Fall Prevention Surveillance for the Community

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A research project submitted to the Ohio Fire Executive Program

June 1, 2005

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.

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ABSTRACT

In Hamilton County, Ohio the senior population>65 years of age is increasing in parts of the county by 20% (2000 United States Census) causing an increase in EMS call volume for repeated falls or falls to the elderly, which in turn has caused stress on the ESM delivery system in Hamilton County. The need for a falls assessment tool to be utilized as a referral for the repeated falls patient has become evident. The purpose is to provide assistance to the elderly falls patient so that the EMS system can provide a first intervention step. Not having a referral system is taxing EMS units and causing a gap in EMS coverage.

This paper will research the questions why is this important, would an assessment tool help, and what benefits can an assessment tool provide. Historical data was collected and action research was used to develop an assessment tool through the use of a 90 day collection period in the field. Falls continue to be the primary risk factor to the elderly which accounts for 25% of the EMS call volume in the two communities studied.

Data has shown the majority of calls to seniors >65 were of a BLS nature; however 40% of the calls are of a more serious nature. Recommendations from the data collected from the assessment tool developed helped provide referral documents to social organizations. The assessment tool developed could provide enough data for EMS crews to make a referral.

The need to provide a referral document that would be germane to the intervention step for a fall victim requesting help was proven. Creating a quick assessment document from the 911 call can ultimately reduce repeated EMS calls for service. Intervention and prevention steps which can produce positive results are key to the fall patient.

TABLE OF CONTENTS

INTRODUCTION

Statement of the Problem

The fire base EMS service in Hamilton County, Ohio is seeing an increasing call volume to assist the elderly patient 65 years of age and older. The emergency calls are largely for assistance from a fall or help getting assistance back into bed, causing repeat calls to the already busy EMS responder.

Purpose of the Study

Many of these calls become a repeated daily occurrence which is taxing and stressful for responding crews because they lack an evaluation tool for use as a referral to social services. EMS & fire crews possess little if any resources for creating referral services for help. Problematic issues that exist with much of the senior population can attribute to the majority of service calls for a fall in most communities. (Blanda 1996) 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)

The problem this study investigated was the development and evaluation of an assessment tool that quickly assessed a patient in the field to determine whether or not a referral should be made to health services. This assessment tool clearly identified the need for family awareness and education of the patient's condition, the need for public health intervention, in-home assistance and the review of environmental conditions. If the patient is committed to a skilled care treatment center or hospital, intervention assistance geared at returning the patient to a home environment can begin during the rehabilitation process**.** Research methods used to complete the research and to achieve a baseline for evaluation were the historical and action methods. The results of this research helped determine a referral system for EMS personnel to use. The referral system will be forwarded to the Board of Health so an elderly care representative can assist the fall victim and conduct a home needs assessment.

Research Questions:

The following questions will be answered by this historical research:

1. Question 1: Why is This Problem So Important?

   To develop a tool that can refer elderly patients >65 years of age who suffer from a fall or help prevent them from falling.

2. Question 2: Would an Assessment Tool Reduce The Amount Of Calls To A Fall?

   Development of a fall assessment tool that can provide data from the elderly on specific motor functions, and psychological, environmental and social needs that would assess specific indicators leading up to or from a fall. Friedman, Munoz, West, Rubin, Fried (2001)

3. Question 3: When using a screening tool, what benefits can clearly be identified for EMS and fire service use?

   The development of a screening tool can provide data to aid EMS providers with follow up information while doing a primary field assessment when a 911 call brings EMS to the aid of a fall victim. Research conducted on a screening tool must be of an action type to achieve raw data so that a measurement can be utilized to see the effectiveness of a referral system.

BACKGROUND AND SIGNIFICANCE

The United States 2000 census data showed us that Sycamore Township's 20,000 residential population is increasing in age. The United States 2000 Census showed us that twenty five percent of the population is over 65 years of age. The Sycamore Township EMS & Fire department over the past three years has experienced an increase in reported falls to elderly residents by 10%. Many of the emergency 911 calls have been repeated calls to the elderly patient because of various environmental and medical reasons. All of the repeat calls are for either transporting the patient to the local emergency room or the EMS crews were required to assist the elderly patient back to bed or lift the patient from a fallen position.

One potential impact this study could have on Sycamore Township EMS & Fire Department is to reduce the frequent repeat calls to the same residence. Another potential impact is 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. Currently in the EMS system in Hamilton County, Ohio there is no referral mechanism that would allow the EMS unit to refer a patient to a home health professional.

A home health professional could provide assistance to the elderly patient by helping them with various personal needs, or assist them in how they take their medication. They might also conduct a home safety survey that would help define trip hazards and clear hallways and pathways of travel through the elderly fall victim's home.

Many times the Sycamore Township EMS & Fire department personnel are called to assist the elderly patient because they have either no surviving relatives or family support group to help with their unstable condition which could lead to a fall. 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. The need for intervention by first responding EMS units to these types of patients has become paramount. EMS & Fire personnel have the trust of the residents because of the emergency nature of the 911 call. The disheartening factor is that no such referral system has been developed so that EMS

personnel can make direct contact to a home health care professional so that a proper follow up and assessment can occur that would help the elderly victim survive a fatal or catastrophic fall.

