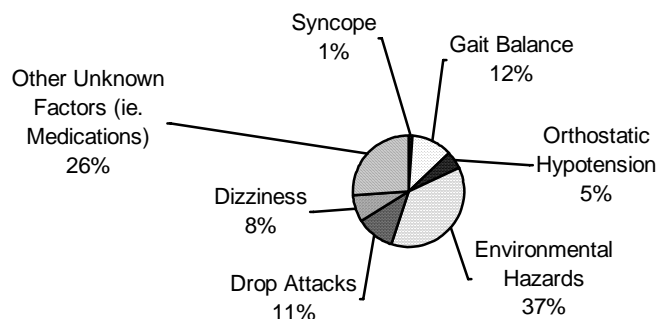
Across the United States, the proportion of older adults varies. In 2000, Florida, West Virginia, Pennsylvania, Iowa, and North Dakota had the highest proportion of older persons or 15% or more of the older adult population (FIFARS, 2000, p.2). Maryland has between 10 -12.9% of the older adult population age 65 and older in the United States (2000, p.2). The State of Maryland has a reported 572, 997 persons 65 years of age or older. (Maryland Department of Planning, 2003). According to the report from the Maryland Department of Planning (2003), 3.1% of them live in Frederick County.

## **2. What are the injury and mortality consequences of falls with older adults?**

From 1992 through 1995, 147 million injury-related visits were made to emergency departments in the United States (Fuller, 2000). The leading causes of those injuries were falls and they accounted for 24% of the visits (2000). Nationally, falls in children under five and adults over 65 are very common (2000). From 1998 through 2002, 7,678 falls were reported in Frederick County (MD) (Maryland Institute of Emergency Medical Services Systems, 2003).

On the national level in 1990, Nelson and Amin conducted eight studies on the causes of falls in older adults (Warren, 2003). Environmental hazards accounted for 37 percent of the falls followed by unknown factors (i.e. Medications) with 26% (Figure 1).

**Figure 1 - Causes of Falls in Older Adults (Nationally)**



Older adults who fall are 10 times more likely to be hospitalized and eight times more likely to die from injuries sustained in a fall (Fuller, 2000).

According to Dr. Judith Warren of the Texas Cooperative Extension (2003), once an older adult falls in the community, many suffer severe psychological trauma. Following a fall, they begin to isolate themselves and limit their activities so as to not repeat the trauma of suffering from additional falls. Of the falls in the community, 5% result in serious soft tissue injuries; 5% of falls result in a fracture; and, 90% do not result in physical injury. The injury consequences of falls are that 10-15% of falls result in serious injuries; causes nearly 90% of fractures in the elderly; 42% require hospitalization; and causes more than 200,000 hip fractures each year. The National Center for Injury Prevention and Control reports that the ninety-five percent of hip fractures among adults are caused by falls (2003).

The mortality rate for falls increases dramatically with age in both sexes and in all racial and ethnic groups, with falls accounting for 70 percent of accidental deaths in persons 75 years of age and older (Fuller, 2000). Falls are a major cause of morbidity and mortality in the elderly (Kauder, Williams, 1991, p.24). About one-third of community-dwelling people older than 65, and 45 percent of the institutionalized elderly, report at least one fall each year (1991, p.24). Falls can be markers of poor health and declining function, and they are often associated with significant morbidity (Fuller, 2000). Of all fall-related fractures, hip fractures cause the greatest number of deaths and lead to the most severe health problems and reduced quality of life (National Center for Injury Prevention and Control [NCIPC], 2003). One fourth of the elderly persons who sustain a hip fracture die within six months of the injury (Fuller, 2000). More than 50% of older patients who survive hip fractures are discharged to a nursing home, and nearly one half of those patients are still in a nursing home one year later (2000). Hip fracture survivors experience a 10-15% decrease in life expectancy and a meaningful decline in overall quality of life (2000). This decline in quality of life will most likely increase the need for emergency medical services. As stated in the BBC News (2003), "Prevention is always better than cure – better for the patient and more cost effective in the long run".

### **3. How can the fire service be more proactive to reduce the number of unintentional injuries to the older adult?**

According to the text used in the Leading Community Risk Reduction class, fire/rescue personnel need to get out into the community and develop programs that will enhance the quality of life for the people living in the community (FEMA, 2003, p. SM 3-

47). Also, Rhodes (1989) states, “as our population grows older, local governments will increasingly be involved in implementing programs and services to help senior citizens (older adults) enjoy the quality of life they deserve”. A community risk reduction program that would have an impact is one aimed at reducing falls in older adults. The presentation of fall prevention safety programs have been proven to be effective in reducing the number of fall injuries (Hanson, 1995, p.4).

Over the next eight to twenty-seven years, the number of older adults is going to increase significantly. In addition to the increase in older adults there will be an increase in the need for assistance from emergency services (fire and ambulance). According to a recent American Association of Retired Persons (AARP) (2003) housing survey, 83% of older adults want to stay in their current homes for the rest of their lives. Older people find their homes to be comfortable and convenient and feel secure and independent there (2003). The independence aspect is what will cause an increase in emergency medical responses since older adults will be living alone and will not have anyone to depend on. Dr. Richard Judd (1989) also notes that with the ever-increasing number of older adults in the communities, it is likely that the older adults will access emergency medical services on a more frequent basis.

