

Running head: FALL PREVENTION FOR OLDER ADULTS

Developing a Fall Prevention Program for Older Adults in Londonderry, New Hampshire

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Certification Statement

I hereby certify that this paper constitutes my own product, that where 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.

Signed:

Abstract

The problem was that the older adults of Londonderry, New Hampshire were experiencing an increase in fall injuries and the Londonderry Fire Department had no efforts underway to address the issue. The purpose of this action research was to determine if falls of older adults are in fact a problem in Londonderry and to develop an implementation plan for a fall prevention program that could be delivered to the target audience in order to reduce the number of injuries resulting from falls. The research examined the extent of the problem of falls in the community; who the stakeholders were for this problem; the level of community awareness about this issue; what fall prevention programs existed and were they appropriate for our community; and what resources were available for delivering the program to the community.

This research was carried out by performing a literature review, conducting a survey of older adults, analyzing data from the Londonderry Fire Department's electronic patient care reporting systems, attending falls reduction meetings and seminars and conducting personal interviews and a focus group discussion. The results indicated that falls of older adults were a serious problem; that there are numerous stakeholders for this problem and the best prevention programs have stakeholders from multiple different disciplines; that many older adults do not feel that they are at risk of falling; there were numerous prevention programs available and some were available at no cost through a grant; and that due to fiscal constraints non-traditional methods need to be considered for presenting this program to the older adults of the community.

Recommendations were made to the Londonderry Fire Department to work with community partners on this issue and to develop a fall prevention program utilizing volunteers and educational material provided to the department through a grant. This effort would provide a foundation to build a more comprehensive program.

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INTRODUCTION

Although fire prevention has been a cornerstone of the fire service for the past several decades, injury prevention efforts in many respects have lagged behind. As our nation's population grows older their likeliness of sustaining injuries at home are increasing as well. The problem is that falls for older adults in Londonderry, New Hampshire are increasing and the Londonderry Fire Department (LFD) has no efforts underway to address this issue.

The purpose of this research is to devise an implementation plan for a fall prevention program that could be utilized by the Londonderry Fire Department to reduce falls and resulting injuries for the residents of Londonderry, New Hampshire. This research paper will conduct action based research to answer the questions: How much of a problem in the community are falls of older adults? Who are the stakeholders in the community for this problem? What is the level of community awareness of the risk of older adult falls? What fall prevention programs already exist and are they appropriate for our community? What resources are available to deliver this program to the community?

BACKGROUND AND SIGNIFICANCE

The Londonderry Fire Department is a small combination municipal Fire Department that provides fire protection, prevention, rescue, dispatch, and advanced life support emergency medical services, including ambulance transport, for Londonderry, New Hampshire. The town is approximately 44 square miles and is home to nearly 25,000 people. The Town is also home to numerous industrial and commercial occupancies, a major regional airport serving approximately four million passengers per year, a stand-alone urgent care center projected to serve over 12,000 patients per year, and six miles of divided interstate highway.

The Londonderry Fire Department has 48 employees and 12 call firefighters, operating out of three stations, staffing three companies. At the time of this writing the Department is trying a new staffing model due to budget restrictions that are resulting in shifts that are running with nine personnel on duty. Under this staffing plan the central station has a lieutenant/paramedic and one firefighter covering the primary ambulance, an engine and an aerial; the south station has a lieutenant and one firefighter and one firefighter/paramedic covering an engine, rescue and the secondary ambulance; and the north station has a lieutenant and two firefighters covering an engine.

One of the major issues facing the Londonderry Fire Department is the increase in EMS related call volume. In the past few years there has been an increase in EMS responses to healthcare facilities, most notably due to the opening of a nine bed urgent care center, increased responses to industrial facilities, and increased responses to age-restricted residential communities. The Londonderry Fire Department responded to 1,823 EMS calls in fiscal year (FY) 2007 (Appendix A) and 1,967 EMS incidents in FY 2008 (Appendix B), this represents a 7.9% increase in EMS responses. In FY 2009 there were 2,026 incidents (Appendix C).

Several years ago the Town Government took a position of strongly supporting age-restricted development. The Town Council saw age-restricted communities, requiring at least one person in the household be 55 years old or older, as a tax positive endeavor as it increased assessed value in the community without adding school aged children. However, this development has produced a negative impact on the Fire Department by increasing the number of older adult developments in the community which has been shown to have a greater impact on Emergency Medical Services (Waldron, 2007). As of 2007 there were 318 additional units of age-restricted housing (Waldron, 2007). There are no nursing homes or older adult assisted

living facilities in Londonderry. According to the U.S. Census Bureau there are 1,823 older adults living in Londonderry (Appendix L).

Another major issue our community is dealing with is severe fiscal constraints as a result of current economic conditions. The Town of Londonderry is facing a major loss of tax revenue and state fiscal support and as a result is considering lay-offs of employees, including from the Fire Department (K. Maccaffrie, personal communication, February 17, 2009) at a time when demand for services has increased.

The convergence of these two issues leads us to look at injury prevention methods to reduce demand for services, thereby control increasing EMS responses, keeping service demand within levels that can be handled by existing staffing and improving quality of life for residents.

While conducting research for the Executive Analysis of Community Risk Reduction this researcher became aware that falls was the second leading cause of traumatic injuries that the Londonderry Fire Department responds to. Additionally it was observed that the older adult population was at greater risk of falls than the general population.

This applied research project will analyze the issue of falls of older adults in the Town of Londonderry in order to assess the extent of the problem and make recommendations to address this community risk. This research relates directly to the terminal objective in Executive Analysis of Community Risk Reduction Student Manual, Unit 3: Intervention, Program Design and Evaluation, which states “The students will be able to design a draft plan for a local risk reduction initiative” (U.S. Department of Homeland Security 2008, p. SM 3-1). Additionally, this research paper will set out to develop a fall prevention program implementation guide that may be utilized in the community which relates to the United States Fire Administrations goal to

“Reduce risk at the local level through prevention and mitigation” (U.S. Department of Homeland Security, n.d., p. 2).

Lastly, this topic holds personal significance to this researcher due to my experiences caring for my mother after having suffered several falls in the home, including one time finding her lying on the kitchen floor after having fallen several hours earlier. The fear of suffering another fall had a dramatic negative impact on the quality of life during my mother’s remaining years.

LITERATURE REVIEW

First we must examine if falls of older adults in the community are a problem or not. According to the National Center for Injury Prevention and Control (NCIP, 2008 p.1), older adults are “people aged 65 and older”. This applied research paper will utilize this definition when referring to “older adults” unless otherwise noted.

In 2005 there were 36.8 million older adults in the United States representing 12% of the total population (Bernstein, 2006). According to a Center for Disease Control and Prevention and Merck Company Foundation (CDC, 2007, p iii) report it is estimated that this number will rise to 71 million by 2030. According to a CDC (2003) report in the Morbidity and Mortality Weekly Report aging baby-boomers and the expectation that the average life span will increase by 10 years by 2050 is contributing to an increasing number of older adults.

It is expected that 35-40% of generally healthy, older adults who live in the community (not in an institution) will sustain a fall annually (American Geriatrics Society, British Geriatrics Society, & American Academy of Orthopedic Surgeons Panel on Falls Prevention, 2001). There were 14,900 older adult deaths attributed to falls in 2004 which equaled 43% of all unintentional

deaths for this age group (CDC, 2007, p. 27). According to Stevens, Finkelstein, and Miller (2006) in 2000 there were 2.6 million medically treated, non-fatal falls of older adults in the United States requiring medical treatment, totaling \$19 billion in direct medical costs. This study also found that in 2000 there were 10,300 fatal falls with \$200 million in medical costs.

When considering this issue one must also consider the lasting impact falls, or the fear of falling have on older adults. Growing older and having sustained one fall has been found to cause an increase in sustaining repeated falls (Vellas, Wayne, Romero, Baumgartner & Garry, 1997). This fear of falling has been shown to cause “deleterious emotional, psychological or social changes” (Vellas et al., 1997). Arfken, Lach, Birge and Miller (1994) tell us that 48% of older adults that reported being fearful of falling also reported that they were “somewhat or not at all satisfied with life”.

Literature indicates that this problem is expected to get worse. Between 1993 and 2003 the number of older adults increased by 13%, while the number of falls among older adults doubled during the same time period (CDC, 2007, p.29). A study analyzing national data from 2001-2003 revealed the rate of fatal falls increased 13.3% and non-fatal injuries increased 7.6% (Stevens, Ryan, & Kresnow, 2006).