Fall prevention not only reduces stress on the EMS service, but can also reduce unnecessary pain and suffering for the elderly patient. Fall prevention can reduce high hospitalization costs and long convalescent periods for the elderly fall patient.

The significance of the problem is the need to keep EMS units available for other emergency medical details by reducing the amount of repeated falls to the elderly. By reducing repeat calls to one individual EMS and first responders remain available so that as call volume increases units are not tied up on a repeated fall victim. The repeat fall victim generally requires no transport to a hospital, however, proper evaluation must be delivered to make sure that the fall victim hasn't sustained or developed an underlying medical problem.

A fall assessment tool utilized by emergency medical crews could be used to provide early intervention to the elderly fall victim so that prevention can occur. The tool would also provide a referral mechanism for health care professionals so that a home environmental assessment can be provided. Then an alliance with the victim can be established so that a plan of education, prevention and most of all specific social, environmental, motor and psychological elements can be monitored and benchmarked.

The first step is helping the fall victim recognize the need for assistance. The biggest detractor is then dealing with allowing the patient the dignity of their independence. The elderly fall patient still has and wants independence. They do not want to rely on help from social care services. The feeling of losing independence becomes a construct when trying to assist the elderly patient. Addressing the problem and creating a caring program that provides confidence and security will reduce the number of falls to the elderly and a reduction in the reliance on the EMS system will then occur.

LITERATURE REVIEW

Ikegami (1995) states that the simplest form of functional assessment is the evaluation of the patient's ability to carry out the basic activities of daily living--that is, eating, turning over in bed, using the toilet, moving from place to place (such as in and out of bed), walking, dressing, and taking care of personal hygiene. The author also talks about a second assessment tool that can further evaluate a patient's condition by using the chief component required by every nursing home in the United States.

The injury pyramid created by Fingerhut and Warner, 1997 and used in the Hamilton County Injuries Surveillance Report 2001 helped create a database that relates as follows. It's interesting to note that this pyramid model is beyond the scope of HCISS (Hamilton County Injury Surveillance Statistics) reporting.

Death

Non Fatal Hospitalization

Non Fatal Emergency Department Visits

Medical Treatment Outside a Hospital

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.

Blanda, 1996 reports that the use of EMS by the elderly population shows that elderly patients are responsible for approximately 22-39% of EMS runs, which is out of proportion to their representation in the population. Blanda, 1996 further reports that over triage/under triage

occurs when the false assumption that the patient is seriously injured is made based on prehospital criteria. Over triage has consequences which are political, financial and administrative. Under triage involves the assumption that serious injuries are not present when, in fact, they are. This is a patient quality of care issue.

Triage tools used are Injury Severity Score (ISS) and the Glasgow scale (GCS) which includes the mechanism of injury. The physiologic considerations used for treatment priority in caring for a trauma victim, regardless of age, will always be airway, breathing, and circulation.

The Canadian study found an odds ratio of 3.7 for clinical variable of age >65years, second only to dangerous mechanism of injury. Stiell, Clement, McKnight, Brison, Schull, Rowe, Worthington, Eisenhauer, Cass, Greenburg, MacPhail, Dreyer, Lee, Blandiera, Reardon, Holroyd, Lesiuk, Wells (2003)

Sayhoun, Lentzner, Hoyert, Robinson, 2001 report that the "Quality of life is an important concern." This statement presses the question: if we succeed in extending life expectancy, what will these added years bring? We are faced with the challenge of extending and improving life and we must be aware of trends in important measures of health so that we can identify the most effective ways to use our resources and achieve these goals. The areas to monitor are the following: elderly mortality, the leading cause of death; quality of life, including measurement of illness and disability; factors associated with healthy aging; and the cost of illness and injuries. Raiche, Hebert, Prince, Corriveau, 2000 reported the validation of the Tinetti Balance Scale by demonstrating the reliability and concurrent validity which was administered by home health care professionals. Raiche, Hebert, Prince, Corriveau go on to report the random and control groups selected participants who were 75 years of age or older. The mean age of the individuals was 80 years and the mean score Tinetti Scale was 33.8. During the first year, 53 individuals fell at least once (23.6%). Using this screening test for preventing falls, the cut off score of >36 is preferred since the test has a higher sensitivity (70%). The 52% specified is moderate but the test is cheap to administer by multifactor assessment.

Another study regarding the elderly was conducted by Friedman, Munoz, West, Rubin, Fried, (2001). The study addresses "falls and the fear of falling." The sample of adults included 2,520 men and women aged 65 to 84 who had a mini-mental state examination (MMSE). Out of this study a large percentage of elderly adults were benchmarked on vision, medication, demographics, co-morbidities, neuropsychiatric 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 evaluative period the non-fallers baseline clearly demonstrated the fact that they wouldn't report a repeated fall, whereas fall victims would report a repeated fall. The interesting factor is that when a fall occurred after a 20 month period the non-faller was converted to reporting the incident. It was also noted that the older the group became the more the fear of falling became apparent.

The aim of the study was to evaluate the outcomes of participatory community-based prevention programs against injuries among the elderly. A population based quasi-experimental design was used with pre and post implementations of measurement in an intervention and control area. K. Lindqvist, T Timpka and L Schelp (2001) report in their study measurements that the relative risk of injury was estimated by the odds ratio. Morbidity in moderately severe injuries was reduced from 46 per 1000 to 25 per 1000. They go on to report that in the control area there was no real evidence of change in morbidity rates. However, decreases in falls did show up in the age grouping of 65-79 years. On the other hand, in the 79 and older group there was an increase in falls. This study was a survey of the World Health Organization Safe Community Program.