In the information provided by the Maryland Institute of Emergency Medical Services Systems (MIEMSS') (2003), 6.25% of the emergency medical services (EMS) responses (122,984) in Frederick County (MD) since 1998 were for falls. Forty-four percent of the EMS responses were for older adults. Dr. Kauder and Dr. Schwab (1991) advise that determining the reason for a fall is just as important as treating the injuries; falls can be classified as accidental or non-accidental (p.24). The accidental

falls are the ones where the fire/rescue service can make an impact. Fire departments in the City of Redmond (WA), City of Renton (WA) and York County (VA) currently offer fall prevention programs. Utilization of fire/rescue personnel in reducing fall hazards will make the fire/rescue companies more productive, visible and available to respond to other requests for emergency services. Also, thorough assessments and treatment of older people who have had a fall will improve their wellbeing and quality of life, as well as their health (BBC News, 2003).

#### **4. What are the qualities of a good community risk reduction program targeted at reducing the number of falls within the older adult age group?**

There are many elements of a program to make it successful. Some of those elements include: management, stakeholder involvement, standard operating procedures (SOP's), professionalism, training, team participation, and good record keeping. Management is a primary element in the success of any ongoing program (Barr, 1982, p.22). Barr (1982) also states, "the key to an effective fire inspection program is the program manager" (p.22). The latter statement by Barr is true with any program and would apply to an injury prevention program. The challenge is to find the most appropriate way to plan and deliver services for the elderly (Rapelje, 1989).

Since many people touch the lives of the older adult population, stakeholders need to be identified. This group should include all who have an interest in the outcomes of the process (FEMA, 2003, p. SM 1-62). Some stakeholders for a fall reduction program may include healthcare workers, older adults, social services, representatives of special interest groups working with the older adults, the AARP, the Department of Aging and most importantly the fire/rescue personnel.

The program will fail if more attention is paid to the community than to creating internal support for community risk reduction. As stated in the Leading Community Risk Reduction course, "Bottom line --- if the men and women do not support community risk reduction it will be very difficult for you and the leadership team to be successful in the long-term with any risk reduction initiative". (SM-3-47). Furthermore, there needs to be uniformity and consistency with the program.

Larry Hogan wrote: "...all parties with similar situations should be treated the same way. The United States Constitution's due process clause requires that all your proceedings and consideration of all requests be fair" (2000, p.251). A good risk reduction program will include SOP's to ensure all people subject to an inspection/assessment are treated equally and fairly and that all people conducting the inspection/assessment are presenting the same program.

All personnel must be trained to conduct inspections/evaluations and present themselves professionally. It should not be assumed that the fire/rescue personnel are all familiar with and able to recognize what are and what are not fall hazards. Fire/Rescue personnel need to exhibit technical competence and professional demeanor at all times. If anything less is displayed, the program can be placed into jeopardy by unnecessary misunderstandings, resentment and criticism (Jenaway, 1988, p.75).

Lastly, the program again must be consistent and have proper documentation. Investment in an effective records management system is essential to ensure documentation is available for litigation or if the program is ever challenged. The records management system will also provide management and the stakeholders with

statistics to enable them to evaluate the effectiveness of the community risk reduction program.

## **PROCEDURES**

The purpose of this applied research project was to be proactive and develop a procedure and checklist to enable fire/rescue personnel to assist members of the community identify fall hazards in homes of older adults in Frederick County, Maryland and to find answers to the research questions identified earlier in this paper. Once the questions were identified, the research phase began. The research was conducted in the literature review to identify how many older adults are affected and how other members of the fire service and special interest groups handle injury prevention within the older adult population. It was conducted at the National Fire Academy, Frederick County Department of Fire/Rescue Services and on the Internet by reviewing research papers, reports, articles, standard operating procedures and various checklists for fall assessments and intervention.

An interview with an expert from the Texas A&M University System was conducted regarding the work that has been done on older adult fall reduction programs. The data obtained presented an overview of what is necessary and what has been done elsewhere to make a community risk reduction program targeted at reducing the number of falls in the older adult community successful.

A survey, adapted from one used by Division Chief Belin of the City of Henderson Fire Department (NV), of the current fire/rescue personnel in Frederick County (MD) was conducted to obtain their perspective in the older adult injury problem and implementation of a risk reduction program (Appendix A).

Once the research was concluded, a standard operating procedure (Appendix B) and a fall assessment and intervention checklist (Appendix C) were drafted based on current practices and information obtained from other interest groups.

### **Limitations**

There were several limitations in conducting this research project. First, there is a lack of information available from the fire service, as a whole, on the issue of injury prevention for the older adult. Many publications speak to fire prevention, but not injury prevention, as this may be a relatively new area for the fire service. Furthermore, the terminology or reference to older adults is not uniformed. In some documents the people in the age group of 65 years and older are referred to as “senior citizens”, “elderly”, and “older adults”. In some instances, “older adults” are including those individuals 55 years old and older. The cost of the implementation of the program was not part of this research. The information pertaining to falls was only researched for five years (1998-2002) and only available from the Maryland Institute of Emergency Medical Services Systems (MIEMSS’). Information was not obtained from nursing homes or the hospital regarding the number of patients seen for falls and the circumstances surrounding the reasons. Also, information was not obtained from any health care facility concerning deaths or rehabilitation of older adults who were injured as a result of a fall. Finally, and probably the most significant limiting factor is the lack of a local database to monitor falls and reasons by age of casualty, occupancy type, and address/response area. The lack of a database further limits the ability of the fire/rescue service to analyze the program for effectiveness.

## **Definition of Terms**

Fire Marshal. An individual assigned to oversee the Fire Marshal's Office with the responsibility and authority to enforce all fire codes and ordinances.

Fire Marshal's Office. The office responsible for fire code enforcement, fire investigations and fire and injury prevention education.

Fire/Rescue Personnel. Firefighters, Emergency Medical Technicians and Paramedics assigned to various fire/rescue stations in the county.

Frederick County Department of Fire/Rescue Services. The county agency with the overall responsibility for fire and injury prevention, suppression and emergency medical services.