In New Hampshire in 2002 there were 5,492 older adults who sought medical care in an Emergency Department as a result of falls and an additional 1,855 more that were hospitalized resulting in \$29.8 million in medical expenses (Dartmouth-Hitchcock Medical Center, 2009). A review of New Hampshire Emergency Department records shows that in 2005 the number of discharges for “same-level slipping, tripping, or stumbling” was much higher than the average number of these discharges over a five year period (Miles, 2008).

There was no available literature that dealt with the issue of older adults specifically in Londonderry, New Hampshire.

Having seen evidence that indicates that falls among older adults are a current problem in our communities and the expectation that it will become a greater problem, the next issue is to identify the stakeholders for this problem. It is important to know who the stakeholders are as they will all have to contribute to the solution in order to successfully address the problem, and they all stand to gain if the program is successfully implemented.

A number of programs have identified key players in establishing stakeholders, or partners in the community to help establish and continue fall prevention programs. The importance of engaging community partners is emphasized in a report from Washington State Department of Health referring to these as “essential partnerships” (LeMier, 2002, p.13). LeMier (2002) identifies health professionals, community service providers and health care professionals as among the partnerships that need to be formed in order to identify persons in need as well as to provide service to them. LeMier (2002) tells us that the role of the public health provider (i.e.: State Department of Health), is to provide information about successful programs; and help in program development and provide technical assistance. LeMier (2002) also suggests developing a “multidisciplinary team” to help develop and guide the program.

Another compelling reason to identify partners for fall prevention programs is that frequently falls are the result of multiple factors that need to be addressed by agencies with different areas of expertise (NCIP, 2008, p. 13). According to a National Center for Injury Prevention and Control report (NCIP, 2008, p. 65) other potential partners in the community for a fall prevention program include: agencies concerned with aging, community healthcare

providers, hospitals, injury prevention specialist, fire departments, fitness centers, health departments, home healthcare agencies, organizations that can perform home modifications such as contractors, libraries, service organizations, recreation departments, pharmacies, physical or occupational therapists, schools, and the YMCA.

A report outlining activities at a “Falls Free Summit” (NCOA, 2005, pp. 33-39) lists a number of concerned organizations at the national level. Among these potential stakeholders are the Home Safety Council, National Council on the Aging, Lowe’s, National Fire Protection Association, American Physical Therapy Association, National Safety Council, the Archstone Foundation, Centers for Disease Control, Administration on Aging, the American Society on Aging, various physician and pharmacist associations, a variety of colleges and universities, and the Merck Institute of Aging and Health.

Among healthcare professionals, the risk of falls in older adults appears to be quite well documented. There are numerous articles and research papers exploring different aspects of the causes of falls, the impacts falls have mentally, physically and economically, how to reduce the risk of injury from falling and different fall prevention programs, to name a few.

There are a number of resources that have endeavored to create a clearinghouse of many of these papers. For example the National Center for Injury Prevention and Control maintains a website (NCIP, n.d.) that is a summary of research findings. This website lists the pertinent results of 28 different research papers.

Numerous municipalities, counties and states have declared particular days, weeks or months for falls prevention awareness recognition. The state of Washington will celebrate this event of September 17, 2009 when communities will help seniors learn what they can do to

lower their risk for falling” (Providence Health and Services, 2009), the state of Wisconsin designates the month of September as Fall Prevention Awareness month and the first day of fall as Fall Prevention Awareness Day (Wisconsin Department of Health Services, 2008). California recently proclaimed that they would be celebrating a fall prevention awareness week in September as well (PRLog, 2008).

Although there are numerous research papers and recognition in some states and municipalities there appears to be less awareness of this issue in mainstream media. An exception to this is a recent article titled “The Hidden Dangers of Falling” (Gerencher, 2008) which was published in “Kristen Gerencher’s Health Matters” blog on the Market Watch website run by the Wall Street Journal highlighted the issue of older adult falls. Gerencher (2008) wrote about falls by saying “it’s especially worrisome for the elderly, who are at higher risk and are more likely to suffer serious complications and lose their independence than younger fall victims.” The article continues by discussing a number of prevention measures and refers interested readers to the Fall Prevention Center of Excellence at the University of Southern California Los Angeles.

This researcher was unable to locate any literature that dealt with the level of awareness of fall risks in older adults specifically in Londonderry, New Hampshire.

There are many different types of fall prevention programs available to be delivered to members of the community. There are a number of research papers that have been written about what components make a successful program. Additionally there is a tremendous amount of literature that compares the effectiveness of different fall prevention programs.

According to a report by the National Center for Injury Prevention and Control (NCIP, 2008, p.2) there are identifiable fall risk factors that increase a person's risk of falls. These factors include: biological factors such as mobility issues, arthritis, stroke, vision problems and loss of sensation in the feet; behavioral problems including lack of activity, prescription medication interactions and alcohol use; and environmental factors like clutter, poor lighting in the home, improper canes, walkers or crutches and poor design factors in public locations. Many times older adults and their families are not even aware of these risk factors.

According to LeMier (2002, p.12) effective prevention programs must include a falls risk assessment of the potential participants in order to identify possible factors to increase the participants risk of falling. Based on these findings a prevention program will be designed to meet the individual needs of the participant. An ideal prevention program will combine a variety of components to address each factor the participant possesses that is increasing their risk of falls. These components may include exercise with balance training, home safety modifications, medication management, treatment of chronic health issues, education components (LeMier, 2002, p.12) and vision correction (NCIP, 2008, p.3).

Fall prevention programs are either single intervention programs or multifaceted programs. According to the NCIP (2008, p.9) exercise is the only intervention that has been proven to reduce the risks of falls as a single intervention program. A multifaceted program may combine exercise with other interventions such as vision screening or home modifications. Research indicates that the most effective programs are multifaceted programs utilizing clinical assessment with customized intervention strategies as well as follow-up (CDC & Merck, 2007, p.31). A study by Day, Fildes, Gordon, Fitzharris, Flaner and Lord (2002) also showed similar results. In this study the researchers compared groups of participants that received a different

configuration of fall prevention interventions. The author indicates that all groups that included exercise as an intervention had better results than without exercise. The authors observed that the combining interventions appeared to improve outcome. The intervention combination that provided the greatest reduction in falls (14%) was exercise, vision intervention and home hazard reduction.

The National Center for Injury Prevention and Control published a guide for community organizations seeking to establish fall prevention programs. The guide is an essential tool for developing a community fall prevention program and to help avoid repeating mistakes of other programs. This guide, called “Preventing Falls: How to Develop Community-based Fall Prevention Programs for Older Adults” outlines nine steps to develop and institute a fall prevention program (NCIP, 2008, pp. 8-12).

This guide states that step one is to assess the needs of the community. This involves identifying the fall prevention needs; what programs are currently offered; what your goals are; gauging support for the initiative; what resources are available and what organizations are potential partners.

Step two is to establish the purpose, goals and objectives of the program. In order to accomplish this, the NCIP guide suggests asking questions such as “Why are we developing this program?” and “What do we hope to accomplish both short term and long term?” The report advises that “with a solid purpose, concrete goals, and action-oriented objectives, you can build an effective fall prevention program for older adults.”

The third step is to determine the risk factors that will be addressed by your program. This is when one must decide if this will be a single intervention or multifaceted intervention

program. As stated earlier, the only single intervention programs that have been shown to be effective have been exercise programs.

The fourth step to address is collaborating with partners that lend expertise for certain interventions. This will allow the program to offer more comprehensive and worthwhile interventions.

The fifth step is to identify who will provide or deliver certain aspects of the program. For example a physician or nurse practitioner may be best suited for conducting a physical assessment of a participant whereas a certified exercise instructor may be the best option for conducting a Tai Chi exercise session and an occupational therapist may be best suited for delivering training on how to properly use a walker or cane.

Step six deals with finding a suitable location to deliver the program. This is dependent on what type of a program is being delivered and the types of space available to you. Some options mentioned include: the home, doctor's office, a hospital, physical therapy center, a pharmacy, a fitness center, and a senior housing facility.

The seventh step includes an evaluation of the program to help determine if the program is appropriate and if it met your objectives. Changes may be made to the program based on the results of your evaluation.

The eighth step is to promote your program to make sure the members of your community are aware that the program exists and is available to them. This is essentially a mini-marketing campaign.

The ninth and final step outlined in the NPIC guide is to sustain the program. This includes constant review and changes to the program as needed to continue to meet the demands of the community. Additionally you must work to maintain the momentum and collaborations as well as sources of financial support.

There are too many different fall prevention programs to list out completely. There are a number of research papers written that compile details of numerous different fall prevention programs. This includes “U.S. Fall Prevention Programs for Seniors” (Parra & Stevens, 2000) which lists program details including descriptions, target audiences, strong and weak points of the program and contact information for 18 fall prevention programs from across the country.

