

Developing a Fall Prevention Program for Mitchell, SD

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Abstract

Over the last five years, the Mitchell Fire Department has seen an increase for requests of service pertaining to falls. The problem is that the Mitchell Fire Department does not have a well-developed fall prevention program in place to offer the residents of Mitchell. The purpose of this action research project is to help develop recommendations for a fall prevention program for the high-risk people in our community. While doing this research, the following questions were asked: 1) What do other fire departments in the United States use for fall prevention programs? 2) Who are possible stakeholders in the community that could assist the fire department with this program? 3) Are there any existing programs currently offered within the City of Mitchell? The methods used to complete this research were a literature review, personal interviews and a survey of fire departments from across the United States. The results of the research were enough to make recommendations to create a fall prevention checklist that combined with local stakeholders, would allow the Mitchell Fire Department to do an on-site inspection of the fall victim's homes. It was also recommended that the Mitchell Fire Department adopt the "Remembering When" program in an effort to decrease falls and other possible injuries to the high-risk population of Mitchell.

Introduction

“Help! I’ve fallen, and I can’t get up!” was a catchphrase used in the early 2000’s based on a television commercial for the auto dialer alarm Life Alert. Though this phrase was used more as a marketing tool, it did catch on and has probably been uttered by millions of people throughout the years.

Traumatic injury is one of the leading causes of death within the United States making it one of the costliest injuries to those involved. However, this type of injury is also preventable. If the fire service were able to find a way to decrease the number of traumatic injuries, the overall cost would go down. Unfortunately, as a whole, the fire service has been a reactionary type of profession, with the Mitchell Fire Department (MFD) being included in that description.

We, as the fire service, do a great job of using prevention when we talk about fires and how it affects the people that live in our community. We spend countless hours talking to children about fire safety and even hang up smoke alarms in people’s homes to try to reduce fire loss. However, firefighting is such a small section of what we, as a fire department does. As an EMS based fire department, it is time for us to turn our attention on to not only fire prevention but also fall prevention for those people who live in that high-risk area.

Though there are long lists of traumatic injuries, the Mitchell Fire Department has identified that falls are the number one cause for injury within the city resulting in a larger number of requests for services from our EMS staff. The problem is that the Mitchell Fire Department does not have a well-developed fall prevention program in place to offer to the residents Mitchell.

The purpose of this action research project is to help develop recommendations for a fall prevention program for the high-risk people in our community. While doing this research, the following questions were asked:

1) What do other fire departments in the United States use for fall prevention programs? 2) Who are possible stakeholders in the community that could assist the fire department with this program? 3) Are there any existing programs currently offered within the City of Mitchell?

After answering the above listed questions, the researcher plans to create a manageable fall prevention checklist that not only works for the Mitchell Fire Department but also reduces the number of traumatic injuries related falls.

Background and Significance

The City of Mitchell is a rural city situated in the heart of the Midwest and is located along Interstate-90 in Davison County. The county covers 436.9 square miles and is home to 19,769 people ("Mitchell, South Dakota," n.d.). The Mitchell Fire Department is made up of twenty-five uniformed personnel operating out of one (1) station. It is a full time fire-based EMS system with a call volume of roughly 1800 EMS calls a year and 500 fire responses. We have four (4) frontline ambulances that are licensed as Advanced Life Support (ALS) and cover a call area of 900 square miles along with patient transport. The fire department covers both the city and rural response areas.

When doing a query of the total number of EMS calls in 2016, it showed that Mitchell Regional Ambulance responded to 1,981 calls for service, with 243 of those calls being related to fall injuries (Med-Media, 2015). This was the highest percentage of calls for fall related service in the last five years at 12.83 percent. Of that 12.83 percent, 10.06 percent were Mitchell

residents that met the criteria of being sixty-five, older, and falling in their homes. In the years 2012, 2013, 2014 and 2015, falls were also the highest number of calls for service requests at 11.59, 12.37, 12.57 and 12.67 percent respectively. If an average was taken at the end of December 2016, with the current number of falls versus the current number of calls for service, it appears that this percentage would increase to 13.61 percent for 2017 (Emergency Reporting, 2016).