Older Adult. Any individual age 65 years old and older.

## **RESULTS**

### **Answers to Research Questions**

Research Question 1. What are the demographics relating to the number of older adults in the United States and Frederick County?

The American population is getting older. In the United States, there are an estimated 35 million people 65 years old or older (FIFARS, 2000, p.1). According to FIFARS, the highest proportions of older adults are located in a few states (Florida, West Virginia, Pennsylvania, Iowa, and North Dakota) and there are still a good number locally. In Frederick County (MD), the United States Bureau of Census (2003) indicated that there are 18,836 older adults. This is an increase of 32.6 percent or 4,627 persons since 1990. The difference in the older adult population (ages 65+) versus the general population (ages 0 to 64) is an increase of 2.9 percent. Therefore, the older adult

population in Frederick County (MD) is growing at a slightly higher rate than the general population. Also, the “baby boom” generation currently accounts for a little over 33 percent of the Frederick County population which means that the number of older adults will likely quadruple by 2030 (United States Bureau of Census, 2003). In question two on the survey sent out the fire/rescue personnel, 59% of the personnel agreed that the older adult population in Frederick County was growing at a faster rate than the general population.

Over the past five to seven years, three new retirement communities opened in the county. This is also an indication that more and more people are getting older and need assistance. People move into these communities where, as their health declines, they will be able to remain living in the community and receive progressive care.

Research Question 2. What are the injury and mortality consequences of falls with older adults?

When a person gets older, their ability to move about becomes diminished. Their perception changes as well. This is attributed to lost muscle tone and poor vision. Some of the latter items can be adjusted through visits to the optician and regular exercise programs.

Of the falls reported in Frederick County during 1998 - 2002, 269 were from children under the age of five and 3,436 were from adults age 65 and older (MIEMSS', 2003). During the same time period, the number of falls in the older adult category increased from 576 in 1998 to 745 in 2002. In all other age groups, the number of falls declined slightly from a peak of 909 in 2000 to 864 in 2002.

From the survey sent to the fire/rescue personnel, based on their experience, environmental hazards are the leading cause of injury followed by the following: weakness, balance problems, dizziness, lower extremity disabilities, and lastly medications. This is consistent with the national studies conducted by Nelson and Amin in 1990.

Steve Henry of the Hobbs Fire Department (NM) reported that unintentional injuries accounted for more than 90,000 deaths in the United States in 1997 (2000, p.9). That was the fifth leading cause of death (Henry, 2000, p.9).

Research Question 3. How can the fire service be more proactive to reduce the number of unintentional injuries to the older adult?

The results from this research indicate that the majority of fire/rescue personnel who responded to the survey are aware of the older adult injury problem and support efforts to reduce the unintentional injury problem. From earlier research conducted by the author, the fire/rescue personnel in Frederick County (MD) believe that fire and injury prevention is part of their job and that it would be good public relations project.

The fire service can be more proactive by teaching the community about fire and injury prevention. Battalion Chief Richter of the Tucson Fire Department (AZ) noted that from numerous studies conducted all of them concluded that fall prevention and education measures prove effective in reducing the incidence of serious fall injuries (1994). The City of Redmond (WA), the City of Renton (WA), and the York County (VA) Fire & Life Safety are examples of community fire and rescue departments that have fall prevention programs that they offer to the community to reduce the incidence of falls.

The National Fire Protection Association and the Center for Disease Control and

Prevention have developed a program available titled “Remembering When – A Fire and Fall Prevention Program for Older Adults” to address fall and burn prevention among older adults and is available to the fire service.

Surveys were sent to 97 of the fire/rescue personnel. A total of 40 (41% response rate) surveys were returned; 3 (7%) were Paramedics, 2 (5%) were Fire Fighter/Paramedics, 20 (50%) were Fire Fighters, 14 (35%) were Sergeants, and 1 (3%) was a Lieutenant. All of the responses to the survey questions are in Appendix A.

Question 1 was used to establish the diversity of the personnel (management versus field personnel) responding to the survey. This information is used to determine what experience the staff has and would be an indicator of the knowledge the personnel have of the unintentional injury problem. The majority of the responses came from the fire fighters and paramedics. Fire fighters accounted for 50% of the survey responses; paramedics and fire fighter/paramedics responded with 7% and 5% respectively and Sergeants and Lieutenants accounted for 38% of the responses.

Question 2 was asked to determine how much knowledge the personnel had about the demographics of the older adult population within Frederick County (MD). Fifty-nine percent of the personnel agree that the older adult population is growing faster than the general population and 27% did not know.

Question 3 was solicited to identify if the fire/rescue personnel believe that the Frederick County Fire/Rescue Services should be involved in conducting injury prevention programs for the older adults in the community. Sixty-eight percent of the respondents agree and 32% disagree. This question was the key question in

determining whether the fire/rescue personnel should conduct community risk reduction programs targeted at reducing the number of falls in the older adult age group.

Question 4 was asked to determine the type of commitment that the personnel would have to educating the older adults in fall prevention techniques. Many of the respondents would be willing to teach the fall prevention techniques while on duty (57%); one off duty (3%); some on and off duty (15%); and, a few do not want any part of it (25%).

Question 5 was asked to solicit who the personnel felt should spearhead the injury prevention program. The majority of the personnel feel that it should be a combination of a dedicated position and fire/rescue station personnel. Twenty-eight percent do not feel that anyone in the fire service should play an active role in educating the older adults in fall prevention techniques.

Question 6 inquired about the number of personnel would be willing to capture data and refer the problem to other agencies that work with the older adults. Of the responses, 78% of the respondents will capture the data and 22% will not capture the data to prevent future occurrences.