For the purpose of this literature review this researcher will include information about two fall prevention programs that may be considered for implementation locally. Additionally this literature review will list several sources of compilations and comparative studies of numerous other fall prevention programs.

One program that would be considered for local implementation is the “Remembering When”TM program developed and distributed by the National Fire Protection Association (NFPA). According to the NFPA “Remembering When”TM is a “complete, step-by-step program that teaches life-saving lessons to this high risk (older adults) group” (NFPA, n.d.). The NFPA web catalog indicates that the cost to purchase the program for a non-NFPA member is \$65.00 for each starter package. The catalog also lists accessories which may be purchased including a video hosted by Tom Bosley for \$349.50, and educational brochures for \$23.00 per package of 100.

The “Remembering When”™ program was developed by the NFPA in conjunction with the CDC’s Division of Unintentional Injury Prevention in 1996 (National Resource Center for Safe Aging, n.d.) in order to address the deaths and injuries caused to older adults by falls and fires. This program attempts to connect with its audience by using nostalgic ties. The safety messages are delivered utilizing different interactive activities such as discussion questions, cards, trivia videos and quizzes.

The NFPA has distributed over 5,000 free copies of the program to local fire departments, public health departments, senior centers, hospitals and educational facilities since being developed (National Resource Center for Safe Aging, n.d.). There are a number of Fire Departments that offer “Remembering When”™ programs to its citizens including Springfield, Illinois (City of Springfield, Illinois, n.d.), Georgetown, Texas (Georgetown, Texas, n.d.), and Charlotte, North Carolina (CharMeck, n.d.).

The NFPA continues to support the “Remembering When”™ program. On November 15-17, 2009 the NFPA will be hosting the third annual Remembering When™: A Fire and Fall Prevention Program for Older Adults Conference at the Hyatt Regency in Boston, MA (NFPA, 2009). The NFPA will sponsor groups from 40 communities to attend this conference with an understanding that each group upon returning home will conduct five group presentations, conduct two “train-the-trainer” sessions, conduct 25 home visits, utilize “Remembering When”™ material in their home visits and submit a report to the NFPA explaining how the conference material was integrated.

Another fall prevention program that may be considered locally is the “Slips, Trips and Falls – Avoid Them All, A Falls Risk Reduction Program” developed by the New Hampshire

Falls Risk Reduction Task Force. According to the description this program is designed to “assist you in planning and presenting an educational program to help reduce the risk of falls among older people.” (NH Falls Risk Reduction Task Force, 2003). This program also utilizes a “safe house” model and audio-visual materials that may be loaned out from the New Hampshire Department of Health and Human Services. This program is 90 minutes – 120 minutes in duration, and the guide suggests conducting several shorter sessions as a series instead of one long program. The “Slips, Trips and Falls Program” introduces the audience members to several aspects of a successful prevention program including an educational program, environmental modifications, exercise programs and emergency planning on how to be prepared should a fall occur. The program material also includes guidelines for the program presenter to conduct screening activities such as a functional reach test and a timed walking test. The program material also includes a falls risk assessment checklist and a home risk checklist.

Although a number of fall prevention programs are available, we must examine methods and resources that are available to be able to implement the program.

The “Remembering When”TM program from the National Fire Protection Association is designed for the Fire Department to assist with implementation. The NFPA “Remembering When”TM Conference being held in November 2009 requires that participating teams include a member of the Fire Department from the represented community (NFPA, 2009). The National Resource Center for Safe Aging (n.d.) states that the “Remembering When”TM program has been implemented in various manners including public presentations, house visits or in conjunction with other safety initiatives such as smoke detector campaigns. These programs can be sponsored by the Fire Department, public health, schools, senior centers or hospitals and can be delivered by firefighters, home health personnel, nurses, volunteers or outreach programs. In some fire

departments this task is carried out by the Fire Safety Division (City of Springfield, Illinois, n.d.) or Life Safety Educators (CharMeck, n.d.).

When considering the implementation of a fall prevention program by a fire department one must consider the availability of staff to administer and deliver the program. At the time of this writing, summer 2009, numerous fire departments have or are considering reducing staffing. The International Association of Fire Fighters chronicles news articles from around the country about how the economic crisis is impacting the fire service. For June 2009 the website indexes 45 news articles about fire departments dealing with the fiscal crisis (IAFF, 2009). Many communities are resorting to firefighter staff reductions to cope with a difficult economic climate. In Tulsa, members of Firefighter Local 176 recently voted to approve a contract which included furlough days (Tyrrell, 2009). Faced with a daunting economic climate hiring additional fire department staff or assigning existing line staff to implement a fall prevention program may not be a viable option.

As discussed previously, Fire Prevention, the Fire Safety Division or Life Safety Educators if available have been used by some departments to carry out these programs (City of Springfield, Illinois, n.d.) (CharMeck, n.d.).

Other options include community service volunteer organizations. One volunteer program with close ties to the fire service is the Fire Corps, which is a Citizen Corps programs encompassed under the USA Freedom Corps program introduced by President George W. Bush in his 2002 State of the Union Address (Fire Corps, n.d.). Fire Corps is a partnership of a number of organizations which include the International Association of Fire Chiefs' Volunteer and

Combination Officer's Section, the National Volunteer Fire Council and the Fire Corps National Advisory Committee. (Fire Corps, n.d.).

The stated purpose of the Fire Corps program is to “support and supplement resource-constrained fire and emergency services department at all levels-volunteer, combination and career. This is accomplished through the use of citizen volunteers for non-emergency activities.” (Fire Corps, n.d.). Some examples of Fire Corps programs being utilized for the delivery of public education safety messages include:

- Selma (California) Fire Department: The Fire Corps program, called S.A.F.E. (Selma Advocates Fire Education), is heavily involved with the delivery of fire safety education in the community, including activities such as community event public education, smoke detectors, several safety/smoke houses and holding a “S.A.F.E. Day at the Park” community safety day (NVFC, Salema Fire Department, n.d.).
- Port Jervis (New York) Fire Department: The Fire Corps program here was initially proposed by Fire Chief Joe Kowai stating that there were “many ways local volunteers can help take the burden off of firefighting personnel”. The plan in Port Jervis was to utilize the Fire Corps to deliver home safety education, especially to older adults, flood hazard awareness training and to operate the canteen that had been run by volunteer firefighters. “This will free up the firefighters to do what they have been trained to do” according to the Chief. (NVFC, Port Jervis (NY) Fire Department Fire Corps, n.d.).

As with any Fire Department program the issue of liability must be examined. While Fire Department employees would be covered under the liability coverage of the agency they work, legal counsel should review the liability considerations for volunteers (Fire Corps, n.d.) conducting any fall prevention programs, especially if they are more involved than community education. In New Hampshire a volunteer for a non-profit or government entity is immune from civil liability “in any action brought on the basis of an act or omission resulting in damage” according to RSA § 508:17 of New Hampshire statutes as long as the person acted “in good faith and within the scope of duty” (Nonprofit Risk Management Center, 2005). Based on this RSA it would appear that legal liability would be available for volunteers administering a fall prevention program.

In 2009 many fire departments have faced budget problems. In June, 2009 the International Association of Firefighters listed a number of separate news articles on their website illustrating the financial difficulties being faced by departments across the country (IAFF, 2009). Alternative sources of funding besides municipal budgets need to be considered when planning to implement a fall prevention program.

Fall prevention programs that are partnered with a medical practitioner may have reimbursement opportunities through Medicare and private medical insurance companies (Minnesota Falls Prevention Initiative, n.d.). Medicare will not cover preventative services and interventions, however they may pay for symptom based services provided to the patient. Whereas a risk screening may identify people at risk of falls due to symptoms, such as dizziness, a fall evaluation or a management visit could be covered as part of the treatment associated with that symptom. Additionally the Minnesota Falls Prevention Initiative (n.d.) reports that the CDC and Centers for Medicare and Medicaid Studies (CMS) have developed a code, V15.88 with

which to identify adults that have fallen or may be likely to have a fall. This code is a flag that the patient may benefit from a falls intervention program and should be utilized to document the medical necessity of providing falls prevention services to this patient. In order to be tagged with a V15.88 code the patient must have at least one of the following: had a fall in the last 6-12 months; have health related fall risk factors; have health behaviors related to falls. (Minnesota Falls Prevention Initiative).

A final resource available to assist in implementing an older adult fall prevention program is the “Community Risk Reduction Model” taught in the National Fire Academy’s “Executive Analysis of Community Risk Reduction” course (U.S. Department of Homeland Security 2008, p. SM 1-7). This model “outlines a process that can be followed to reduce risk in a community”.