In comparison, when looking at the overall percentage of calls other than falls, it shows that falls are far higher than any other section. Of the 1,981 calls for service in 2015, the second highest requests for service was for breathing problems and that percentage was only 7.31%. The report also shows that falls were accountable for more calls than any other traumatic injury noted for 2016, which was 6.33 percent (Med-Media, 2015).

Falls are not only a concern within our community, the Centers for Disease Control and Prevention (CDC) reports that this is also a nationwide problem. Information gathered from the CDC's website illustrates that millions of people over 65 fall each year. Less than half of these people tell their doctor and falling once, doubles your chances of falling again ("Home and Recreational Safety," 2016).

With 65 and older being the target age range for those who fall, the Mitchell Fire Department should look at what contributes to falls and what happens after the fall. Again, according to the CDC, many conditions contribute to falling. Some of those include lower body weakness, vision problems and home hazards and dangers. These common problems lead to broken bones, head injuries and possible death ("Home and Recreational Safety," 2016). Unfortunately, many of these things could be prevented.

When looking at our community, we must understand that the general population that is 65 and older in our area makes up 17.1 percent of the 18,375 according to the 2010 U.S. Census. This number increases to an estimated 17.5 percent in 2014 ("Community Facts," 2010). This number will only increase with the overall number of baby-boomers adding to this list.

Falls have both a physical and financial influence on all those involved. One of the major factors is cost. The CDC states that in 2015, costs to Medicare totaled \$31 billion and with the U.S. population continuing to age, the number of falls and costs to treat them are likely to rise ("Home and Recreational Safety," 2016).

In addition, other things are involved with a fall that we must understand that greatly influence this situation. That is the overall effect on the family due to loss of income, companionship, and worse of all, death. With that, the financial burden mentioned above may be passed onto others if the person affected is not able to pay.

Though the community we serve is our first priority, the impact on our EMS services is something that needs to be taken into consideration. With an ever-increasing call volume over the last five years, with a majority of those calls being related to falls. It lends to the argument that our resources may be dealing with a repeated fall patient and therefore limiting our ability to handle other emergencies. This could therefore lead to an increase in budget for more staffing and the need for more resources. It may also affect the amount of insurance payout the department receives due to repeated calls for service to pick an un-injured person off the floor.

With all these factors in mind, it seems that developing a fall prevention program for the Mitchell Fire Department will not only help the members of the community that are 65 and older but also allow our department to be more effective in responding to other emergencies.

The problem related to this research project is strongly tied to two National Fire Academy Courses. One is Executive Analysis of Community Risk Reduction (EACRR) and the second is Executive Leadership (EL). The EL class underlines the use of adaptive challenges to promote and adopt change (U.S. Department of Homeland Security [FEMA], 2015). The problem listed within this research is an adaptive challenge because the idea of prevention has not been developed for EMS related problems. In addition, changing the hearts and minds of the department will greatly influence the success of this new program.

This new program strongly supports the United States Fire Administrations strategic goal, to be able to reduce the level of risk for our community members by applying prevention methods and assisting in the mitigation of a recognized problem (USFA, 2013).

Literature Review

Each year, according to the U.S. Consumer Product Commission, nearly one million people over the age of 65 are treated in hospital emergency rooms for injuries associated with the products they live with and use every day. The death rate from unintentional injuries in the home is approximately three times greater for older people than for the younger population. Seniors may not realize their home is no longer safe and presents dangers to which they are aware. Unfortunately, the Mitchell Fire Department has done a poor job of providing help to this increasing demographic. Developing a fall prevention program will be a great asset to help make the City of Mitchell a safer place for our aging population.

In an effort to develop the best fall prevention program for the Mitchell Fire Department, prior groundwork for this project was done. What was found was a large amount of information that spanned many years and focused on several different age groups. Therefore, in regards to

this project, the research was limited to the year 2010 and newer and narrowed the age range to 65 and older.

Older adults value their independence and a fall can significantly limit their ability to remain self-sufficient. More than one-third of people aged 65 and older fall each year, and those who fall once are two to three times more likely to fall again. Fall injuries are responsible for significant disability, loss of independence and reduced quality of life. In the year 2000, direct medical costs for fall injuries totaled \$19 billion. However, falls are not an inevitable result of aging. In recent years, systematic reviews of fall interventions studies have established that prevention interventions can reduce falls (Stevens, 2010, p. 2).