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.

The current population of seniors is on the rise. In 1997 the American population 65 years of age or older was at 34 million. That number is projected to double by the year 2030. In 1995 more than 40% of hospital admissions were in this age group. Because of their longer length of stay (7.1 vs. 5.4 days), hospital occupancy attributed to older patients is even greater; 49%. It was reported in 1997 that nearly 2 million Americans live in nursing homes and the figure is expected to reach 5 million by 2030. The growing concern for longer hospital stays, the shortages of beds, and the quick discharge of patients from hospitals now presents another issue for the rising elderly population. Skilled care facility bed shortages, along with hospital down sizing and Medicare compliance issues, have created an environmental issue for elderly victims of a fall. Rothschild, Bates, Leape (2000).

Rates of morbidity and mortality from falls are higher among the elderly than among younger persons. Approximately 60% of persons who die from falls are 65 years old or older and falls account for 87% of all fractures in older adults. The most important risk factors for falls and fall-related injuries among the elderly are history of one or more prior falls, cognitive impairment, chronic illness, balance and gait impairment, low body mass index, female sex, general frailty, use of diuretics, use of psychotropic drugs and hazards in the home. Among older adults, hip fracture is the most frequent serious consequence of falling. Much attention has been focused on preventing Osteoporosis during aging, particularly in women. Rivara, Grossman, Cummings (1997)

SUMMARY OF LITERATURE REVIEW

With respect to this paper the following key points remain germane regarding falls to the elderly and research that was conducted regarding elderly fall victims. Ikegami (1995) addresses the function assessment that is the evaluation of the patient's ability to carry out the simplest of basic activities regarding daily living. The injury pyramid created by Fingerhut and Warner (1997) and used in preparation of the Hamilton County Injury Surveillance Report 2001 clearly identifies the risk group on the top of the pyramid as being death, next being non-fatal hospitalization, next being non fatal emergency department visits, and finally medical treatment outside the hospital.

The literature further addresses the risk factors studied in a group of 301 men and women by Tinnetti, Baker, McAvay, Claus, Garrett, Gottschalk, Kock, Trainor, Horwitz(1994) where the patient's age was >70 years. Findings found that risk factors for falling included: postural hypotension, medication and impairments with the range of motion regarding extremities. During the trial period of one year the research found that 35 percent of the intervention group fell as compared to 47 percent of the control group. The conclusion was that multiple-risk factor intervention strategy resulted in a significant reduction in the risk associated with the fall of elderly persons in the community.

"Quality of life is an important concern" Sayhoun, Lentzner, Hoyert, Robinson, 2001 asks, if we are to exceed life expectancy what will these added years bring? Their research further goes on to state areas of monitoring the elderly should include elderly morbidity, the leading cause of death; quality of life, including measurement of illness and disability; and factors associated with aging.

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.

The research presented in this paper does give insight into repeated falls. It also shows that in most cases when intervention and monitoring is provided falls and repeated falls can be minimized.

PROCEDURES

Research was conducted using several different rationales and the action method of research.

- The first was to collect historical data over a three-year period showing multiple repeated runs to elderly patients 65 years of age. The historical data defined constructs between age groups. An example is 60-69, 70-79, 80-89, 90-100+ years of age. The data included dispatch information that would indicate an elderly patient either has fallen or needs assistance after falling.
- Research conducted had to answer "Why is this problem so important." The data included missed calls to other residents because repeated runs to the same people are causing a lack of service to other Township residents.
- Development and use of a fall assessment tool helped the EMS crews determine the need to create a referral to social or other senior care services who can aid the repeated falls patient. The assessment tool was used to help rehab the patient so when they returned to their respective dwelling an inspection of their surroundings was conducted to aid them in the reduction of fall hazards. This risk reduction plan saved on the potential overuse of the EMS service and reduced medical costs to the patient who is proactive to the fall rather than reactive. Collection of data sets produced the empirical reporting of specific indicators leading to a fall in an elderly patient.
- The Sycamore Township EMS & Fire Department, Reading Fire Department and the Hamilton County Board of Health formatted a measurement tool for assessing elderly fall patients in the field. (Appendix 1)
- The Sycamore Township EMS & Fire Department and Reading Fire Department agreed to a 90 day field collection period of assessment documents so that both departments could forward patient fall data that met the criteria of the falls assessment tool.
- After that 90 day field collection period expired contact was made with the fall victim to see if they would like to participate in the falls assistance program.

- Collection of data became difficult because of the length of the fall assessment tool that was initialized in the field. Data became limited therefore making the analysis of the data inclusive and not verifiable for continuation of the assessment tool.
- Direct contact of the fall patient became the method of choice, however; social independent factors became relevant while trying this initial effort subsequent to the assessment tool use.

LIMITATIONS

Due to the demographics of both communities with the senior population, the decision was made to collect action data from these two communities as a beta test site for the field assessment tool.