In summary literature indicates that the issue of falls in the older adult population is a major problem with 2.6 million falls and \$19 billion dollars spent on health care related to falls in 2000 (Stevens, Finkelstein et al., 2006). This issue affects numerous organizations, many of these organizations should be encompassed as stakeholders in a multifaceted fall prevention program (NCIP, 2008, p. 13). In the healthcare environment the problem of older adult falls is well known and researched (NCIP, n.d.). A number of agencies sponsor fall awareness annual events, many times in conjunction with the beginning of the fall season such as in Wisconsin (Wisconsin Department of Health Services, 2008). Literature reveals that there are a number of resources to assist with implementing a program including a development guide released by the National Center for Injury Prevention (2008). Finally resources available in the community to

help in the delivery of a fall prevention program may be available from the Citizens Corps and Fire Corps programs (Fire Corps, n.d.).

PROCEDURES

The first part of this research began with the literature review initially at the National Fire Academy's Learning Resource Center in November, 2008. Research included review of past Executive Fire Officer Research papers as well as a card catalog search.

The literature research was continued via the internet with multiple research sessions between January and August 2009. The research was conducted utilizing Google, Bing and Yahoo search engines. Search terms included: falls, fall prevention, fall prevention programs, CDC, NCIP, falls in older adults, fall coalitions, fall awareness, fall prevention awareness, national fall prevention awareness week, New Hampshire Fall and Risk Reduction Task Force, A.L.E.R.T., A Londonderry Emergency Response Team, Sara Lee, NVFC, Fire Corps, Fire Corps Mission Statement, Remembering When, NFPA, Aging Healthy and WHO.

Literature research also included requesting literature and educational materials from the Centers for Disease Control and Prevention on March 12, 2009. These materials were shipped to this researcher and included: Preventing Falls: How to Develop a Community Based Fall Prevention Program for Older Adults, Protect the Ones You Love: Falls Fact Sheet, What You Can Do to Prevent Falls, Check for Safety: A Home Fall Prevention Checklist for Older Adults, Preventing Falls: What Works: A CDC Compendium of Effective Community-Based Interventions from Around the World, What You can do to Prevent Falls and Protect the Ones You Love poster (26x20 flat). These materials are available to the public at no cost from the CDC.

Literature Review was conducted to answer the following research questions:

- How much of a problem in the community are falls of older adults?
- Who are the stakeholders for the issue of older adult falls?
- What is the level of community awareness of the risks of older adult falls?
- What fall prevention programs already exist, and are they appropriate for our community?
- What resources are available to deliver this program to the community?

The next research procedure involved distributing a survey (Appendix E) to be completed by 72 older adults participating in a Valentine's Day meal at the Londonderry Senior Center on Saturday February 14, 2009. All 72 surveys were returned and the results of the survey forms were compiled into a Microsoft Excel spreadsheet showing both raw data, as well as a separate table excluding non-respondents and not applicable respondents (Appendix F) The purpose of this survey was to conduct original research to answer the following research questions:

- How much of a problem in the community are falls of older adults?
- What is the level of community awareness of the risks of older adult falls?
- What fall prevention programs already exist, and are they appropriate for our community?
- What resources are available to deliver this program to the community?

This researcher attended a meeting of the New Hampshire Falls Risk Reduction Task Force at the New Hampshire Department of Health and Human Services Office in Concord, New Hampshire on May 5, 2009 at 9:00 AM. This researcher also attended a "Fire-Falls Conference"

held at the Nashua, New Hampshire Lake Street Fire Station on May 29, 2009 from 9:00 AM to 3:00 PM (Appendix N). By attending the Fire-Falls Conference this researcher was provided with “Remembering When”TM educational material from the National Fire Protection Association as part of a State of New Hampshire grant. The purpose of attending these meetings was to conduct original research to help answer the following research questions:

- Who are the stakeholders for the issue of older adult falls?
- What fall prevention programs already exist, and are they appropriate for our community?
- What resources are available to deliver this program to the community?

Research was conducted reviewing Londonderry Fire Department’s EMS responses by performing various reports and chart reviews of data contained within the Trauma and Emergency Medical Services Information System (TEMSIS) electronic patient care reporting system.

This chart review was conducted by processing a “QA/QI Report” for the study periods of July 1, 2006 to June 30, 2007 (FY2007), July 1, 2007 to June 30, 2008 (FY2008), and July 1, 2008 to June 30, 2009 (FY2009). These study periods were utilized in order to provide three comparative data sets.

The QA/QI Report selection criteria was set to show a case summary and report narrative for all patient care reports during each study period where the patient was above 64 years old. This researcher then ran a non-case sensitive, partial word query to find all reports that contained the terms “fall” or “fell”.

The results were compiled on a Microsoft Excel spreadsheet for fiscal years 2007, 2008, and 2009 (Appendix G, Appendix H and Appendix I). For each fall related incident select information was recorded on the spreadsheet including: date of incident, incident number, age of victim, gender of victim, call disposition (transport, non-transport or transported by private vehicle), cause of fall if indicated, type of location where fall occurred (i.e.: home), where at the location the fall occurred (i.e.: bedroom), what type of injuries were incurred, and any notes about the incident. The results of these reports were combined into a comparative table to help evaluate the extent of falls in the community.

The purpose of the original research was to answer the following research questions:

- a. How much of a problem in the community are falls of older adults?

The TEMSIS records system was utilized to research the Londonderry Fire Department's ambulance activity. A report titled "Ambulance Run Data" was run for FY2007 (Appendix A), FY2008 (Appendix B) and FY2009 (Appendix C) in order to have comparative data for the Department's overall ambulance activity. The purpose of this original research was to help answer the question:

- b. How much of a problem in the community are falls of older adults?

Population data was researched utilizing the United States Census Bureau's American Community Survey for Londonderry, New Hampshire (Appendix L). This resource provided a demographics estimate breakdown for the years 2005-2007. The purpose of this research was to help answer the question:

- c. How much of a problem in the community are falls of older adults?

In order to determine the extent of the problem of falls in Londonderry, New Hampshire national statistics identified in literature review were applied to the local scale. The direct medical costs in year 2000 dollars was determined by dividing the number of non-fatal falls in 2000 into the amount of money spent of direct medical costs spent on non-fatal falls in 2000. The number of older adult falls occurring in Londonderry, New Hampshire on an annual basis was determined by applying the annual expected rate of older adult falls to the population of older adults in Londonderry. A rate (based on a percentage) of the number of falls that receive medical treatment in the United States was determined by comparing the total number of expected falls in the U.S. based on statistics in 2000, to the total number of known medically treated falls in the U.S. in 2000. This percentage rate was then compared to the Londonderry data to determine the number of medically treated falls annually in Londonderry.

The direct health care costs (in year 2000 dollars) for Londonderry falls of older adults was determined by multiplying the determined cost per fall by the number of anticipated medically treated falls. The purpose of these data calculations was to help answer:

- d. How much of a problem in the community are falls of older adults?

An interview was conducted with Sara Landry who is the Senior Affairs Coordinator for the Town of Londonderry, New Hampshire. This interview was held at the Londonderry Senior Center located at 535 Mammoth Road in Londonderry. This interview lasted from 10:00 am until 12:15 pm on August 4, 2009. The purpose of this interview was to help answer the research questions:

- e. How much of a problem in the community are falls of older adults?
- f. Who are the stakeholders for the issue of older adult falls?

- g. What is the level of community awareness of the risks of older adult falls?
- h. What fall prevention programs already exist, and are they appropriate for our community?
- i. What resources are available to deliver this program to the community?

Finally this researcher attended a membership meeting of the “A Londonderry Emergency Response Team” held at the Londonderry Police Department on August 6, 2009 at 7 pm. A.L.E.R.T. President Chris Oliverio made accommodations in the groups regularly scheduled meeting to allow this researcher to ask a series of questions. A list of questions asked during the focus group discussion is provided as appendix R. Question 12 was not asked of the group due to time restraints. The focus group discussion lasted from approximately 7:05 pm to 7:50 pm. The purpose of attending this meeting was to pose several questions to the group in order to help answer the following research questions:

- Who are the stakeholders for the issue of older adult falls?
- What is the level of community awareness of the risks of older adult falls?
- What resources are available to deliver this program to the community?

There were several limitations encountered during research. The first limitation was that this researcher was not able to find any literature that dealt with the problems of falls specifically in the community of Londonderry, New Hampshire.

During chart review it was revealed that EMS charts varied in the degree of information contained about the falls in the narratives. Some reports included information about causation factors and where the patient fell, others did not. This made it impossible to create a complete chart of information about each fall.

Some falls are received by the Londonderry Fire Department dispatch center as having no injury and only requesting assistance getting up. Generally, these calls are responded to by an engine company only as a “public assist” call classification and do not receive an ambulance. In these instances there are no EMS reports generated and these responses did not show up in the TEMSIS system.