When looking at successful fall prevention programs, research showed that there are three primary areas where efforts can be made. According to a *Compendium* done by the CDC, those areas include Exercise-based Interventions, Home Modification Interventions and Multifaceted Interventions (Stevens, 2010, p. 2).

Each intervention was studied and presented by a principal investigator. Each presentation used a standardized format that includes a short summary of the research study and results as well as a longer section describing relevant details about the intervention. The intervention description includes information about the purpose, program setting, and content, number of sessions, duration, provider, provider's training, key elements, available intervention material, and contact information for the study's principal investigator (Stevens, 2010, p. 2).

Of the interventions listed within the *Compendium*, the research showed that the best program listed was that from a German-based researcher by the name of Nikolaus Thorsten, MD. That intervention was called, Falls-HIT (Home Intervention Team) Program. This study

identified the use of in-home intervention techniques to address fall hazards was very effective in reducing fall rates among a selected group of elderly individuals who were found to be at risk of falling (Nikolaus Thorsten [], 2003). This intervention consisted of a diagnostic home visit to assess any hazards along with providing advice on any necessary changes or addition of mobility aids to reduce the likelihood of falls. It was demonstrated to be the most effective to a subgroup of the population who reported multiple falls in the year prior to the study (, 2003).

In addition to the HITS intervention, study there was one other Home Modification Intervention that was quite interesting. The researcher of the VIP trial intervention not only used a visit by an occupational therapist, but also identified the use of Vitamin D and how that may could be used to help prevent falls. The research identified that there is evidence supporting the use of a Vitamin D supplement in elderly individuals for the use of fall prevention. The action of the supplement was identified generally as improving the function of the muscles and the central nervous system thereby improving strength and balance. Subsequently, this helped to reduce the likelihood of a fall (A. John Campbell, 2005).

The review of multifaceted interventions for fall prevention was found to be productive. One study identified that multifaceted interventions encompassing a wide variety of strategies for fall prevention demonstrated significant effectiveness (Stevens, 2010). The multifaceted interventions that were included in these randomized controlled trials included fall prevention education, reduction of environmental hazards, exercise programs, medication reviews, provision of hip protectors, and supply of mobility aids (Stevens, 2010). The studies also measured the amount of overall falls, amount of injuries from falls and the number repetitive falls by individuals. While they concluded that these multifaceted interventions provided evidence of decreasing falls, they also identified that improved research was necessary to provide additional

information regarding related topics such as living quality, cost saving measures, and long-term program management (Stevens, 2010). One noted complication of this study was that it related only to facility-based residents and not community based residents.

According to a 2008 article in the *Journal of Rehabilitation Research and Development* identified that multifaceted fall prevention programs were recognized as being more effective for elderly people that already had a previous fall history (E. Costello & J.E. Edelstein, 2008). This research was found to be particularly significant in the fact that it identified the target population as elderly individuals who resided within the community as opposed to an elderly population residing within healthcare facilities (E. Costello & J.E. Edelstein, 2008). The article goes further in identifying that the inclusion of medication reviews, vision screening, exercise, and home hazard reviews in a multifaceted fall prevention program are effective in reducing falls among this specific target population (E. Costello & J.E. Edelstein, 2008).

In 2013, the NFPA developed its own multifaceted fall prevention program. It was called “Remembering When”. According to the NFPA, at age sixty-five, adults are twice as likely to be killed or injured by fires compared to the population at large. By age seventy-five, that risk increases to three times that of the general population-and four times by age eighty-five(National Fire Protection Association [NFPA], 2017, p. 5).

Fires and burns are not the only hazards that threaten our older citizens. Statistics from the CDC show that falls are the leading cause of death from unintentional injury in the home. Thirty percent of people age sixty-five and older are involved in falls each year-some of those falls are fatal, while others permanently disable victims, often causing loss of mobility or independence. By focusing attention on these two serious issues, we can make a measurable improvement in the health and well-being of older adults, who are a rapidly growing segment of

the population. “Remembering When” is designed to prevent injuries among older adults and help them live safely at home (NFPA, 2017, p. 5).

The approach and content of “Remembering When” centered around sixteen key messages. They were developed by a technical advisory group comprising of experts and practitioners from national and local safety organizations as well as through focus group testing in the high fire-risk states of Alaska, Arkansas, and Mississippi and in the cities of Cleveland and Atlanta, where the program was also field tested (NFPA, 2017, p. 5).