Approaching other departments in the county for field testing of the assessment tools didn't seem practical until survey information from the small group could be rationalized and analyzed to determine the simplest way to collect data. Does the field collection form need to be lengthy or can certain collection sets of information be utilized in a short form? That became the deciding question in identifying a field assessment tool. The deciding factor was to make a direct contact from EMS & Fire department personnel after the run thereby promoting a customer service call to see what key facts identified in the assessment tool could be maximized to assist the fall victim. Evaluating this can minimize the time it takes EMS Crews to retrieve pertinent documentation in the field assessment referral document and return them to service quicker thereby minimizing out of service time because of the repeated fall victim.

RESULTS

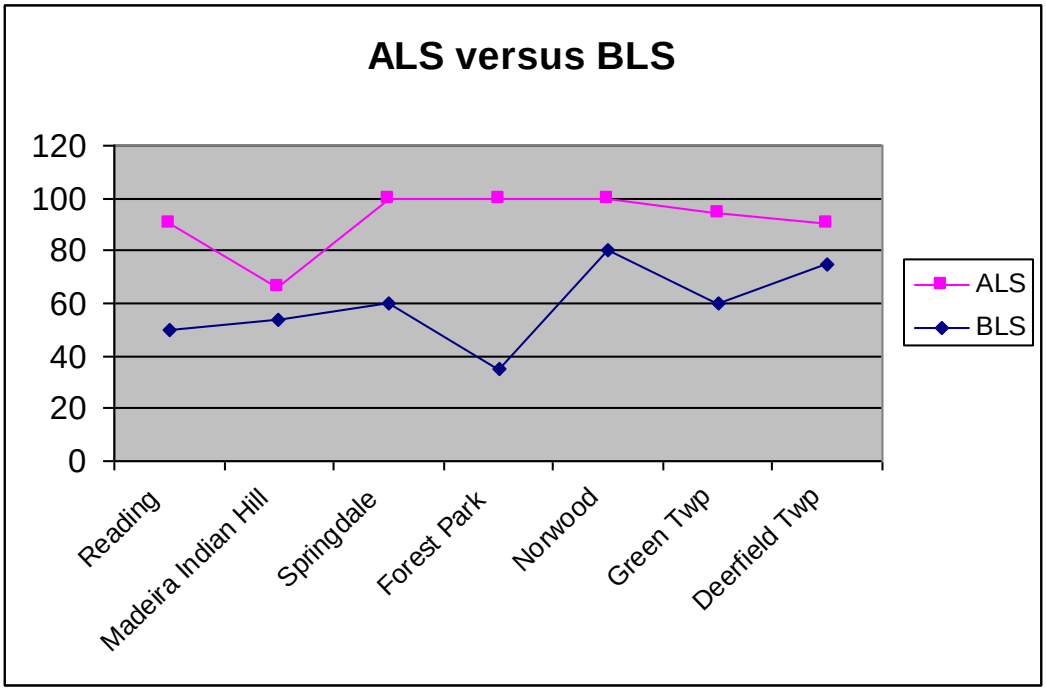
The basis for data collection was to retrieve information from other departments in Hamilton County, Ohio and from two EMS & fire departments outside Hamilton County in the neighboring counties of Clermont and Warren. The purpose was to achieve population size so fire departments of similar size could be solicited. There are currently 41 departments in Hamilton County which include Sycamore Township, City of Reading and the City of Cincinnati. Departments outside Hamilton County solicited were Deerfield Township located in Warren County and Miami Township in Clermont County. Out of the 41 Hamilton County departments surveyed only 16 fire departments responded to the survey. The two outside Hamilton County Departments did respond. The data needed to be compressed because the request for three years of information could not be fulfilled. Only data from the year 2003 was used. The historical data reference in the survey was population based on the current US census and EMS run volume information for their respective community for the year 2003.