The most recent population data from the U.S. Census Bureau broken down by age group available was from 2005. Although the town’s population is thought to have remained relatively stable during the 2005-2009 time period there is no accurate information available to confirm this.

A survey was distributed to older adults participating in a social event at the local Senior Center. Question two “Have you sustained at least one fall in your home since turning 65?” was limiting. The question should have asked, or another question added to the survey asking if the survey taker was at least 65, had they sustained any falls in the previous 12 months, as this is an important benchmark utilized when analyzing falls prevention.

Finally, limitations due to the time available to complete this research prevented distributing the older adult falls survey to a broader group of older adults in the community. The group that was utilized, participants of a Valentine’s Dinner at the local Senior Center may not accurately reflect older adults that may suffer from balance and mobility problems, or be reluctant to participate in social events due to fear of falling or their overall physical condition.

DEFINITION OF TERMS

Age-restricted housing	A community housing unit that has a legal restriction requiring occupant or occupants to be a certain age or older in order to reside in the housing unit.
A.L.E.R.T.	“A Londonderry Emergency Response Team” – A local volunteer team organized to assist the community’s public safety departments.
CDC	Centers for Disease Control and Prevention
CMS	Centers for Medicare and Medicaid Studies
EMS	Emergency Medical Services
FY	Fiscal year – July 1 – June 30 of each year for Londonderry, NH
NCIP	National Center for Injury Prevention and Control – an agency within the CDC
NFPA	National Fire Protection Association - a consensus based fire related standards setting organization
NVFC	National Volunteer Fire Council
O.A.	Abbreviation for older adult utilized in this research paper
Older adult	A person age 65 years old or older.
QA/QI	Quality assurance/quality improvement

TEMSIS Trauma and Emergency Medical Services Information System – A software system utilized by the State of New Hampshire to write, submit and store patient care reports electronically.

RESULTS

Through action research this researcher was able to obtain data to be able to answer each of the five research questions. Additionally an implementation plan was completed to guide the implementation of a fall prevention program in Londonderry, New Hampshire.

- j. Research question a: How much of a problem in the community are falls of older adults?

In order to determine if falls of older adults are a problem in the community it was necessary to look at previous research that looked to determine the frequency of falls and the cost of falls. Based on the available research this researcher will determine an expected rate of occurrence based on percentages and an expected cost per call and apply this at the local level to determine an expected number of falls in the community and the medical cost of these falls.

According to a report published by the American Geriatrics Society, the British Geriatrics Society and the American Academy of Orthopedic Surgeons Panel on Falls Prevention (2001) it is expected that 35-40% of generally healthy older adults will sustain a fall annually. According to the United States Census Bureau the 65 or older population in the United States was 34,991,753 (Appendix M). From these research findings we can conclude that in the United States in 2000 there are between 12.3 million – 14 million falls of older adults (35%-40%).

We also can determine the rate of occurrence of medically treated non-fatal falls and the cost per fall by applying the findings of a study by Stevens, Finkelstein, and Miller (2006). This research determined that in 2000 there were 2.6 million medically treated, non-fatal falls in the United States of older adults with direct medical costs totaling \$19 billion and there were also 10,300 fatal falls with a direct medical cost of \$200 million. By extrapolating the findings of Stevens, Finkelstein, and Miller (2006) we can conclude that an occurrence rate of medically treated falls in the United States in 2000 was 7.4% among the 65 or older population. This also indicates that of the total older adult falls in 2000 that between 18.6% - 21.1% of the total number of falls required medical treatment. Based on the findings of Stevens, Finkelstein, and Miller (2006) we know that the 2.6 million medically treated non-fatal falls of older adults in 2000 had a direct medical cost of \$19 billion. By dividing 2.6 million falls into the total medical cost of \$19 billion we know that each non-fatal medically treated fall of older adults in the United States in 2000 cost \$7,307.69. The number of fatal falls was relatively low in comparison to the number of non-fatal falls and not factored into these equations.

Knowing that 7.4% of the older adults population can be expected to have a medically treated non fatal fall with a cost of \$7,307.69 per fall, and that 35-40% of all older adults are expected to have a fall annually, and the population of older adults in Londonderry is 1,823 (Appendix L) the data in the following table has been extrapolated based on these conclusions.

Table 1

Expected incidence of falls in Londonderry New Hampshire based on statistical findings of large scale research

Population of older adults in Londonderry, NH (2005-2007): (Appendix L)	1,823
Total number of annual falls (35%-40% of older adults):	638 – 729
Total number of medically treated non-fatal falls (7.4% of older adults):	135
Total direct medical cost of medically treated non-fatal falls (\$7,307.69/fall)	\$986,538.15

The data extrapolated from published research on the rate of occurrence of falls as related to the older adult population of Londonderry, New Hampshire indicates that there are a significant number of falls occurring annually (638-729). Of these falls we can expect that 135 will result in the need for medical care with direct costs of almost \$1 million annually. This information would indicate that falls in Londonderry are a serious health and financial problem. Although based on scientific findings, these results are merely deductions based on large scale statistics. Analysis of local data is required in order to verify the existence of a problem.

A review of Londonderry Fire Department's ambulance responses for fall related incidents to older adults for fiscal year 2007 (Appendix G), fiscal year 2008 (Appendix H) and fiscal year 2009 (Appendix I) was completed. Several data points for each response were recorded for analysis. The data from each study period was compiled into spreadsheets for review and comparative analysis. A compilation of these results are contained in tables two through seven. Please note all fall related data is specific for responses to older adults (O.A.) only. It is important to point out that during FY2008 a new medical facility with a nine-bed

urgent care center opened in Londonderry and the resulting increase in responses may have skewed some statistical data for that study period. Additionally, all responses are the total number of responses inclusive of multiple responses to the same patient.

Table 2

Londonderry Fire ambulance responses to fall related incidents, FY2007, FY2008, FY2009

Fiscal Year	All EMS incidents	O.A. fall incidents	% of all incidents
FY2007	1,823	78	4.3%
FY2008	1,967	71	3.6%
FY2009	2,026	87	4.3%
Average			4.1%

The data in table two indicates that an average of 4.1% of all Londonderry Fire ambulance responses are for fall related incidents involving older adults. Although this may not appear to be a significant number, it must be considered in the context that this percentage represents responses to a subset of call types (fall related) to a population subset (65 years old and older) as it relates to the departments overall ambulance response to all call types to the entire population.

Table 3

Londonderry Fire ambulance fall related transports, FY2007, FY2008, FY2009

Fiscal year	Total transports	O.A. fall related transports	% of all transports
FY2007	944	57	6.0%
FY2008	1,116	50	4.5%
FY2009	1,201	60	5.0%
Average			5.2%

Table three shows that 5.2% of all ambulance transports are due to fall related incidents involving older adults. It is notable that the percentage of older adult fall related transports is higher than the 4.1% rate of responses to older adult fall related incidents. This indicates that we are more likely to transport these patients than we are an average call thereby creating an increased financial burden on the patient and an increased response burden on the Fire Department.

Table 4

Londonderry ambulance fall related responses relative to overall responses to older adults, FY2007, FY2008, FY2009

Fiscal Year	All EMS Responses	All O.A. responses	% of O.A. population needing response	Total O.A. fall response	% of O.A. responses for falls
2007	1,823	371	20.4%	78	21.0%
2008	1,967	430	21.9%	71	16.5%
2009	2,026	455	22.5%	87	19.1%
Average			21.6%		18.7%

Table four compares the number of ambulance responses for older adults for all reasons, which averages 23% of the total ambulance call volume. Based on U.S. Census Bureau data we know that there are 1,823 older adults living in Londonderry out of a total population of 24,540 which equates to 7.4% of the population are older adults (Appendix L). The conclusion reached based on this data indicates that 7.4% of the population is responsible for 21.6% of the communities total ambulance responses. This data verifies conventional wisdom that a community's older adults create a greater demand for EMS than the general population.

Table four also shows us that of all responses to older adults, an average of 18.7% are for a fall related incident. Additional study is indicated to compare the number of percentage of fall related responses of all responses to the under 65 year old population. This data confirms that fall related issues are the reason that many older adults request an ambulance.