Focus group research shows that older adults prefer a fun and interactive program. “Remembering When” has adopted a nostalgia theme that has safety messages presented through discussion, trivia games and handouts (NFPA, 2017, p. 5).

Lastly, a 2008 article in *Hospital Topics*, discussed the strategies used for fall prevention (Hengameh Hosseini & Nooshin Hosseini, 2008). This research identified the importance of using a “community organizational model” that looks at fall prevention as more of a social and health problem. This model incorporates a greater use of multi-jurisdictional involvement along with a more coordinated social structure component to ensure compliance and cooperation (Hengameh Hosseini & Nooshin Hosseini, 2008). The study goes on to recommend that multifaceted fall prevention programs involve multiple agencies and groups in the community. It also reinforces that fall prevention efforts are directed toward groups of elderly rather than individuals in order to take advantage of existing social structure and interaction to increase effectiveness (Hengameh Hosseini & Nooshin Hosseini, 2008)

In summary, the combined result of this research established that in order to be most current, a fall prevention program for elderly people residing in the community should be a multifaceted effort. This multifaceted program should primarily be focused on the development

of overall health and the promotion of freedom for the elderly. In supporting these initiatives, the program should take advantage of multiple agencies and community cooperation in order to provide multiple efforts to decrease the risk of falls. This program should also include an emphasis upon creating an all-encompassing atmosphere for elderly in order to increase participation and decrease the feeling of isolation.

Procedures

This research project started by developing a research problem, research purpose and three research questions while attending the National Fire Academy in Emmitsburg, MD in August 2016. The literature review was started in the Learning Resource Center at the National Emergency Training Center in Emmitsburg, MD and continued at Dakota Wesleyan University in Mitchell, South Dakota and the City of Mitchell Public Library. Research was also conducted using the internet and various search engines like Google and Yahoo. Some of keywords used in the search were fall prevention programs, fall prevention programs for fire department and top rated fall prevention programs. The literature review also included the use of books and journals. The purpose of the literature review was to answer the four research questions: 1) What do other fire departments in the United States use for fall prevention programs? 2) Who are possible stakeholders in the community that could assist the fire department with this program? 3) Are there any existing programs currently offered within the City of Mitchell? 4) What will this new program look like when implemented?

On December 5, 2016, the next part of the research project was emailed out in the form of a cover letter and survey. This survey was sent out in an effort to gather more data to help answer the four research questions posed in this project. The researcher's goal was to survey

fifteen fire departments from across the United States with a minimum of twelve needing to respond in order to achieve a 95% confidence level (Applied Research Self-Study, 2013, p. 14-43). Therefore, in order to achieve this percentage the researcher sent out eighteen surveys to make up for the margin of unreturned surveys. The survey was developed using the four survey questions as a guide. The survey sampling consisted of departments that were approximately twenty percent larger than that of the City of Mitchell. The researcher determined the survey recipients by contacting each department and inquiring as to whom the survey should be mailed. A deadline date of December 25, 2016 was set for the surveys to be returned. A cover letter (Appendix A) was emailed along with the survey questions (Appendix B). On December 19, 2016, a reminder email was sent to the recipients reminding them of the upcoming deadline. Of the initial fifteen departments that were surveyed, twelve responded giving the researcher a 95% confidence level discussed above.

Finally, interviews from local experts in their field were also completed in order to obtain information and data to help answer the four research questions. The researcher completely explained the reasoning for the interviews and stated that they were voluntary in nature. The researcher also explained that the information and data gathered from these interviews might help them in their own area of expertise.

On December 28, 2016, an interview was done with Nathel Cody, director of Avera@Home. This service helps post-hospitalized patients get back to their home for further help and care. This program also includes fall prevention so to help prevent possible further injury. Questions and answers from this interview can be found in Appendix C. This person was selected due to her extensive knowledge and experience in the area of patient care. The questions

were specifically related to obtaining the information and data and the interview lasted approximately thirty minutes.

On January 13, 2017, an interview was done with Josh Moody and Steve Van Genderen, owners of Dakota Physical Therapy. Questions and answers from this interview can be found in Appendix D. These two individuals were chosen due to their vast knowledge of fall prevention both before and after the occurrence. They were also chosen to help give a pre-hospital view of fall prevention. The questions were specifically related to obtaining data and information for this research project. The interview lasted approximately thirty minutes.