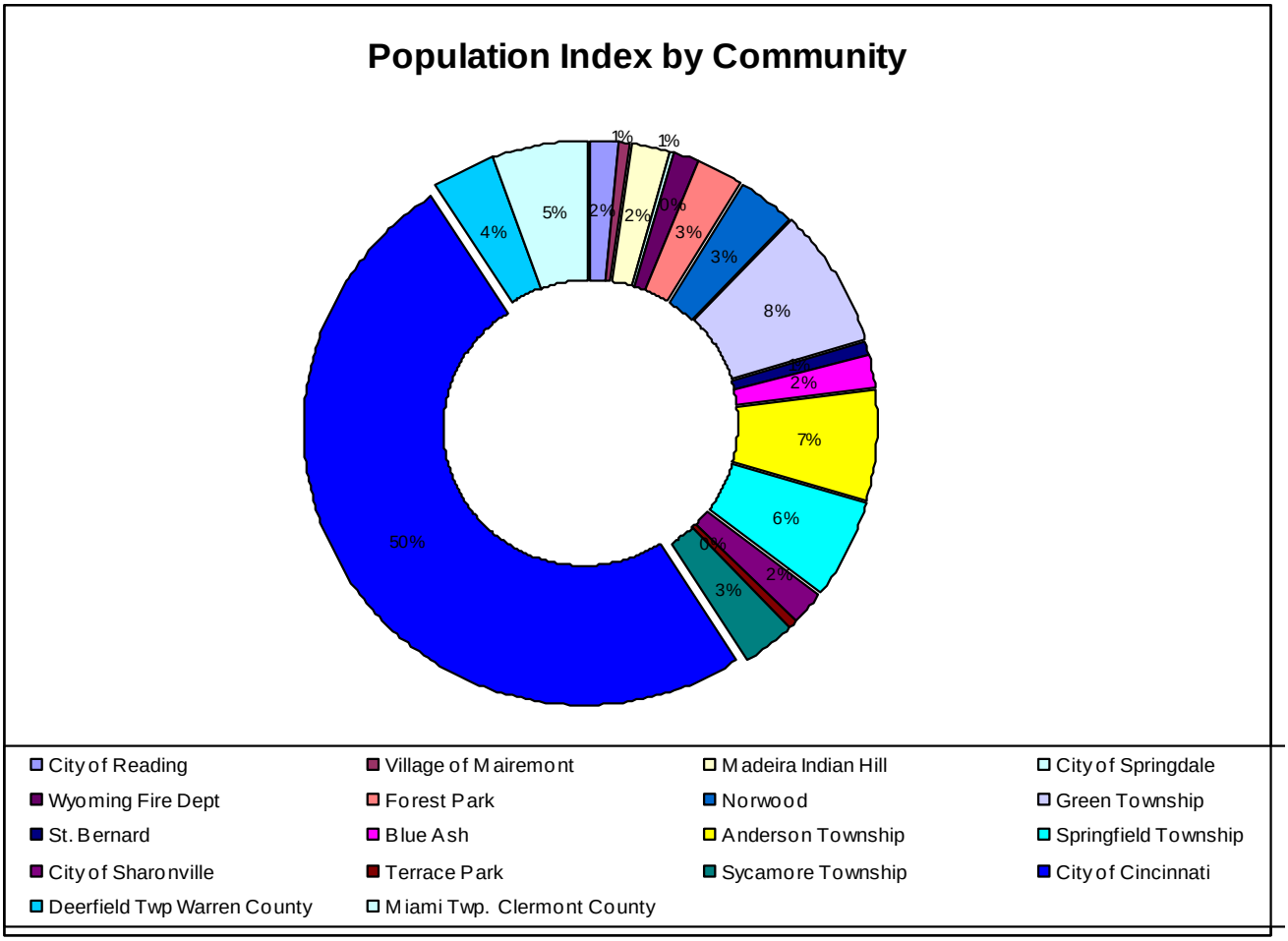
- The research questions posed were the following; Question *One "Why is this problem so important?*" This question, asked in a different form on the questionnaire, only showed that specific information regarding fall surveillance hasn't been tracked by EMS & fire departments. Only internal discussions had been held through various means of networking. *Question Two* asked in the research component was *"Would an assessment tool reduce the amount of calls to a fall?"* Currently an assessment tool is being beta tested in field applications in Sycamore Township and the City of Reading. The response to a similar data inquiry from respondents clearly showed that the specific demographic information had not been extracted from the current EMS field reporting data. Also, specific data that had been collected showed nothing definitive as to how a tool might be utilized or help with the senior population.

- *Research Question #3 asked "When using a screening tool, what benefits can be clearly identified for EMS and fire service use?"* Using a beta testing field assessment tool, patients were asked if they would like to participate in a fall surveillance study which would bring to them the benefits of clearly identifying them as a potential fall victim. The following four key factors that could lead to a fall would be identified.
    - Environmental Conditions
    - Medication
    - Exercise
    - Nutrition

Survey results clearly showed seniors >65 accounted for the majority of the calls for basic life support. However, the data is also showing that the percentage of seniors requiring advanced life support functions is in the 40th percentile. This 40% number indicates more serious calls for service, meaning a longer hospital and convalescence period.

The mean age of the patient reporting data is 70 years of age





Hamilton County reports in their survey that this is the population of seniors

DISSCUSSION

The study results make it clear that there is a definite need for intervention in preventing elderly patients from falling. The findings, in conjunction with the solicitation of the survey instrument, showed that EMS & Fire Departments haven't been tracking specific information. Current findings by Friedman, Munoz, West Rubin, Fried (2001) addresses "Fall and the fear of falling". The survey instrument did show a direct correlation with K. Lindqvist, T Timpks and L. Schelp's (2001) study regarding morbidity in moderately severe injuries was reduced per 1000 to 25 per 1000. Their study goes on to report that falls did show up in the age grouping 65-79. With the age group >79 years of age there was an increase in falls. The morbidity rates also showed that these groups required advanced life support intervention due to the fall and the underlying, pre-existing, or baseline wellness of the patient.

Although the survey instrument asked for information in a different format requiring three collection points of data, after comparing information the only data that was verifiable and could be used in relationship with the literature was collected in 2003. After review of the 2003 data, the correlation with solicited data did not provide the significant information to further demonstrate the relationship between repeated falls and falls to the elderly>65 years of age. The survey information did provide the information that a referral system is lacking and that development of such a referral system and assessment tool does have promise for EMS providers.

The triage tools currently used for field assessment would be the Injury Severity Score (ISS) and the Glasgow trauma scale (GCS) which would include the mechanism of injury. The physiologic consideration used for treatment priority in caring for a trauma victim, regardless of age, will always be airway, breathing and circulation.