Table 5

Londonderry Fire ambulance responses for fall related incidents relative to older adult community population, FY2007, FY2008, FY2009

Fiscal year	Older adults	Total O.A. fall responses	% of O.A. requiring EMS fall response
FY2007	1,823	78	4.3%
FY2008	1,823	71	3.9%
FY2009	1,823	87	4.8%
Average			4.3%

Table five shows that an average of 4.3% of the older adult population will call an ambulance for a fall related incident each year. This information would appear to be congruent with the findings of Stevens, Finkelstein, and Miller (2006) who presented data indicating that 7.4% of the older adult population required medical treatment for non-fatal fall related injuries. Interpretation of this data concludes that the 4.3% of the older adult population calling an ambulance due to a fall is a subset of the 7.4% of the total older adult population that received medical treatment as a result of a non-fatal fall. Based on these results we can deduct that 3.1% of the older adults suffered a fall and sought medical treatment, but did not request an ambulance.

Table five indicates that for an unidentified reason, responses for fall related incidents of older adults dropped from FY2007 to FY2008. However the following year showed an increase of 22.5% in responses to fall related incidents of older adults. The change in responses averaged

over the three year period is equivalent to an increase of 6.8% per year. This supports a number of research papers have also shown that the rates of falls have been increasing. One study showed a 13% increase between 1993 and 2003 (CDC, 2007 p.29), and another study showed a 7.6% increase in non-fatal injury falls between 2001-2003 (Stevens, Ryan, & Kresnow, 2006).

Table 6

Londonderry Fire ambulance responses to total population, FY2007, FY2008, FY2009

Fiscal year	Total population	EMS responses	% of total population	% of change
FY2007	24,540	1,823	7.4%	-
FY2008	24,540	1,967	8.0%	+8.1%
FY2009	24,540	2,026	8.3%	+3.6%
Average			7.9%	+5.9%

Table six is a comparison of Londonderry Fire Department's overall ambulance response to the entire community population on an annual basis. The table shows that an average of 7.9% of the total community population (all ages) will require an ambulance response. On an annual basis the percentage of the general population requesting an ambulance response rose 8.1% between FY2007 and FY2008, and another 3.6% in FY2009 for an average annual increase of 5.9%.

Table 7

Londonderry Fire ambulance response to older adult population, FY2007, FY2008, FY2009

Fiscal year	Older adult population	EMS responses to O.A.	% of O.A. population	Change
FY2007	1,823	371	20.4%	-
FY2008	1,823	430	23.6%	+15.7%
FY2009	1,823	455	25.0%	+5.9%
Average			23%	+10.8%

Table seven shows the total older adult population and the number of responses to this population, and as a percentage of the population of older adults. This table demonstrates that on average 23% of the older adults in Londonderry will request an ambulance response annually. As a percentage of the population this has increased each year by 15.7% between FY2007 and FY2008 and 5.9% between FY2008 and FY2009. The average annual increase in percentage of older adult population requesting an ambulance response is 10.8%.

According to the CDC (2003) the baby-boomer generation is getting older and it is expected that the average life-span will increase by 10 years by 2030. Original research has confirmed that older adults require increased EMS services. We can conclude that as the older adult population in Londonderry continues to age, that their demand for EMS services will increase causing a higher percentage of ambulance responses to the older adult population than the general population.

When tables six and seven are considered together they show us that the acuity level of the older adult population is increasing faster than for the general population, presenting evidence that we may already be experiencing the shift towards responding more frequently to an aging population. Where the percentage of population, the number of ambulance responses as a percentage of the general population has been increasing by an average of 5.9% per year, the same rate for older adults has been increasing by 10.8% per year. At these rates of increase, responses for older adults will continue to become a greater and more disproportionate burden on the Londonderry Fire Department than responses to the general public.

A survey of older adults conducted at the Londonderry Senior Center in February, 2009 (Appendix E). 72 surveys were distributed and returned, of these 64 surveys were completed by older adults and were utilized for the purposes of this research question. The results of the surveys were compiled into a spreadsheet (Appendix F).

Question two of the survey asked the participants if they had sustained at least one fall inside their home since turning 65. This question was limiting in that it did not breakout the number of falls in the past 12 months, and did not include falls outside, at home. However, 30% of respondents indicated that they had sustained a fall inside their home since turning 65.

Question three was a follow-up question asking the participant to indicate what types of medical services were required if they had sustained a fall. The results are listed in table 8.

Table 8

Results question three of falls survey: “What type of medical services you received as a result of a fall in your home?”

Medical service required	Number	Total O.A. participants	% of O.A. survey takers
Called an ambulance	2	64	3.1%
Required surgery	4	64	6.3%
Emergency Department	4	64	6.3%
Required rehab/physical therapy	3	64	4.7%
Hospital admission	3	64	4.7%
Doctor’s office visit	3	64	4.7%
Required medical specialist	5	64	7.8%
Total respondents	10	64	15.7%

This data appears to present statistics that would be expected based on previous data. However, the results must be considered in context with the survey which was asking about all falls at home and all medical services required since turning 65 years old. Much of the data previously analyzed for this research has been based on annual occurrences. Even with this limitation, considering that the survey participants can be considered generally healthy, mobile and active older adults as they were gathered together for a Valentine’s Day dinner and dance

and 15.7% had sustained a fall requiring medical treatment at some point in their lives since turning 65 we can conclude that injury from falls presented a serious risk to the community.

Literature review indicates that falls of older adults are a serious problem in our country. We know that in 2000 there were 2.6 million non-fatal medically treated falls incurring direct medical costs of \$19 billion in the United States (Stevens, Finkelstein, and Miller, 2006). On a state-wide level in New Hampshire in 2002 there were over 7,300 people who were either admitted to a hospital or treated in an emergency department for injuries due to falls (Dartmouth-Hitchcock Medical Center, 2009). And a study showed that the number of falls reported in 2005 was much higher than the five year average indicating that the problem is getting worse (Miles, 2008).

When interviewing Sara Landry of the Londonderry Senior Affairs Department responded that “falls are the biggest problem with active seniors at the senior center...even bigger than issues like illness.” Ms. Landry discussed how she is very concerned about falls of older adults and recounted a serious fall that happened recently at the Senior Center. Ms. Landry continued that the victim of the fall after months of medical treatment has not fully recovered. Ms. Landry expressed concern that the clients at the Senior Center that she has access to may not be the older adults that are most at risk of falling. She fears that the more frail or homebound older adults may be at greater risk and that they may be more difficult to reach.

The issue of falls of older adults in Londonderry, New Hampshire is a serious problem. This is problem has considerable impact to the individuals at risk of falling as well as the financial impact of an estimate nearly \$1million spent each year on falls in the community. Research indicates that a considerable amount of fire department resources are utilized

responding to falls in the community, and data suggests that this impact will continue to increase with no foreseeable change in trends without intervention.

Research question b: Who are the stakeholders for the issue of older adult falls?

In order to identify who the stakeholders would be, several avenues of research were utilized including literature review, attending a falls task force meeting, attended a falls reduction seminar and conducted interviews.

Stakeholders in the quest to reduce falls among older adults include a wide variety of organizations and individuals, each able to individually contribute to the overall goal of a safer community. Identifying and working with stakeholders is “essential” in establishing partnerships to address falls (LeMier, 2002, p.13). Based on LeMier’s (2002) writings we also know that this team should be made up of “multidisciplinary” members.

The National Center for Injury Prevention and Control released a report in 2008 (NCIP, 2008) providing guidance in implementing a community older adult fall prevention program. This report provides suggestions types of community stakeholders to consider for a prevention program.

By applying the recommendations of the literature review, the insight gained by attending the New Hampshire Falls Risk Reduction Task Force’s May meeting, the Fire and Falls Seminar and information from interviews conducted for this research, a number of potential local stakeholders have been identified. These possible stakeholders will be discussed in the following paragraphs, additionally a listing of these stakeholders may be located in appendix O.

A number of governmental agencies would be stakeholders of this program according to the NCIP (2008) report. Among these would be the Londonderry Fire Department which would be responsible for identifying older adults at risk, making referrals to the risk reduction program, community awareness, and possibly performing home risk assessments.

According to Senior Affairs Coordinator Sara Landry, the Londonderry Senior Affairs Department would likely play a large role in this program. The Senior Affairs Department would be able to contribute a point of contact for the program, provide a facility to conduct group seminars, access to a large number of the target audience, the ability to identify some people at risk of falls, and the ability to put information about fall prevention programs into their newsletter.

As suggested by the NCIP (2008) two other town departments that may play a role in an older adult fall prevention program would be the Recreation Department and the Health Department. The Recreation Department may be able to assist in developing and conducting an older adult exercise program to improve gait, balance and overall health. The Health Department may be able to provide a minimal amount of assistance with administration or establishing contacts with other health agencies. Due to the relatively small size of Londonderry these departments have a minimal amount of dedicated staff and the extent of their involvement in this program would have to be determined after meeting with representatives of these agencies.