Limitations

The researcher discovered several limitations during this research project. First, is the sheer vastness of information that is available for review in the area of fall prevention was difficult to narrow down. The researcher was able to narrow down his scope enough to get a good representation of what will work for his department. The second was that several of the departments that were surveyed did not have a fall prevention program developed. Even though this problem of responding to falls is a nation-wide issue, many departments have failed to develop a plan to improve it.

Results

Using action research, enough data was collected to answer the three research questions. Action research and data collection and subsequent analysis of that data helped in enabling a standard operating checklist (Appendix E) to be developed. This checklist will help address the fall problem that the Mitchell Fire Department is currently dealing with and will help further identify responsibilities and actions to be taken by department staff members.

Research question one asked what do other fire departments in the United States use for fall prevention programs. To answer that research question, a literature review was conducted and survey data was analyzed. The literature review showed that the number one used fall prevention program for fire departments across the United States is the nationally known “Remembering When” program, which is supported by the National Fire Protection Association (NFPA). Remembering When is a fire and fall prevention program for older adults. Centered around 16 key safety messages, the program was designed to be implemented by a coalition comprising the local fire department, service clubs, social and religious organizations, retirement communities, and others (National Fire Protection Association [NFPA], 2017). To support this claim, four of the twelve responding departments for the researcher’s survey stated that they too used the “Remembering When” fall prevention program.

Two other departments that responded to the survey stated that they had developed their own local fall prevention program not based on national standards or programs. According to Jeff Johnson, Director of EMS/Fire Operations in Novi, Michigan, his main goal was to be able to get into people’s homes to do a fire and fall checklist in order to help decrease the number of falls within his community (J. R. Johnson, personal communication, December 30, 2016). Johnson goes on to state that the checklist is simple and easy to understand for those implementing the program, which is usually on-duty staff members. He also states that the biggest drawback or concern of his is that people just do not let you into their houses. To try to combat this issue, Johnson states that on-duty staff members will do an inspection while on a fall related call (J. R. Johnson, personal communication, December 30, 2016).

The other department mentioned in the text above is Wallingford Fire Department located in Wallingford Connecticut. According to Fire Lieutenant, Keith Schafer his department

participates in a locally designed program that is being run by the Wallingford Public Health Department. This program was started as a pilot program last year and is in its first full year of trial. Schafer states that his department needed to use stakeholders in this process as they did not have enough workers to run the program themselves (K. Schafer, personal communication, December 28, 2016).

Research question two asked, who are possible stakeholders in the community that could assist the fire department with this program. The literature review and subsequent interviews done by the researcher found a group of three solid leaders within the community to help with this program.

The first and biggest stakeholder within the City of Mitchell is the Avera Health System. Currently, Avera has a multi-level fall education program that utilizes both the Avera@Home system and the use of Occupational and Physical Therapists. The Avera@Home system is a program that utilizes at home nursing care for patients who have fallen or have others illnesses that need help taking care of themselves. In regards to the fall prevention program, a home health nurse goes out to the patient's home and does an in-house assessment of possible fall risk hazards. The nurse then discusses his/her findings with the patient and the patient's family. Further recommendations are taken back to the hospital for a referral to an Occupational Therapist (OT) or Physical Therapist (PT) who would then visit the patient's home for further care. Along with home health care, this group of OT's and PT's from Avera Health go out and do public education in regards to fall prevention. These talks take place in assisted living facilities and local community centers.

The second group of stakeholders within the City of Mitchell is the privately owned Dakota Physical Therapy (DPT). Much like Avera Health, they too have a home health division

that assists patients with home health care. Where DPT differs from Avera Health is in the area of pre-screening and exercise programs. This program idea is very similar to the multi-faceted programs mentioned earlier in this research paper. For example, if a patient is seen at DPT for a fall related accident or any other type of care; they must fill out a fall screening questionnaire. If DPT finds that, the patient is falling or has fallen more than the specified time, they are then entered into the fall prevention program.

The third and final stakeholder group that the researcher discovered is the use of outside resources. Within this group is the use of the Department of Social Services (DSS) or Independent Living Choices. Both of these businesses were found to be very valuable to the above-mentioned stakeholders in getting these patients care and products that they may not be able to afford.