Because of the minimal results from the survey instrument, another approach to receiving specific data from elderly falls victims can only occur starting in calendar year 2005. EMS services in Ohio are now compelled to submit all EMS run data to the State of Ohio EMS Board.

The County Health District can now obtain data sets from the State of Ohio EMS registry to help in assessing fall data.

Because of the aging population throughout the county, meaning the baby boomers are now reaching recognized retirement age, the implications will remain. Specific data collection points utilizing new integrated software reporting systems are now used by most of the 44 county fire departments and can help streamline data, which can in turn help support research methodologies regarding falls to the elderly patient. The data sets would also better serve as a tool to establish a baseline factor which can help determine additional information needed to assess the fall patient.

RECOMMENDATIONS

The purpose of this research remains to assist the elderly who experience frequent calls and repeated calls for help from a fall. The research shows that repeated falls to the elderly >65-100 years of age will occur if intervention of some type isn't provided to assist the elderly falls patient.

Recommendation # One: Continue to collect data in an assessment format so that an effective referral system can be developed at the EMS entry level of patient care.

Recommendation # Two: Although data is being solicited it is still apparent that outside senior agencies need to be involved. Skilled care facilities, hospitals and private agencies need to partner with the EMS community to help with home aid visits to the falls patient or the potential falls patient.

Recommendation # Three: Provide comprehensive educational programs for senior citizens organizations, church groups and private social groups and inform them of simple programs that would help sustain a "quality of life" by utilizing fall prevention information and techniques. The program must assure attendee's that the mission is to help the elderly patient lead an independent life style through education, exercise programs, taking proper mediation, monitoring nutritional requirements and mental conditions, and most of all home environmental conditions to prevent falls in the comfort of their homes.

CONCLUSION

Future falls assessment tools must be a precursor to the referral system so an initial patient baseline can be established so that the victim can be assisted properly. The caution with the referral is to provide a positive for the patient and not create an alarming response from a 911 call for help or assistance. If the patient becomes alarmed an uncomfortable resistance will occur and the likelihood of the patient being helped would be greatly diminished.

Although medical research acknowledges the systematic conditions of falls to the elderly, "future readers" who may wish to replicate some or all of the study with their own organizations, must collect effective data sets that will aid them in finding the right assessment tool. Simple recommendations provided to the elderly become paramount for them under any type of adverse health conditions that effect the simplest motor or psychological events that effect their "Quality of Life. "

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APPENDIX A

Fall Risk Assessment Field Assessment Form (Tool)

Date _____ **Run#**_____

Patient Name _____

Person(s) completing form: _____

A. Complete this section for <u>ALL 9-1-1 runs on persons aged 65+ years old.</u> Answer one of the following:

☐ This run was urgent - therefore, the screen below was not completed

☐ This run was non-urgent but we did not complete the screen section below because: _____

☐ This run was non-urgent and we completed the screen below

B. Please ask ALL non-urgent runs for patients 65+ years old:
"In hopes of developing new programs for seniors, we're conducting a safety and fall prevention study with the University of Cincinnati. Are you interested in participating?"

☐ Yes ☐ No

↓ ↓

- **Please fill out the screen for <u>ALL non-urgent 9-1-1 runs</u> on persons age 65+ years old (<u>patients who say yes or no</u>).**

SCREEN	**Yes**	**No**	**Don't know**
In your opinion, is this patient at risk for falls?			
Function			
Have you had difficulty walking in the past month?	☐	☐	☐
Have you fallen in the past year?	☐	☐	☐
Do you have any problems with your vision?	☐	☐	☐
Have you had your eyes checked in the past year?	☐	☐	☐
Home Hazards			
Are doormats/rugs secure and flat?	☐	☐	☐
Are walking areas clear of clutter?	☐	☐	☐
Are nightlights between bedroom and bathroom (for evening bathroom visits)?	☐	☐	☐
Are there handrails on indoor stairs?	☐	☐	☐
Is the phone within easy reach?	☐	☐	☐
Are there grab bars in bathroom?	☐	☐	☐
Is a rubber mat used in bathtub or shower?	☐	☐	☐
Support and Caregivers			
Do you live alone?	☐	☐	☐
Do you get support from family, friends or a caregiver?	☐	☐	☐

APPENDIX B –

Fall Risk Assessment Tool Data Collection Guidelines

Data collected for fall patients through incident reports

Home Hazards:

- Any Safety Devices Installed in Home
- Loose Rugs, Slippery Floors, Non-Skid Strips in Appropriate Places
- Outside Sidewalks in Good Condition, Uneven Surfaces
- Adequate Lighting, Phone Within Reach, Clear of Clutter

Medical

- Currently Having Medical Problems That Would Contribute to Dizziness or Unbalance

Function

- History of Falls, Devices to Help With Walking, Weakness in Arms or Legs, Trouble Hearing

Support and Caregivers

- Patient Lives Alone, Family Support, Poor Hygiene, Soiled Clothes

EMS Recommendations for Social Services

APPENDIX C

Survey

OFE Research Survey on Fall Surveillance Study
Survey Audience Hamilton County Fire Departments
Clermont County Miami Township Fire Dept
Warren County Deerfield Township Fire Dept.
Instructions: Please fill in the blanks with the data available.

