Developing an Older Adult Fall Prevention Program for

Green Township Fire & EMS

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CERTIFICATION STATEMENT

I hereby certify that the following statements are true:

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

2. I have affirmed the use of proper spelling and grammar in this document by using the spell and grammar check functions of a word processing software program and correcting the errors as suggested by the program.

Signed: Arlis J. Boggs

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ABSTRACT

In Green Township, the older adult population accounts for more than fifty percent of the emergency medical calls made by Green Township Fire & EMS units. With the increasing in older adult population, and the data showing this age group is likely to have a fall even with no health problems. The need to develop a fall prevention program for the older adult is evident.

With no current fall prevention program in place, the problem is Green Township Fire & EMS cannot help reduce the mortality or morbidity in the older adult population. This study is to find and develop educational strategies to implement a fall prevention program for the older adults in Green Township.

The literature review and data research show that falls in the older adult population are increasing every year. With this information we must develop and implement proactive programs to help reduce the number of older adult falls.
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INTRODUCTION

Statement of the Problem

It has been found that one out of three older adults (those adults aged 65 or older) will fall each year, but will fail to talk to their health care provider or seek assistance in preventing future falls. The first group of “baby boomers” (adults born between 1946 and 1964) turned 65 years of age in 2011; this group is the fastest growing age group in the world. With falls being the leading cause of fatal and non-fatal injuries in older adults, we must find a way to decrease the number of falls and help protect the older adults.

Purpose of the Study

The purpose of this study was to develop a program to help decrease the number of falls in the older adult population, and ensure there are programs available for those that have fallen.
BACKGROUND AND SIGNIFICANCE

Green Township is located in the southwestern portion of Hamilton County, just east of Cincinnati, Ohio. The township is twenty-seven square miles and is called home by an estimated 58,370 people according to the 2010 U.S. Census. Green Township has a diverse make up of residence in the township ranging from school age children to an increasing number of the older adult population. Green Township has seen a large development of residential housing over the past ten years. The township has had the most building permits filed for new construction in Hamilton County, Ohio over the last five years. Several of these new construction projects have brought the older adult population into large condominium complexes throughout the township.

Currently, Green Township Fire & EMS (GTFE) operates four fire stations with a daily staffing level of twenty personnel on duty. The department is a combination department with 43 fulltime and 50 part-time personnel. All personnel are trained as a firefighter and must be at least an EMT-Basic with the exception of the two administration assistants. GTFE has a fire chief, one assistant chief, four district chiefs, and twelve lieutenants. The annual operating budget for GTFE is seven million. In 2013 the department made 6612 fire and EMS details combined. Green Township Fire & EMS is like many other midsize departments in the United States with majority of the emergency details being for emergency medical calls. Seventy four percent (4897) of the calls in 2013 were for emergency medical calls in Green Township.

A recent quarry of GTFE medical calls revealed more than half of the calls received were for older adults. Below is a chart that provides the age range of the patient and the percentage of that age group which GTFE responded for.
<table>
<thead>
<tr>
<th>Age Range</th>
<th># of Patients</th>
<th>Percentage by age range</th>
</tr>
</thead>
<tbody>
<tr>
<td>65-69</td>
<td>282</td>
<td>6.95%</td>
</tr>
<tr>
<td>70-74</td>
<td>333</td>
<td>7.02%</td>
</tr>
<tr>
<td>75-79</td>
<td>463</td>
<td>9.77%</td>
</tr>
<tr>
<td>80-84</td>
<td>550</td>
<td>11.60%</td>
</tr>
<tr>
<td>85-89</td>
<td>487</td>
<td>10.27%</td>
</tr>
<tr>
<td>90-94</td>
<td>270</td>
<td>5.70%</td>
</tr>
<tr>
<td>95-99</td>
<td>63</td>
<td>1.33%</td>
</tr>
<tr>
<td>100 Yrs +</td>
<td>48</td>
<td>1.01%</td>
</tr>
</tbody>
</table>

Lift Assist Only 356 per year

Patient’s 65 or greater and the chief complaint was due to fall. 510 patients

Patient’s 65 or greater and the chief complaint was due to fall. Triaged to trauma center was 19 patients.