Question 7 was to solicit the experience the respondents had with the incidents they responded to involving falls with older adults. The respondents were requested to rank the causes of falls based on incidents they responded to involving falls within the older adult population. The majority of the causes were from trip/fall hazards (includes rugs, cords, furniture, stairs, etc.) followed by weakness, balance problems, dizziness, lower extremity disabilities, medications and then poor lighting conditions. The trip/fall

hazards are easily remedied with some intervention through education and enforcement.

Question 8 was seeking any other agencies that should be involved in the reducing the number of falls in older adults. Many of the responses were along the lines of “health department”, “social services”, “nursing homes”, “hospital personnel/wellness center”, and the “Department of Aging”. Some respondents also said they were not sure who else should be involved and a few said that the fire/rescue services should not be involved.

Research Question 4. What are the qualities of a good community risk reduction program targeted at reducing the number of falls within the older adult age group?

The key element to a successful risk reduction program is the support of the management team and the involvement of the stakeholders. If the management team is not supportive the program will fail. The failure of the program will also occur if the fire/rescue personnel do not support it. In Frederick County, 68% of the fire/rescue personnel surveyed, supported the need to get out into the communities and educate older adults about fall and injury prevention. The fire/rescue personnel also felt that internally a combination of a dedicated position and the fire/rescue personnel needed to work in concert to deliver and monitor a risk reduction program to educate the older adults in fall prevention techniques. Externally, other agencies such as those identified in question eight of the survey sent to the fire/rescue personnel need to be involved. There is too much work and not enough staffing for the fire service to handle alone.

Another element is that the personnel must project a professional image. If the fire/rescue personnel are not confident, courteous, convincing and professional while

conducting the assessments and dealing with the public, the image of the Department of Fire/Rescue Services will suffer. In order to be confident in what they are doing, the fire/rescue personnel must have SOP's and training. A draft SOP was developed (Appendix B) to provide guidance to the fire/rescue personnel in conducting the program. Also, a sample fall assessment and intervention checklist (Appendix C) was developed for personnel to use to work towards the reduction of unintentional falls in the home. Finally with the proper training the personnel will be able to educate the public, conduct assessments, develop relationships, and develop a good records management system.

## **DISCUSSION**

America is getting older; more and more people are turning 65 and living longer. The role of the fire service is also continuously changing. From the days of preventing and fighting fires, fire/rescue personnel have had to begin to focus on emergency medical services and now injury prevention.

Since the founding of this Nation, the United States has been thought of as a Nation of youth (U.S. Department of Commerce, 1993). In 2030, when all of the baby boomers will have turned 65 the number of older adults in the United States will double from what it is today. The number of older adults in the United States will be approximately 70 million (FIFARS, 2000). Eventually, there will be more grandparents than there will be youth (U.S. Department of Commerce, 1993). However, the number of older adults in Frederick County (MD) will quadruple by 2030 (United States Bureau of Census, 2003). This increase will begin with the first baby boomers in 2011.

With all of the increases in the older adults and the increased need for independence, the emergency medical system is going to be utilized more frequently. That is part of the reason that the fire service needs to become proactive and tackle the situations in the community that will have an adverse effect on the fire service, through increased fire and EMS responses in the years to come. Not only will the fire service be burdened, so will the health care facilities. As Fuller (2000) stated, during the period of 1992 through 1995 there were 147 million injury-related visits to the emergency rooms in the United States and of those visits, 24% were results of falls. In Frederick County from 1998 through 2002, there were 3,346 visits to the emergency room, by people age 65 and older, for falls. According to Dr. Warren (2003), falls are a public health problem and most are preventable, the fire service and other public and private agencies can work together to minimize the risk and aid the older adults with a better quality of life. Most of the fire/rescue personnel have said that they will work on duty and some off duty to teach fall prevention techniques to the older adults.

The National Center for Injury Prevention and Control reports that 1.6 million seniors were treated in emergency departments in the United States during calendar year 2000. Locally, the fire/rescue personnel said that they would record causes of injuries to older adults and make recommendations to other agencies that work with older adults to prevent future occurrences and hopefully reduce the number of visits to the emergency department. Failure to reduce the number of preventable falls will jeopardize the safety of older adults and increase the need for emergency services. The NCIPC (2003) reports that two-thirds to one-half of falls occur in or around the home.

Simple alterations can prevent one-third of all home accidents (AARP, 2003). The elderly account for 75% of the deaths from falls.

From the research, it appears that everyone is saying the same thing with regards to the number of people in the United States and in the local jurisdictions. A reason for this is because the statistics about the number of people who reside in the United States and locales is based on the census counts performed by the federal government. However, the information changes almost annually when the statistics or projections are updated. Even though various governmental organizations and private agencies are monitoring the number of people alive today and the number of falls within a particular age group, the rate of falls is steadily increasing. This is evident locally. Information pertaining to falls has not been monitored or made available to the Frederick County Fire and Rescue Services prior to this study, however, fire/rescue personnel can now begin to work towards reducing the number of falls and improve the quality of life locally for all older adults of today and tomorrow. The challenge is to find the most appropriate way to plan and deliver services for the elderly (Rapelje, 1989, p.7). Also, more resources will be put into prevention, community support, and wellness and life enrichment, all of which promote independence (1989, p.7).

### **RECOMMENDATIONS**

Based upon the research, the author recommends that the Frederick County Department of Fire/Rescue Services begin the implementation process a community risk reduction program to reduce the number of unintentional falls within the older adult population. The program must have a dedicated person, assigned to the Fire Marshal's Office, who is well organized, a champion, a visionary, interested in the overall concept,

and willing to assist the fire/rescue personnel with issues involving the older adults.