Questions:

1. Name of your community_____

2. Current population of your community using the 2000 census data_____

3. What was the total EMS run volume of your department in the following years?

2001_____
2002_____
2003_____

4. What percentage of the run volume in the years 2001, 2002, 2003 were Elderly transport ≥65 years of age? Circle the closest percentage group.

a. 1-5 %
b. 5-10%
c. 10-20%
d. 21% -higher

5. How many repeat calls to the elderly ≥65 years did you make during years;

2001_____ 2002_____ 2003_____

6. How many patients did EMS respond to in private residences, apartments, condos, or single family residences during the years 2001, 2002, 2003?

2001_____
2002_____
2003_____

7. What percentage of patients >65 years of age refused to be taken to the hospital for evaluation.

2001_____
2002_____
2003_____

8. Over the three year period what was the average number of males who fell:
   65-75 years of age?_____
   75-85 years of age?_____
   86 and over _____

9. Over the three year period what was the average number of females who fell.
   65-75 years of age____
   75-85 years of age____
   86 an over ____

10. During this three year period what percentage of falls to the elderly > 65 years of age were attributed to environmental conditions _____.

11. During this same three year period what percentage of falls to the elderly >65 years of age were attributed to overmedication_____.

12. During this three year period what percentage of the falls to the elderly >65 years of age were attributed to poor eyesight_____.

13. During this three year period what percentage of >65 year of elderly received basic life support treatment_____
    advanced life support treatment _____.

14. During this three year period what percentage of the >65 year of age elderly group called for a home safety survey to help prevent additional falls_____.

15. During this three year period what type of intervention from the health district that services your community started elderly fall prevention programs? (please list them below.)