LeMier (2002) tells us that the state-level health department should also be involved. The Londonderry program would include the New Hampshire Falls Risk Reduction Task Force which is organized by the New Hampshire Department of Health and Human Services (DHHS)

as a stakeholder. According to LeMier (2002) the involvement of DHHS will provide information about other, successful programs and to assist in program development.

The National Center for Injury Prevention and Control (2008) talks about the various healthcare organizations and practitioners that should be considered as possible stakeholders. The report identifies hospitals as key participants. For Londonderry, this would be Parkland Medical Center in Derry, New Hampshire and Elliot Hospital with its main campus in Manchester, New Hampshire and a satellite campus in Londonderry serving the residents of the town. Both of these facilities would be contacted and asked to lend support which may include financial, volunteers, nursing and physician support.

Other healthcare providers that have been identified as stakeholders include pharmacies that could supply pharmacist consultations for evaluating an older person's medications for possible interactions causing balance and stability problems, physical and occupational therapists to provide exercise and balance training, as well as home healthcare organizations according to NCIP (2008).

Literature review indicates that Fire Corp programs have been utilized for delivering public safety messages (Fire Corps, n.d.). A local volunteer organization called "A Londonderry Emergency Response Team" (A.L.E.R.T.) that has affiliations to the Citizen Corp, which the Fire Corps is part of, would be invited to be a stakeholder in this program. Based on the organization's stated goal to "do more community outreach" (Appendix C), it would appear that this program would be a way to help reach that objective.

This researcher met with members of A.L.E.R.T. on August 6, 2009 at their monthly general meeting to discuss the possibility of their role in a fall prevention program in a focus

group setting. During this session members were asked if they felt that participation would be in keeping within their organization's scope. The general consensus of the group was that this type of program was "definitely" within their stated scope. Members cited their own fundraising letter (Appendix C) as evidence that they were intending to perform more outreach.

Additional stakeholders should include a local building materials supplier and local contractors (NCIP, 2008). There are two building materials supplies in Londonderry, they are Home Depot and Benson's Lumber. There are a number of independent construction contractors that may be invited to participate. These stakeholders would be a critical component to being able to provide physical home modifications recommended by a home risk assessment. According to the Fire and Falls Seminar in Nashua, New Hampshire on May 29, 2009 past programs have utilized "handymen" who have either donated their time or provided a reduced rate for the work to be completed. Some of this work may include stair repairs, adding light switches and adding grab bars.

During an interview with Senior Affairs Coordinator Sara Landry she suggests that the stakeholders should include the Rockingham Visiting Nursing Association as they are provided a stipend amount from the Town to make services available to the community. Additionally she points out that the Elliot Senior Health practice located at the Elliot at Londonderry facility in Londonderry provides geriatric specific medicine, and the physician, Dr. Pasha, provides a number of programs already at the Londonderry Senior Center. The practice also has a social worker who specializes in senior health. Other stakeholders suggested by Ms. Landry include Community Caregivers located in Derry, New Hampshire who coordinate volunteer care to be provided to people in need. Ms. Landry was familiar with a service called Community House Calls which will come to a person's home and perform an inspection, suggest repairs and

modifications and arrange for a contractor to perform the work. Ms. Landry stated that she thinks the work was performed at regular contractor rates and there were no discounts provided.

Finally, Ms. Landry points out a major stakeholder in this process are the members of the target audience, the older adults themselves. Ms. Landry suggests including an older adult on any Fall Prevention task force to help assure that the programs and messages are appropriate.

Research question c: What is the level of community awareness of the risks of older adult falls?

When considering “awareness in the community” it is important to define what “community” means. For the purposes of this research question the researcher will consider the community of the healthcare field and the community of older adults in the community separately.

First this research will examine the level of awareness in the healthcare field. While performing literature review it was obvious that there have been many research papers written on many different aspects of the issue of older adult falls. Some of these topics included causation, impacts on mental and physical well being, economic impacts, fall reduction, injury minimizing, and future projections.

In fact there have been so many research papers, that there have been papers written on researching the available research papers on older adult falls. One such compilation is maintained by the National Center for Injury Prevention and Control (NCIP, n.d.) as a website and lists the important factors of 28 different research papers. It is very clear that this has been a thoroughly researched topic and healthcare providers are, or should be aware of the significant problem presented by older adult falls in the community.

There are numerous public awareness campaigns throughout the country spreading the message of the risks of older adult falls. Many organizations choose the first day or week of fall each year to conduct their fall prevention awareness programs (Providence Health and Services, 2009) (PRLog, 2008). The State of Wisconsin has declared the month of September as Fall Prevention Awareness month (Wisconsin Department of Health Services, 2008).

Next we will examine the awareness level of older adults in the community. In order to gauge the awareness of falls in this community a survey was distributed to a group of older adults that had attended a Valentine's Day dinner and dance at the Londonderry Senior Center in February, 2009. Eight of the people taking the survey were under 65 years old. The results of these questions were compiled and utilized to help answer several research questions. The survey was ten questions long, questions five and eight were designed to gauge community awareness of falls of older adults.

Question five of the survey asked survey takers "Have you ever had your home inspected for fall and injury prevention?" After removing non-responses, 14% of respondents indicated "yes", 76% indicated "no" and another 10% indicated that they had "never heard of this" procedure. To this researcher's knowledge there is no sanctioned fall prevention home inspection program offered by the town. This survey question did not ask for follow-up information regarding who the home inspection was performed by. The fact that 86% of the respondents either have not had this performed, or did not even know what this was, is indicative of a low level of community awareness as well as little intervention efforts to prevent these injuries.

Question eight of the survey was designed to gauge if older adults in the community were aware of the problem of older adult falls and their susceptibility. The results of this question are listed in table nine.

Table 9

Results of survey question nine: How likely are you to sustain an injury from a fall in your home?

Response	Percentage indicating
Very likely	2%
Likely	26%
Unlikely	58%
Very unlikely	14%

Total responses: 65

The results of survey question nine clearly indicate that many older adults in the community do not realize their personal risk of sustaining a fall in their home. Only 28% of the respondents felt that they were likely or very likely to sustain an injury from a fall. This correlates closely with the results of survey question two in which 30% of respondents indicated that they had sustained at least one fall since turning 65.

The correlation between these two questions leads to a conclusion that older adults do not consider themselves even likely to sustain a fall in their home until after they have experienced a fall in their home. The results in table nine clearly indicate that there is a low level of awareness among the survey participants. The only participants who felt that they were likely to sustain a fall in their home were the ones that had already fallen in their homes.

The results of this survey support the feelings of Sara Landry, Senior Affairs Coordinator for Londonderry, New Hampshire. Ms. Landry felt that “most are aware that there is an issue but didn’t see it as a problem that affected them.” She felt that this was an “it’s not going to happen to me” issue in the eyes of many older adults.

During the course of conducting research for this paper this researcher attended a meeting with the A.L.E.R.T. on August 6, 2009. After an introduction and discussion of national statistics about falls and the amount of money being spent on fall related injuries the members of the group, which included a number of older adults, were asked if they were aware of the problem of falls of older adults. The group was unanimous in that they all stated that they did not realize that older adult falls was as large of a problem as the statistics indicate.

Research question d: What fall prevention programs already exist, and are they appropriate for our community?

A review of available literature reveals that there are numerous fall prevention programs available. There are a number of resources available that have compiled multiple programs so that they can be compared for effectiveness and applicability. One example is the research paper entitled “U.S. fall prevention programs for seniors: selected programs using home assessment and home modification” (Parra & Stevens, 2000) which chronicles 18 different programs

throughout the country. A locally developed program is the “Slips, Trips and Falls – Avoid Them All, A Falls Risk Reduction Program” (NH Falls Risk Reduction Task Force, 2003). This program offers a 90-120 minute program utilizing group seminar and props to teach about household risks.

All fall prevention programs can be categorized as either single intervention programs or multifaceted, and exercise is the only single intervention program that has been shown to be effective (NCIP, 2008), while the most effective programs are multifaceted (CDC & Merck, 2007, p.31). According to a study by Day et al. (2002) the greatest reduction in falls (14%) was produced by a combination of interventions in a multifaceted program that included exercise, vision intervention and home hazard reduction.

On May 29, 2009 this researcher attended a seminar in Nashua, New Hampshire sponsored by the New Hampshire Falls Risk Reduction Task Force (Appendix N). This seminar included extensive presentations and discussions on a fall prevention education program developed and distributed by the National Fire Protection Association called “Remembering When”TM. A presenter from the State of New Hampshire Fire Marshall’s officer, Stephanie Johnson introduced the program and spoke about the implementation process. According to Johnson this program is designed with Fire Department delivery in mind and can be used in group presentations being delivered by a Fire Department. This program utilizes a number of cultural milestones and trivia from the early 1900’s in order to connect to the older adult participant. The program also introduces an educational component of fall risk reduction as well as fire risk reduction for the program participants.