The program will need support from various stakeholders outside of the fire service. The community risk reduction program must include the implementation of the Community Risk Reduction – Fall Prevention for Older Adults Standard Operating Procedure (SOP) (Appendix B) and fall assessment and intervention checklist (Appendix C), initial training of the personnel to conduct the fall assessment inspections and establishment of a records management system. The data entered into the records management system will aid the program manager with monitoring the effectiveness of the program. Moral and financial support from the upper level management and cooperation from all stakeholders involved will be required to get the program implemented. Much of the expense with a program of this nature is the cost to train the fire/rescue personnel about the subject matter, for the materials to present to the target audience, and to procure a records management system.

Periodically, customer service surveys shall be sent to the customers to verify if the intervention is beneficial. Feedback must be provided to the fire/rescue personnel about the program. Also, the fire/rescue personnel need to provide feedback about changes to the program they feel should be made. Adoption of the community risk reduction program for preventing falls within the older adult population will assist the field personnel reduce the number of emergency medical responses within the target group; older adults. It will also provide the fire/rescue personnel with the opportunity to visit with the older adults, enhance public relations by looking out for their welfare and become more visible and productive in the community.

After the program is in place for at least one year, the program should be reviewed, updated and expanded if warranted. Ongoing meetings with the stakeholders should be conducted by the program manager in order to monitor new developments, review external funding sources and to spread the burden of the program to other agencies of interest. The SOP and fall assessment and intervention checklist will need to be updated periodically and the personnel trained on any new developments.

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## APPENDIX A

LEADING COMMUNITY RISK REDUCTION  
PROGRAM SURVEY & RESPONSESn=40

1. Please place an "X" next to your rank within the Frederick County Department of Fire/Rescue Service:  

[ 1 ] Lieutenant	[ 14 ] Sergeant	[ 20 ] Fire Fighter (all ranks)
[ 2 ] Fire Fighter/ Paramedic (all ranks)	[ 3 ] Paramedic (all ranks)	
  
2. The older adult population in Frederick County is growing faster than the general population.  

[ 23 ] Agree	[ 6 ] Disagree	[ 11 ] Don't Know
--------------	----------------	-------------------
  
3. Do you believe that the Frederick County Fire/Rescue Services should be conducting injury prevention programs for the older adults in the community?  

[ 27 ] Agree	[ 13 ] Disagree	
--------------	-----------------	--
  
4. In an effort to reduce injuries to older adults that result in falls, I would be willing to invest some of my time to teaching safety techniques to the older adults in the community.  

[ 23 ] On duty	[ 1 ] Off duty	[ 6 ] Both	[ 10 ] Neither
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5. Should the Frederick County Department of Fire/Rescue Services have a dedicated position to educating the older adults in fall prevention techniques or should the field personnel play an active role?  

[ 5 ] Dedicated position	[ 9 ] Field personnel	[ 15 ] Both	[ 11 ] Neither
--------------------------	-----------------------	-------------	----------------
  
6. In an effort to reduce injuries to older adults that result in falls, I would be willing to record the causes of injuries to older adults and possible recommendations to other agencies who work with older adults to prevent future occurrences?  

[ 31 ] Yes	[ 9 ] No
------------	----------
  
7. From incidents you responded to involving falls within the older adult population, please rank the following causes from 5 to 1, with 5 being the most frequent, use 0 if it is not a factor: **Based on the responses, the following were listed in order of frequency with 1 being the most frequent.**

[ 2 ] Weakness
[ 1 ] Trip/Fall hazards (includes rugs, cords, furniture, stairs)
[ 6 ] Medications
[ 3 ] Balance problems
[ 4 ] Dizziness (from standing up too quickly)
[ 5 ] Lower extremity disabilities
[ 7 ] Poor lighting conditions

8. What agencies do you feel should be involved in reducing fall injuries to older adults?

**Duplicate responses were eliminated**

- **Department of Fire/Rescue Services**
- **Local volunteer fire/rescue companies**
- **Health Department**
- **Department of Aging**
- **Frederick Memorial Hospital Emergency Department**
- **Any public or private groups that deal with care/services for the elderly**
- **Frederick County Volunteer Fire and Rescue Association**
- **Department of Social Services**
- **Health Department or Social Services would be a better fit for this type of program rather than fire/rescue**
- **Any public service agency, including but not limited to, Maryland State Police, Frederick County Sheriff's Office.**
- **Not the fire/rescue service**
- **??**
- **Nursing home staff**
- **Way Station**
- **Frederick County Community Action Agency**
- **Unsure**
- **Frederick Memorial Hospital Wellness Center**
- **Local senior citizen organizations**
- **Combined effort from all Frederick County retirement and assisted living facilities (funded by them)**
- **Department of Public Welfare**
- **Healthcare providers**
- **Senior citizen type agencies. Frederick County Department of Fire/Rescue Services is too understaffed at this time to take on this task.**
- **Primary care facilities**
- **Emergency Medical Services**
- **Adult day care centers**
- **Churches**
- **Meals on Wheels**
- **Any groups that cater to seniors**
- **Not sure who else**
- **American Association of Retired Persons (AARP)**
- **Civic and Social Organizations**
- **County and State agencies that work with the elderly**

## APPENDIX B

### STANDARD OPERATING PROCEDURE

*Department of Fire/Rescue Services*

*Frederick County, Maryland*

\*\*\*\*\*

## Community Risk Reduction – Fall Assessment Program for Older Adults

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### PURPOSE:

Fall assessments are to ensure that homes occupied by the older adults living in the county are free of or have limited fall hazards. Throughout the assessment program, the older adults, residing in Frederick County, will have a better quality of life through the proactive measures offered by the Frederick County Department of Fire/Rescue Services.