One potential impact a program designed to help prevent falls or reoccurring falls could be the development of a fall assessment tool to be used in the field as a referral so that a falls patient can receive proper assistance. Often times in Green Township, emergency medical units are requested to homes of repeat customers that continue to fall, and have not been assisted in finding ways to prevent another fall. At this time there is no program within Green Township that could be utilized as a referral mechanism that would allow emergency responders to refer a fall patient to a home health care professional.

With a referral to a home health care professional, the patient could receive a home safety survey that would help define trip hazards and clear hallways and pathways of travel through the elderly fall victim’s home. Research clearly demonstrates that falls in patients ages 65 to 70
generally result in a hospital stay and that those in the age group 80 to 89 don’t recover from their fall. (Blanda 1996) Many of the fall victims between the ages of 80-89 years of age suffer what would be called a fatal fall. A fatal fall generally ends up with an extended hospital stay followed by death.

A fall prevention program would not only reduce stress on emergency medical responders, but could reduce the unnecessary pain and suffering for the older adult. Fall prevention programs can help reduce high hospitalization cost and long recovering periods for the older adult fall patient.
LITERATURE REVIEW

Tinnetti, Baker, McAvay, Claus, Garrett, Gottschalk, Kock, Trainor, Horwitz (1994) studied 301 men and women living in the community who were at least 70 years old and who had at least one of the following risk factors for falling: postural hypotension, use of medications, impairment in arm and leg strength or range of motion, and balance to move safely from bed to chair or to the bathtub or toilet. During the year the results showed that 35 percent of the intervention group fell, as compared to 47 percent of the control group. This group conclusion was the multiple-risk factor intervention strategy that resulted in a significant reduction in the risk of falls among the elderly persons in the community.

Friedman, Munoz, West, Rubin and Fried’s (2001) research study addresses “fear of falling.” Out of the study a large percentage of elderly adults were benchmarked on, vision, medication, demographics, co-morbidities, neuropsychiatry status and physical performance based testing. Included with this was a questionnaire regarding fear of falling. Out of the response group of 2,212 subjects who completed their follow up, 746 expressed concerns over fears while 1,466 reported that they had no fear of falling. The data results that were examined show that over a 12 month period the non-faller wouldn’t report a repeated fall, whereas the fall victims would report a repeated fall. Research also showed that after a 20 month period the non-faller was converted to reporting the incident of a fall.

A study on preventing falls in older people written by Stevens, Holman, Bennett, Klerk (2001) reports that intervention failed to achieve a reduction in the occurrence of falls. The main significance in failed results was because of the number of hazards that were presented in the home. The study provided evidence that a one-time intervention program of education, hazard
assessment and home modification to reduce fall hazards in the home of healthy, older people did not have an effective strategy for prevention of falls to seniors.

A study conducted in Connecticut, funded by the National Institute on Aging, found that many of the health problems that increase the chance of falling are known and are treatable. Common, treatable health problems and hazards include problems with walking or moving around, medications, foot problems or unsafe footwear, blood pressure dropping too much on getting up, problems seeing, and tripping hazards at home. As shown in the figure below, the more of these problems an older adult has, the greater the chance of falling.

**More Health Problems* = greater chance of falling this year**

<table>
<thead>
<tr>
<th>Your chance of falling is:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (1 person in 10 will fall)</td>
</tr>
<tr>
<td>1 (2 people in 10 will fall)</td>
</tr>
<tr>
<td>2 (3 people in 10 will fall)</td>
</tr>
<tr>
<td>3 (6 people in 10 will fall)</td>
</tr>
<tr>
<td>4 or More (8 people in 10 will fall)</td>
</tr>
</tbody>
</table>

*The common health problems for falling are:

- Problems walking or moving around
- 4 or more medications
- Foot problems, unsafe footwear
- Blood pressure drops too much on standing up/dizzy
- Problems with seeing
Research has shown that treating and correcting these specific health problems reduces the rate of falling by more than 30%. The table below shows how an older person with fall risk factors can benefit from treatment of those factors.