Research question three asked, are there any existing programs currently offered within the City of Mitchell. In an effort to try and not duplicate an already existing program, within the City of Mitchell, the researcher researched other existing programs. Currently, Avera has a multi-level fall education program that utilizes both the Avera@Home system and the use of Occupational and Physical Therapists. The Avera@Home system is a program that utilizes at home nursing care for patients who have fallen or have others illnesses that need help taking care of themselves. In regards to the fall prevention program, a home health nurse goes out to the patient's home and does an in-house assessment of possible fall risk hazards. The nurse then discusses his/her findings with the patient and the patient's family. Further recommendations are taken back to the hospital for a referral to an Occupational Therapist (OT) or Physical Therapist (PT) who would then visit the patient's home for further care. Along with home health care, this group of OT's and PT's from Avera Health go out and do public education in regards to fall

prevention. These talks take place in assisted living facilities and local community centers. This program sounds similar to the “Remembering When” program from the NFPA and leaves the researcher apprehensive in wanting to do something similar to that program already being done by Avera Health.

Discussion

This research project was intended to help develop a fall prevention program for the Mitchell Fire Department and the people of Mitchell, SD. Having the guidelines in place that first addresses the importance of having a fall prevention program and then further developing it into an active program will help the department better serve its customers.

As shown in the literature review, fall related injuries are reaching epidemic numbers. Each year, according to the U.S. Consumer Product Commission, nearly one million people over the age of 65 are treated in hospital emergency rooms for injuries associated with the products they live with and use every day. The death rate from unintentional injuries in the home is approximately three times greater for older people than for the younger population. Seniors may not realize their home is no longer safe and presents dangers to which they are aware. Unfortunately, the Mitchell Fire Department has done a poor job of providing help to this increasing demographic. Developing a fall prevention program will be a great asset to help make the City of Mitchell a safer place for our aging population.

In an effort to develop the best fall prevention program for the Mitchell Fire Department, prior groundwork for this project was done. What was discovered was a large amount of information that spanned many years and focused on several different age groups. Therefore, in regards to this project, the research was limited to the year 2010 and newer and narrowed the age range to 65 and older.

Older adults value their independence and a fall can significantly limit their ability to remain self-sufficient. More than one-third of people aged 65 and older fall each year, and those who fall once are two to three times more likely to fall again. Fall injuries are responsible for significant disability, loss of independence and reduced quality of life. In the year 2000, direct medical costs for fall injuries totaled \$19 billion. However, we know that falls are not an inevitable result of aging. In recent years, systematic reviews of fall intervention studies have established that prevention interventions can reduce falls (Stevens, 2010, p. 2).

In agreement with 100% of the fire departments who responded to their survey, and a literature review done of the interventions listed within the *Compendium*. The research showed that the best program listed was that from a German-based researcher by the name of Nikolaus Thorsten, MD. That intervention was called, Falls-HIT (Home Intervention Team) Program. This study identified the use of in-home intervention techniques to address fall hazards was very effective in reducing fall rates among a selected group of elderly individuals who were found to be at risk of falling (Nikolaus Thorsten [], 2003). This intervention consisted of a diagnostic home visit to assess any hazards along with providing advice on any necessary changes or addition of mobility aids to reduce the likelihood of falls. It was demonstrated to be the most effective to a subgroup of the population who reported multiple falls in the year prior to the study (, 2003). It is the researcher's thoughts that this program of getting into the people's homes to do a fall prevention survey will be most beneficial for both the department and their customers.

Similar to what Avera Health Systems fall prevention program does, a review of multifaceted interventions for fall prevention was also found to be productive. One study identified that multifaceted interventions encompassing a wide variety of strategies for fall prevention demonstrated significant effectiveness (Stevens, 2010). The multifaceted

interventions that were included in these randomized controlled trials included fall prevention education, reduction of environmental hazards, exercise programs, medication reviews, provision of hip protectors, and supply of mobility aids (Stevens, 2010). The studies also measured the amount of overall falls, amount of injuries from falls and the number repetitive falls by individuals. While they concluded that these multifaceted interventions provided evidence of decreasing falls, they also identified that improved research was necessary to provide additional information regarding related topics such as living quality, cost saving measures, and long-term program management (Stevens, 2010). One noted complication of this study was that it related only to facility-based residents and not community based residents.