### POLICY:

This standard operating procedure outlines the responsibilities of the field personnel in the fall assessment and intervention process. The primary responsibility of the field personnel is to inspect the homes occupied by older adults as outlined in the procedures. The field personnel will conduct the assessments in their first due area and while in-service.

### SECTION 1.0 – OCCUPANCIES TO BE INSPECTED

- A. Residential occupancies occupied by an older adult (someone who is the age of 65 or greater).

### SECTION 2.0 - RESPONSIBILITIES

- A. Office of the County Fire Marshal.
  - 1. Provide technical assistance and training.
  - 2. Forward inspection assignments to the Lieutenants for distribution to personnel.
  - 3. Follow-up on intervention progress and report an issues or request for assistance to the appropriate agency (health, aging, etc.)

- B. Lieutenants.
  - 1. Ensure that fire/rescue personnel complete assessments within a timely manner (within 48 hours of request).
- C. Company Officers.
  - 1. Become familiar with applicable codes, standards, and ordinances.
  - 2. Ensure that assessments are performed in accordance with this policy and in a professional manner.
  - 3. Carefully plan and schedule assessments so they can be finished within the allotted time.
  - 4. Maintain an assessment file of most recent assessments conducted.
  - 5. Submit a monthly assessment report by each senior career officer no later than the third working day at the beginning of each month to the fire marshal's office.

### **SECTION 3.0 - GENERAL INSPECTION POLICIES**

- A. Fall assessments shall be conducted on a regular basis by a Fire Fighter II or above.
  - 1. Evening assessments shall be scheduled for residents who are not normally home or available during the day.
- B. In general, fire/rescue units will remain in-service while personnel are conducting assessments.
  - 1. The company officer may allow one individual to remain with the apparatus if he/she deems it appropriate.
    - a. In those cases, that individual shall have fire prevention materials on hand to distribute to members of the public who may stop to inquire.
    - b. In no case shall the individual remaining with the apparatus engage in sleeping or the conduction of personal business.

- C. All fire/rescue personnel shall:
1. Become familiar with the fall assessment and intervention checklist.
  2. Assessments shall be done by all crewmembers and while wearing the Class B or C uniform (as defined in the Uniform Policy).
  3. Conduct themselves in a professional manner.
  4. Not conduct personal business, including phone calls.

#### **SECTION 4.0 - INSPECTION PROCEDURES.**

- A. Entry.
1. Always enter through the main entrance.
  2. Introduce yourself and explain the purpose for the visit (to conduct a fall assessment) and request permission to perform the assessment.
  3. Request the occupant to accompany you during the assessment whenever possible. This will allow the fire/rescue personnel to explain the principles of injury prevention as well as point out and correct hazards.
- B. Conducting the Assessment.
1. Begin the assessment on the outside of the building, noting fire department access, hydrant accessibility, condition and accessibility of outside indicating valves, viability of exit discharges, etc.
  2. Conduct the assessment of the interior using a systematic approach, either from the top floor to the lowest or lowest to top.
  3. Inspect every room and space within the building. Inspect all areas of the property including locked rooms.
  4. The crew shall remain together during the assessment as much as possible.
  5. Proceed with the assessment making notations of hazards on the checklist. Write clearly and legibly.

- a. If during the assessment a life hazardous condition is noted, obtain immediate compliance if possible. If the hazard cannot be remedied, contact the County Fire Marshal for assistance and direction.
  6. Upon completion of the assessment, conduct a closing interview with the occupant(s). Discuss those conditions that need correcting as well as note good conditions.
  7. Have occupant sign the checklist to acknowledge receipt and then issue him/her the pink copy of the form.
  8. Express appreciation to the occupant for his/her time, and for their efforts in improving their quality of life by being proactive to take the necessary steps to reducing the possibility of falls. Always be courteous and professional.
- A. Hazards Pertaining to Other Agencies/Departments.
1. When hazardous conditions exist that fall into the jurisdiction of other departments, such as Building, Electrical Department, Health Department, etc., an e-mail shall be forwarded to the Fire Marshal's Office with a note attached "Referral" with a brief description of the problem.
  2. The Fire Marshal's Office will channel these to the proper department/agency.

## **SECTION 5.0 – ASSESSMENT CHECKLIST**

- A. General Information.
1. Use black or blue ballpoint, write firmly (3 copies) and legibly.
  2. All information shall be printed, except for signature.
- B. Distribution.
1. Pink copy to occupant at conclusion of initial assessment.
  2. Yellow copy retained by inspecting officer.
  3. Original (white) copy to be forwarded to Fire Marshal's Office when:
    - a. There are no hazards found.

- b. There is no follow-up required.
- c. When the assessment is complete or referred to Fire Marshal.

## **SECTION 6.0 - RECORD KEEPING**

- A. Inspection Form.
  - 1. The original (white) assessment form shall be retained by the company officer until forwarded to the Fire Marshal's Office in accordance with Section 5.0.
  - 2. The original (white) inspection form is a legal document.
- B. Computer entry.
  - 1. An accurate record shall be entered into the computer by the company officer on a daily basis recording number of assessments, hazards found and personnel hours invested according to the following categories:
    - a. Assessments.
    - b. Follow-up Assessments.