_____

_____

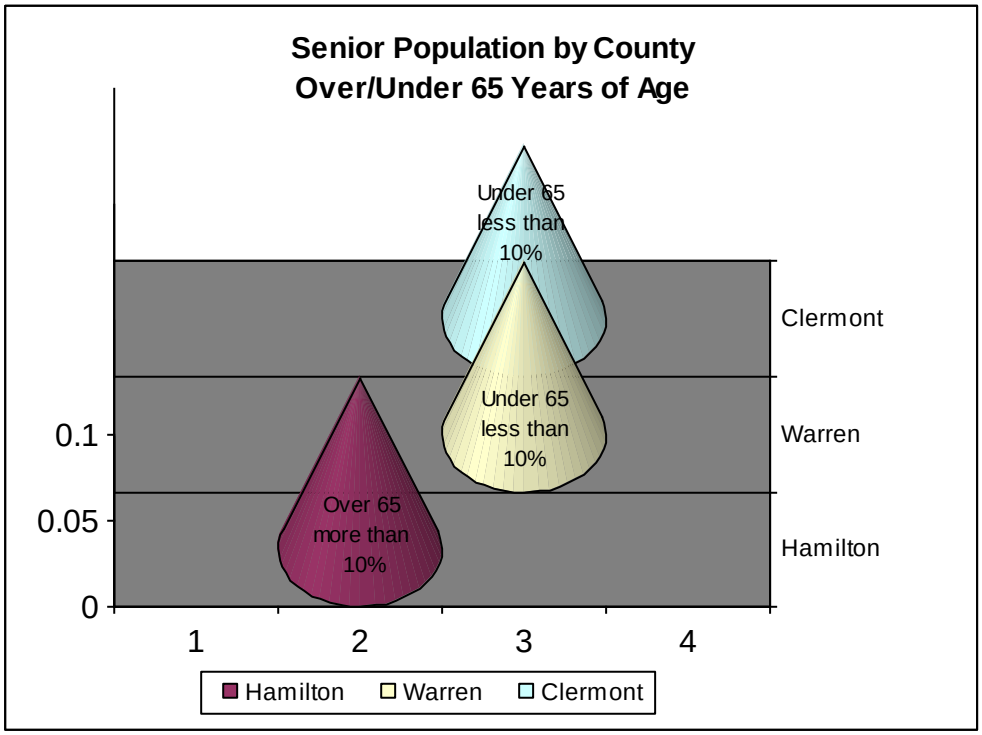
_____

Please send me a copy of the finished survey Yes ☐ No ☐

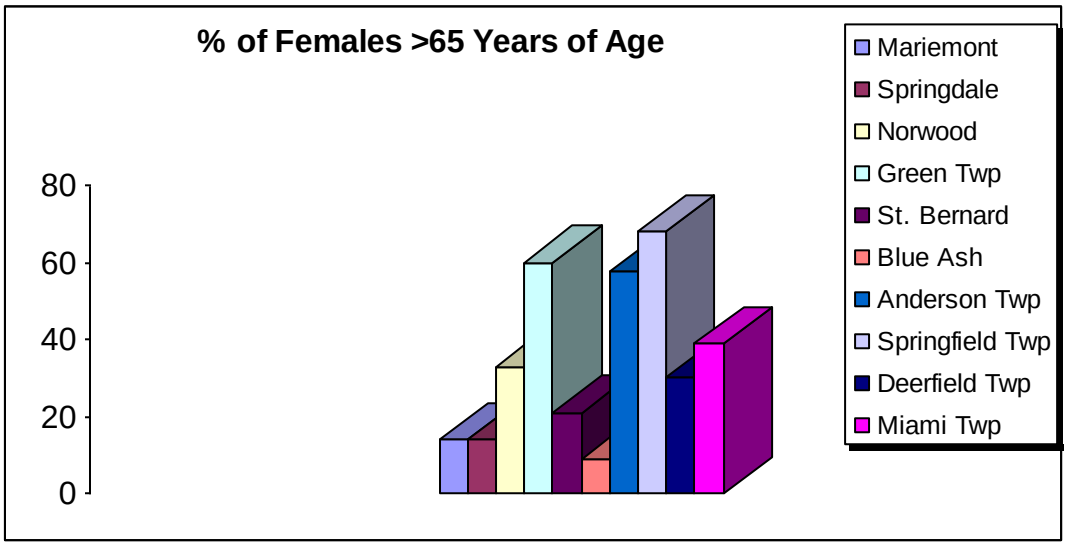
APPENDIX D

Survey Questions Chart

POPULATION BY COUNTY

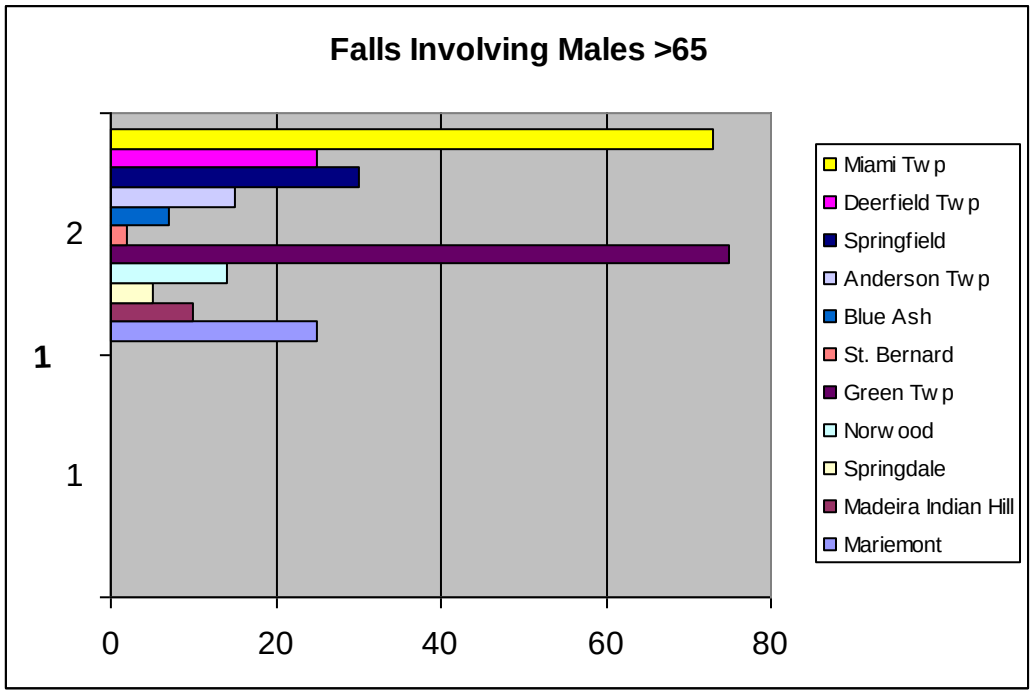


FEMALE PERCENTAGE OF FALL PATIENTS



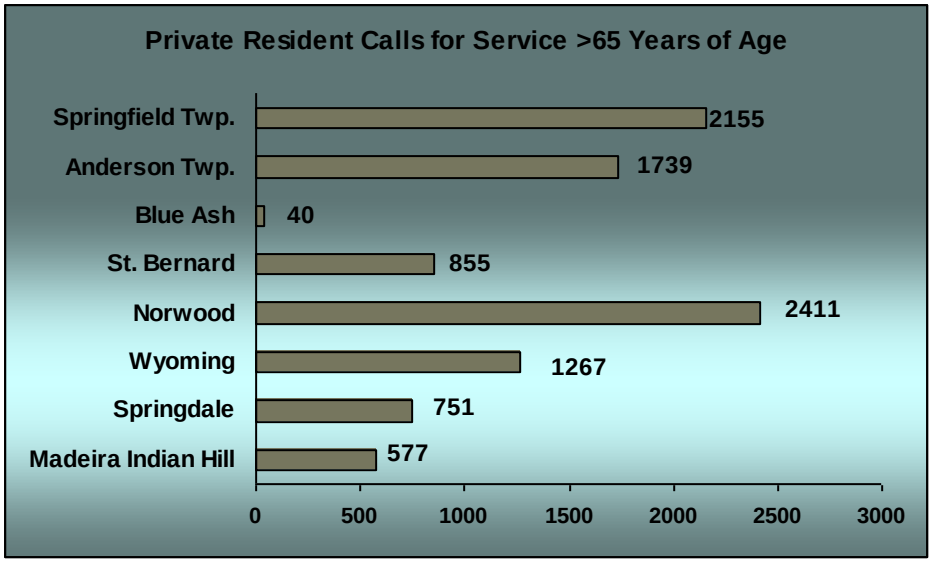
APPENDIX E

MALE PERCENTAGE OF FALL PATIENTS



APPENDIX F

911 CALLS TO PRIVATE RESIDENTS FOR SERVICE >65



REPEAT RUN PERCENTAGE TO THE ELDERELY