**Falls Risk Reduction Table**

<table>
<thead>
<tr>
<th>If a person has:</th>
<th>The chance she will suffer a serious fall in the next year is</th>
<th>Treating risk factors reduces this risk about 1/3 to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fallen in past year</td>
<td>50% (5 in 10)</td>
<td>30% (3 in 10)</td>
</tr>
<tr>
<td>No falls in past year but even minor problems with walking or movements</td>
<td>30% (3 in 10)</td>
<td>20% (2 in 10)</td>
</tr>
<tr>
<td>Any 1 of 6 the risk factors below</td>
<td>20% (2 in 10)</td>
<td>10% (1 in 10)</td>
</tr>
<tr>
<td>Any 2 of the 6 risk factors below</td>
<td>30% (3 in 10)</td>
<td>20% (2 in 10)</td>
</tr>
<tr>
<td>Any 3 of the 6 risk factors below</td>
<td>60% (6 in 10)</td>
<td>40% (4 in 10)</td>
</tr>
<tr>
<td>4 or more of the 6 risk factors below</td>
<td>80% (8 in 10)</td>
<td>50% (5 in 10)</td>
</tr>
</tbody>
</table>

The known treatable risk factors include:

1. any problems with walking or movements [see below]
2. postural hypotension
3. use of 4 or more medications or any psychoactive medications
4. unsafe footwear or foot problems
5. visual problems
6. environmental hazards
Observe for problems with one or more of these movements:

1. steady standing on one leg for at least five seconds
2. steady getting up from a chair
3. sits down in a chair without plopping
   While walking...
4. walk path is straight
5. turns are steady
6. swing foot always passes the stable foot by at least a foot length (normal step length)
7. heel of the swing foot always hits the floor first (heel-toe sequencing)

In 2012 Hamilton County Health Department issued a report covering falls throughout the years. The report covered fall data for all ages, and had a specific section for the elderly population (65+) as this age group was found to have the most burdened by fall injuries. Figure 2 shows the race-sex specific rates of all fall-related injuries to elderly Hamilton County residents. As the figure shows, the highest rates of fall-related injuries occurred among other-race female residents. Based on the analyses, elderly female residents across all races had higher rates of fall-related injuries than their male counterparts.
To further illustrate the severity and burden of falls among the elderly within Hamilton County, an analysis was conducted that examined the length of stay for fall-related injuries across all age groups. Figure 5 shows the results from this analysis. According to Figure 5, as age increased, the percentage of fall-related injuries that required a longer stay at a treatment facility also increased. These longer stays were likely due to more extensive injuries that required more time to be treated.
RECOMMENDATIONS

The purpose of this study remains to develop a program to help decrease the number of falls in the older adult population, and ensure there are programs available for those that have fallen. Promoting the prevention of falls among the older adults within Green Township will improve the quality of life for the older adults as well as save the community revenue typically spent toward medical costs. The research shows that repeated falls to the older adults 65-100 years of age will occur if intervention of some type isn’t provided to assist the older adult falls patient.

Recommendation 1: Continue to collect data via the electronic patient care reports to assist in the referral program that could be implemented with local agencies. Data sharing could help target specific residents within Green Township.

Recommendation 2: In a joint effort with People Working Cooperatively submit for an EMS Grant through the State of Ohio to start a pilot program to assess 100 older adult fall victims in the first year. The program will provide a home assessment of fall hazards, and provide education through a trained fall prevention specialist.

Recommendation 3: Implementation of a fall prevention education program that will be delivered at Green Township Senior Center, church groups and private social groups. The emphasis of the program will be to help older adults maintain their quality of life by using fall prevention techniques.
CONCLUSION

Fall related injuries can happen at any age. The older adult population has been identified as the age group most burdened by fall injuries. The research shows that falls and fall injuries are more common than strokes, and can be just as serious in their life consequences. Common and treatable conditions have been identified, and if educated the older adult can decrease their chances of falling.

Implementation of an educational fall prevention program could help the community and the older adult population within Green Township. Care must be taken when implementing a fall prevention program to ensure the older adult will not be afraid to report a fall after it occurs. Many in the older adult community are afraid to report falls for the fear of being taken from their home and being placed in a nursing home.

The needs are clear not only for the older adults in Green Township, but nationwide. We must develop educational programs, and work together with other agencies to decrease the number of falls in the older adult population.
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