## APPENDIX C

## Fall Assessment and Intervention Checklist for the Home

OCCUPANT NAME: \_\_\_\_\_ ADDRESS: \_\_\_\_\_

### **Bathroom**

<u>Yes</u>	<u>No</u>	<u>Problem</u>	<u>Possible Intervention</u>
<input type="checkbox"/>	<input type="checkbox"/>	Getting on/off toilet	Raised seat, side bars, grab bars
<input type="checkbox"/>	<input type="checkbox"/>	Getting in/out of tub	Grab bars, bath bench, transfer bench, hand held shower nozzle, rubber mat, hydraulic lift bath seat
<input type="checkbox"/>	<input type="checkbox"/>	Slippery or wet floors	Non-skid rugs or mats
<input type="checkbox"/>	<input type="checkbox"/>	Doorway too narrow	Remove door and use curtain; leave wheelchair at door and use walker
<input type="checkbox"/>	<input type="checkbox"/>	Dizziness standing at sink	Sit on stool
<input type="checkbox"/>	<input type="checkbox"/>	Difficulty seeing	Adequate lighting; clear plastic shower curtain; toilet seat cover or seat that contrasts with walls and floors

### **Bedroom**

<u>Yes</u>	<u>No</u>	<u>Problem</u>	<u>Possible Intervention</u>
<input type="checkbox"/>	<input type="checkbox"/>	Rolling beds	Remove wheels, block against walls
<input type="checkbox"/>	<input type="checkbox"/>	Bed too low	Leg extensions, blocks, second mattress, adjustable height hospital bed
<input type="checkbox"/>	<input type="checkbox"/>	Lighting	Bedside light, night light, flashlight (attaches to walker or cane), remote controlled switches

## **Bedroom (Continued)**

<b><u>Yes</u></b>	<b><u>No</u></b>	<b><u>Problem</u></b>	<b><u>Possible Intervention</u></b>
<input type="checkbox"/>	<input type="checkbox"/>	Sliding rugs	Remove, tack down, rubber back, two-sided tape (hardware store)
<input type="checkbox"/>	<input type="checkbox"/>	Slippery floor	Non-skid wax, no wax, rubber soled footwear
<input type="checkbox"/>	<input type="checkbox"/>	Thick rug edge or Metal strip at edge, strip to make threshold	change remove threshold, tack or tape down edges
<input type="checkbox"/>	<input type="checkbox"/>	Far from bathroom	Mobility aid next to bed, bedside commode, urinal
<input type="checkbox"/>	<input type="checkbox"/>	Night-time calls	Bedside phone, cordless phone, intercom, buzzer, emergency response system
<input type="checkbox"/>	<input type="checkbox"/>	Access clothes	Place clothes in easy to reach drawers, shelves, or hangers; lower rod in closet
<input type="checkbox"/>	<input type="checkbox"/>	Can't see clock	Large faced clock radio; Braille alarm clock, talking alarm clock

## **Kitchen**

<b><u>Yes</u></b>	<b><u>No</u></b>	<b><u>Problem</u></b>	<b><u>Possible Intervention</u></b>
<input type="checkbox"/>	<input type="checkbox"/>	Open flames/burners	Microwave, electronic toaster oven, hot plates, crock pot, meals on wheels, frozen dinners, auto shut-off, individual coffee maker
<input type="checkbox"/>	<input type="checkbox"/>	Access items	Place commonly used items in easy to reach areas, adjustable height counters, cupboards, drawers

## **Kitchen (Continued)**

<b><u>Yes</u></b>	<b><u>No</u></b>	<b><u>Problem</u></b>	<b><u>Possible Intervention</u></b>
<input type="checkbox"/>	<input type="checkbox"/>	Carrying items	Slide across counter, use cart, walker basket or tray, bridge items surface to surface, eat at counter sitting on stool
<input type="checkbox"/>	<input type="checkbox"/>	Difficulty seeing	Adequate lighting; contrasting colored china/dishes, place mats, napkins; utensils with brightly colored handles
<input type="checkbox"/>	<input type="checkbox"/>	Step stool	Get a new, steady step stool with a bar to hold on to. Never use a chair as a step stool

## **Living Room**

<b><u>Yes</u></b>	<b><u>No</u></b>	<b><u>Problem</u></b>	<b><u>Possible Intervention</u></b>
<input type="checkbox"/>	<input type="checkbox"/>	Soft, low chair	Board under cushion, pillow or folded blanket to raise seat, blocks or platform under legs, automatic seat lift chair, good armrests to push up on, back and seat cushions
<input type="checkbox"/>	<input type="checkbox"/>	Obstructing furniture	Relocate or remove to clear paths (especially glass top tables)
<input type="checkbox"/>	<input type="checkbox"/>	Extension cords	Run along and anchor to baseboard, under sturdy furniture, eliminate unnecessary cords, use power strips with breakers if possible
<input type="checkbox"/>	<input type="checkbox"/>	Accessing and seeing	Touch sensitive switches, voice activated light switches switches, remote control switches (radio/electronics store), illuminated wall switches, avoid light switch plates and sockets that blend with wall paper or paint color

## **Telephone**

<u>Yes</u>	<u>No</u>	<u>Problem</u>	<u>Possible Intervention</u>
<input type="checkbox"/>	<input type="checkbox"/>	Difficult to reach	Cordless phone, inform friends to give you 10 rings, clear path, headset cordless phone, answering machine and call back
<input type="checkbox"/>	<input type="checkbox"/>	Difficult to hear ring	Optional ring sounds, volume control, blinking lights, vibration