During the literature review, a 2008 article in the *Journal of Rehabilitation Research and Development* identified that multifaceted fall prevention programs were recognized as being more effective for elderly people that already had a previous fall history (E. Costello & J.E. Edelstein, 2008). This research was found to be particularly significant in the fact that it identified the target population as elderly individuals who resided within the community as opposed to an elderly population residing within healthcare facilities (E. Costello & J.E. Edelstein, 2008). The article goes further in identifying that the inclusion of medication reviews, vision screening, exercise, and home hazard reviews in a multifaceted fall prevention program are effective in reducing falls among this specific target population (E. Costello & J.E. Edelstein, 2008).

Lastly, a 2008 article in *Hospital Topics*, discussed the strategies used for fall prevention (Hengameh Hosseini & Nooshin Hosseini, 2008). This research identified the importance of using a “community organizational model” that looks at fall prevention as more of a social and health problem. This model incorporates a greater use of multi-jurisdictional involvement along

with a more coordinated social structure component to ensure compliance and cooperation (Hengameh Hosseini & Nooshin Hosseini, 2008). The study goes on to recommend that multifaceted fall prevention programs involve multiple agencies and groups in the community. It also reinforces that fall prevention efforts are directed toward groups of elderly rather than individuals in order to take advantage of existing social structure and interaction to increase effectiveness (Hengameh Hosseini & Nooshin Hosseini, 2008)

In summary, the combined result of this research established that in order to be most current, a fall prevention program for elderly people residing in the community should be a multifaceted effort. This multifaceted program should primarily be focused on the development of overall health and the promotion of freedom for the elderly. In supporting these initiatives, the program should take advantage of multiple agencies and community cooperation in order to provide multiple efforts to decrease the risk of falls. This program should also include an emphasis upon creating an all-encompassing atmosphere for elderly in order to increase participation and decrease the feeling of isolation.

Recommendations

Based on the literature review and original research of the data produced by this project. The Mitchell Fire Department will use the information to design a better fall prevention program for the people sixty-five and older within the City of Mitchell. This higher level of care will not only benefit the community but will also help to decrease the overall number of fall related injuries.

The following short and long-term recommendations are made:

Short-term

- Recommends the creation of a collaborative fall and fire safety checklist with the OT's and PT's of Avera Health System.
- Recommends that a member of the Mitchell Fire Department become trained in the use of the "Remembering When" program to better enhance the knowledge of fall prevention.
- Recommends working with Avera Health System in enhancing their already established public education fall prevention program.

Long-term

- Recommends the creation of fall prevention coordinator to do in-home fall prevention training.
- Recommends creating a standard operating procedure on how line staff refers fall patients to the fall prevention coordinator.
- Recommends that the personnel of the Mitchell Fire Department become trained on all new fall prevention guidelines.

Appendix A

Cover Letter for Survey Questionnaire to Fire Departments

December 6, 2016

Dear Chief or Designee,

My name is Marius Laursen and I am the Fire Marshal for the City of Mitchell, SD. I am currently enrolled in the Executive Fire Officer Program at The National Fire Academy in Emmitsburg, MD. The class that I am currently taking is Executive Leadership and I am in the process of completing an applied research project and am conducting research on the development of a fall prevention program for my department.

I am asking for your assistance by asking you to answer the attached survey and return it to me via email by **December 23, 2016**. To make it even easier, just reply to the questions via this email and hit send. Any answers will be kept confidential and should take you no more than fifteen minutes to complete. If you have any questions, please feel free to contact me at (605) 770-4893.

Thank you for your assistance in helping me with my research. The information you provide will be very helpful in completing my applied research project.

Sincerely,

Marius Laursen

Fire Marshal City of Mitchell

Appendix B

Survey Questions to Fire Departments

1. Does your department currently participate in or have a fall prevention program?
If yes, what type of program is it? National or Locally designed.
2. Who manages the program for your department?
3. Do you have multiple stakeholders within your community that assist you in this program?
4. Has your department seen a reduction in the overall calls for service regarding falls?