## **Steps**

<u>Yes</u>	<u>No</u>	<u>Problem</u>	<u>Possible Intervention</u>
<input type="checkbox"/>	<input type="checkbox"/>	Cannot negotiate	Stair glide, Lift (Braun Corp.), elevator, ramp (permanent, portable, or removable), steeper ramp with boat winch, able to bump up/down stairs on rear end in emergencies
<input type="checkbox"/>	<input type="checkbox"/>	Handrails	Sturdy handrails are on both sides of stairway and are securely fastened.
<input type="checkbox"/>	<input type="checkbox"/>	Loose rugs	Remove or nail down to wooden steps
<input type="checkbox"/>	<input type="checkbox"/>	Difficult to see	Adequate lighting, mark edge of each step with bright colored tape (at least top and bottom ones)
<input type="checkbox"/>	<input type="checkbox"/>	Unable to use	Keep second walker or wheelchair at top walker on stairs or bottom of stairs
<input type="checkbox"/>	<input type="checkbox"/>	Light switch access	Provide and install light switches at the top and bottom of the stairs (use illuminated switches if possible)
<input type="checkbox"/>	<input type="checkbox"/>	Broken/loose steps	Fix loose or uneven steps
<input type="checkbox"/>	<input type="checkbox"/>	Obstructions	Keep all papers, shoes, books, or other objects off the stairs

## **Home Management**

<b><u>Yes</u></b>	<b><u>No</u></b>	<b><u>Problem</u></b>	<b><u>Possible Intervention</u></b>
<input type="checkbox"/>	<input type="checkbox"/>	Laundry	Easy to access (basement, stairs, etc.), sit on stool to access clothes in dryer, good lighting, fold laundry sitting at table, carry laundry in bag on stairs, use cart, use laundry service
<input type="checkbox"/>	<input type="checkbox"/>	Mail	Easy to access mailbox, mail basket on door, ask carrier to place in a specific location (same with paper boy)
<input type="checkbox"/>	<input type="checkbox"/>	Housekeeping	Access safety and manageability, no bend dust pan, lightweight all surface sweeper, provide with resources for assistance if needed
<input type="checkbox"/>	<input type="checkbox"/>	Controlling thermostat	Mount in accessible location, large print numbers (available from gas company in some areas), remote controlled thermostat (radio/electronics store)

## **Safety**

<b><u>Yes</u></b>	<b><u>No</u></b>	<b><u>Problem</u></b>	<b><u>Possible Intervention</u></b>
<input type="checkbox"/>	<input type="checkbox"/>	Difficulty locking doors	Remote controlled door lock, door wedge, hook and clean locks
<input type="checkbox"/>	<input type="checkbox"/>	Difficulty opening doors	Automatic door openers, lever door knob door and knowing handles, intercom at door, video intercom who is there
<input type="checkbox"/>	<input type="checkbox"/>	Opening/closing windows and shades	Remote controlled windows and shades, lever and crank
<input type="checkbox"/>	<input type="checkbox"/>	Can't hear alarms, smoke detectors, etc.	Blinking lights, vibrating surfaces

## **Safety (Continued)**

<b><u>Yes</u></b>	<b><u>No</u></b>	<b><u>Problem</u></b>	<b><u>Possible Intervention</u></b>
<input type="checkbox"/>	<input type="checkbox"/>	Access to emergency exit	Must have alternate means of exiting home in case of emergency, fire blanket
<input type="checkbox"/>	<input type="checkbox"/>	Lighting	Illumination 1-2 feet from object being viewed; change bulbs when dim, not burned out; adequate lighting in stairways and hallways; night-lights
<input type="checkbox"/>	<input type="checkbox"/>	Glare	Light-colored sheer curtains on windows with direct sunlight; gradual decrease in illumination from foreground to background

## **Leisure**

<b><u>Yes</u></b>	<b><u>No</u></b>	<b><u>Problem</u></b>	<b><u>Possible Intervention</u></b>
<input type="checkbox"/>	<input type="checkbox"/>	Can't hear television	Personal listening device with amplifier (several commercial brands and compatible with hearing aids), closed captioning
<input type="checkbox"/>	<input type="checkbox"/>	Complicated remote control	Simple remote with large buttons, universal remote control, voice activated remote control, clapper (department store, radio/electronics store)
<input type="checkbox"/>	<input type="checkbox"/>	Can't see or shuffle cards	Large print cards, automatic shuffler, card holder
<input type="checkbox"/>	<input type="checkbox"/>	Can't read small print	Magnifying glass, large print projection screen, scanner with electronic voice output
<input type="checkbox"/>	<input type="checkbox"/>	Glare on reading material	Place light source to right or left, avoid glossy paper for reading material, black ink vs. blue ink or pencil

## **Medications**

<b><u>Yes</u></b>	<b><u>No</u></b>	<b><u>Problem</u></b>	<b><u>Possible Intervention</u></b>
<input type="checkbox"/>	<input type="checkbox"/>	Difficulty reading label	Large print on prescription label, use magnifying glass, good lighting, bar code and scanner with voice input (AISA, Inc.)
<input type="checkbox"/>	<input type="checkbox"/>	Memory loss	Automatic pill dispensers, organize in envelopes with time and date, houseclean all old medications
<input type="checkbox"/>	<input type="checkbox"/>	Medicine review	Have the doctor or pharmacist look at all medications to make sure they do not make you sleepy or dizzy

## **Other**

- Exercise on a regular basis to improve strength.
- Have vision checked at least once a year. Poor vision can increase the chances of falling.
- Wear sturdy shoes with thin, non-slip soles.

*Note: The interventions described in this assessment serve only as suggestions. A team of licensed and trained professionals should conduct a complete assessment of a person's individual needs. Architectural interventions should be assessed by a licensed architect and carried out by a licensed construction contractor.*

Reproduced from: Judith L. Warren, Ph.D.  
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Adapted for: Michael P. Dmuchowski, Fire Marshal  
 Frederick County Department of Fire and Rescue Services  
 Frederick, MD 21702

**RECEIVED BY:** \_\_\_\_\_  
**ASSESSMENT DONE BY:** \_\_\_\_\_

**DATE:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_