Appendix C

Interview with local healthcare professional Nathel Cody- December 28, 2016

1. Explain to me how your fall prevention program works at Avera@Home?

Patients who are admitted through the hospital and are returning home must have a fall risk report done by a nurse. This checklist is a nationally produced list called the MAHC-10-Fall Risk Assessment Tool. After the nurse completes this checklist, the patient and home are given a score. This score is then sent onto the OT's and PT's for further care and assessment. The main component of this program though is that the patient must agree to be homebound during this care period. Which is not always, what a patient wants to do.

2. Does the OT's and PT's give further recommendations to the patient for further preventive fall care?

Yes, the rehabilitation staff gives the patient/family a list of items that the patient may need to install like grab bars, toilet seat risers and other similar equipment.

3. Do you feel that the Fire Department could have an impact in decreasing falls within the City of Mitchell?

Yes, if the Fire Department could develop their own type of fire and fall safety checklist to help prevent the fall from happening that would help in the overall chain of healthcare.

Appendix D

Interview with local physical therapists Josh Moody and Steve Van Genderen- January 13, 2017.

1. In your opinion, what do you think a good fall prevention program should include?
 - To be able to refer that person to a physician. No ongoing care can proceed without getting orders from a physician. It is a very important component.
 - Many people do not know where to go for help. Therefore, if some type of information packet was handed out during the home visit it may help the person greatly.
 - Finally, to be able to communicate to the person that there are ways to receive further care without having that fear of leaving there home.

2. What do you feel the citizens of Mitchell are lacking when it comes to fall prevention?
 - Awareness, we feel that the people of Mitchell are not informed well enough to what options they have for preventative care.
 - South Dakota is in the bottom five of home health care and prevention, but are in the top five in dependent care. If we could get out there and turn that around it would greatly help the people of Mitchell.

3. Do you feel that the Fire Department could have an impact in decreasing falls within the City of Mitchell?
 - Yes, if the Fire Department were able to get out, get into these homes, and educate people on fall prevention it would have a great impact.

- Along with that, if the Fire Department were also able to get the name of the person's physician for referral, it would allow that person to get into the system for further care.

Appendix E

Table 1

City of Mitchell Fire and Fall Safety Checklist- Standard Operating Guideline

No. 715.00

Name: _____ Incident Number: _____
 Address: _____ Date: _____
 Phone: _____ Referring Physicians Name: _____

Key Fall Prevention Messages

- Clear the way. Keep stairs and walking areas free of electrical and phone cords, shoes, clothing, books, magazines, and other clutter.
- Improve the lighting in your home. Use night-lights to light the path between bedroom and bathroom.
- Turn on the lights before using the stairs.
- Use non-slip mats in the bathtub and shower. Install grab bars on the wall next to the bathtub, shower, and toilet.
- Use only throw rugs with rubber, non-skid backing. Always smooth out wrinkles and folds in carpeting.
- Stand and get your balance before you walk.
- Exercise to build strength and improve your balance.
- Use of an assistive device. (cane/walker) railings by stairs (inside and out)
- Informational packet given to resident

Key Fire Safety Messages

- NEVER leave stovetop cooking unattended. The number one cause of kitchen fires is cooking left unattended.
- Wear tight, short, or rolled up sleeves when cooking. Never wear loose or dangling clothing.
- Use oven mitts or potholders to handle hot pans; never use a dishtowel as a potholder.

- If a pan catches fire, slide a lid over it and turn off the burner.
- In case of an oven or microwave fire, turn off the oven, do not open the oven door, and call 911.
- Do not cook if you are drowsy from medication. Plan meals around your medication.
- Keep clutter and combustibles away from stove.
- If your clothes catch on fire, STOP, DROP, and ROLL, or smother the flames with a towel.
- Test smoke alarms monthly; replace batteries at least once a year; replace smoke alarms every 10 yrs.
- Have an escape plan for your home and know two ways out. Crawl low under smoke.
- Never smoke when lying down, drowsy, or in bed. Use large, deep ashtrays. Never leave cigarettes
- unattended.
- Keep 3 feet clearance around space heaters. Unplug when leaving home or going to bed

(NFPA, 2017)

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Certification Statement

I hereby certify that this paper constitutes my own product, where the language of others is set forth, quotation marks so indicate, and appropriate credit has been given where I have used the language, ideas, expressions, or writings of another.

Signed: Marius N. Laursen

A handwritten signature in blue ink, appearing to read "Marius N. Laursen", written in a cursive style.