The “Remembering When”TM presentation material was provided to each seminar participant at no charge to them because the State Fire Marshall’s Office was able to obtain a grant to purchase the material. According to Johnson, the Fire Marshall’s Office plans to purchase additional supporting material for the program such as an educational video called “At Our Age with Tom Bosley” which costs almost \$500. The State would maintain a few copies of the video and make them available to loan out to requesting agencies.

The material included in the “Remembering When”TM presentation materials includes a program overview book, a fire prevention brochure, a falls prevention brochure, and a plastic envelope of support material that includes message cards, trivia game cards, nostalgia cards, home safety checklists, statistic charts, fact sheets, tip sheets, reminder sheets and an evaluation card.

The presentation package also includes ordering information for purchasing additional “Remembering When”TM program material. The NFPA charges \$22 for non-members and \$19 for members to purchase 100 of either the fire prevention brochure or the fall prevention brochure. Additional program guides cost \$63.25 and a video called “Jonathan Winters Senior Fire Safety” is available for \$299. Orders up to \$1,000 are assessed at \$7.95 handling charge. These prices do vary slightly from the prices listed on NFPA’s website.

A survey of mostly older adults was conducted in February, 2009. Questions six and seven and nine of this survey were designed to determine what types of fall prevention programs would be of interest to the survey participants. Question six of the survey asks participants if they would utilize a fall inspection program if it were available. Out of 72 surveys there were 69 responses to this question. Of these 69 responses 65% indicated that they would utilize this

service. 35% indicated that they would not take advantage of a fall inspection. Clearly the results of this question indicate that an in-home inspection program is desired by the survey participants and would likely be utilized.

In question seven the survey takers are asked if they would be willing to attend a group seminar educating older adults about the risk of falls and other injuries in the home. There were 70 responses to this question, of which 70% indicated that they would attend and 30% said they would not attend. Based on literature review we know that a group seminar single intervention program is unlikely to have any significant impact on the number of falls in the community (NCIP, 2008, p.9). However based on the survey results indicating that 72% of the respondents felt they were either unlikely or very unlikely to be injured in a fall, an important first step may be to reach as many people as possible to raise awareness and build support for more in depth interventions.

Survey question ten asked “How much would you be willing to pay for modifications to your home to reduce the risk of injury?” The results of this survey question are illustrated in table ten.

Table 10

Results of survey question ten: "How much would you be willing to pay for modifications to your home to reduce the risk of injury?"

Amount	% willing to spend	Total % willing up to amount specified
Nothing	60%	100%
\$1 - \$50	24%	40%
\$51 - \$100	13%	16%
\$101 - \$500	3%	3%
\$500 or more	0%	0%

The last program to be offered in Londonderry according to Senior Affairs Coordinator Sara Landry was a falls prevention group seminar breakfast at the Senior Center in April, 2008. This presentation was a group seminar about the risks of falls and included a video presentation. There were no interventions offered. Ms. Landry felt that although this is a very important topic, many older adults do not want to be told about the risks of falls because it is unpleasant and seen in a similar manner as Alzheimer's and dementia awareness programs. Ms. Landry tries to offer seminars like these with breakfast or lunch to improve attendance. There are no ongoing fall prevention programs in Londonderry. Ms. Landry also states that the Londonderry Senior Affairs Department is not funded to be able to provide any outreach programs that would go into the community to offer services at an older adult's home.

According to Ms. Landry the Londonderry Senior Center offers a number of popular and inexpensive exercise programs. The Senior Center charges a minimal rate for people who are a member of the Senior Citizens Association which costs \$10/year and a slightly higher rate for non-members. There are approximately 400 members of the Association.

Although these exercise programs are not associated with a fall prevention program, several of the programs do target improving balance. These programs include “Senior Fitness” which is an overall fitness improvement program including balance improvement and costs \$2/\$4 per class. Yoga is offered as a 6-8 week session for \$26/\$35 and there are two separate sessions running concurrently. Tai Chi is offered in a 6-8 week session for \$20/\$30 and “Bone Builders” is offered for \$1 per class. Yoga, Tai Chi both improve balance and are taught by certified instructors. “Bone Builders” includes components that improve balance and is taught by trained volunteers. Ms. Landry felt that these ongoing programs could possibly be co-marketed as an intervention component of a fall prevention program.

Research question e: What resources are available to deliver this program to the community?

A vital document that will be instrumental in providing direction in the development of this, or any other risk reduction program is the “Community Risk Reduction Model” taught at the National Fire Academy (U.S. Department of Homeland Security 2008, p. SM 1-7). This guiding document provides a flow chart of the five essential parts of a community risk program: getting ready, assessing community risk, intervention strategies, action and evaluating. Under each heading there are a number of steps that must be taken.

Another essential resource specifically for developing and implementing a falls prevention program is the guide “Preventing Falls: How to Develop Community Based Fall Prevention Programs for Older Adults” (NCIP, 2008). This guide brings the reader through nine steps of setting up a community fall prevention program. The nine steps include: identifying the need, establish a purpose and goals, determine risk factors, collaborating with partners, who will deliver program, location to deliver program, evaluation of program, promote your program and finally to sustain your program.

Both of these documents together provide a comprehensive set of directions to establish a community falls risk reduction program. Research and literature review has identified a number of resources available to implement a community older adult fall prevention program. The next paragraphs will apply these findings to help address each of the nine steps cited in “Preventing Falls: How to Develop Community Based Fall Prevention Programs for Older Adults” (NCIP, 2008).

Identify the need: literature review has well established the problem of older adults falling. Specifically in our community the findings and data extrapolations for “research question a” should be utilized as a resource. A survey of mostly older adults revealed that there is little community awareness about this problem (Appendix F).

Establish a purpose and goals: we can establish what agencies should dedicate resources and lead the effort to establish a purpose and program goals based on the mission statements of the Fire Department and the Senior Affairs Department.

According to the Town of Londonderry’s website (Mission Statement, n.d.) the Fire Department mission statement is:

To economically and efficiently, prevent or reduce the loss of life and property in Londonderry, resulting from fires, medical emergencies, disasters, and hazardous materials incidents.

To protect and maintain the well being of the community, and to respond to the need of its citizens in a professional and courteous manner.

The Primary Goal (mission) of the Fire/Rescue Department is to Protect Life and Property. In order to achieve this goal, there are three areas of necessary resources: Personnel, Facilities, and Emergency Vehicles and Equipment

The department operates under five divisions that utilize these resources, Administration, Operations, Fire Prevention, Communications, and Technical Services. Each division is assigned subsidiary goals and objectives to achieve our mission.

Based on an interview with Senior Affairs Coordinator Sara Landry she feels that one of the Fire Department's most important roles in this program is to identify people in need of services. One major obstacle to this is being able to release private patient information to the Senior Affairs Department so that she can contact people the Fire Department has had contact with. A patient information release form was developed in the past to give the Fire Department permission to release this information but this was never implemented. Ms. Landry suggests that this proposal be revisited.

The Londonderry Senior Affairs Department's mission statement (Senior Affairs Department, n.d.) reads "To assist and facilitate Londonderry seniors by providing programs and information that support and promote financial and social independence." These two agencies

based on their mission statements are primary stakeholders for this issue and could employ their resources to reach an overall purpose and goal.

Determine risk factors: Literature review has established that many studies have been published on identifying the numerous causes of falls. Unless stakeholders have identified a causation of falls that is specific and unique to Londonderry, then available resources should be referred to in order to identify what the risk factors are for older adult falls. A number of compilations of available research have been created including one that lists the findings of 28 different papers (NCIP, n.d.). The stakeholders of this program should identify what risk factors will be addressed based on the availability of resources.

Collaborating with partners: In addition to the Fire Department and Senior Affairs Department a number of additional organizations may be partners in a fall prevention program. We know from LeMier (2002) that involvement from the State of New Hampshire Department of Health and Human Services should be sought.

This researcher attended a meeting of the New Hampshire Falls Risk Reduction Task Force at the New Hampshire Department of Health and Human Services (DHHS) Office in Concord, New Hampshire on May 5, 2009 at 9:00 AM. At this meeting this researcher was able to observe that the DHHS through this task force is very engaged in the issue of older adult fall prevention and conduct a number of programs including seminars, data collection and analysis, public awareness and intervention program support. This task force is headed by Rhonda Siegel.

This researcher became aware of additional state level support while attending the Fire and Falls Seminar in Nashua, New Hampshire on May 29, 2009. The State Fire Marshall's Office can provide support through provision of fall prevention program support materials as

well as a “safety house” prop that is available on loan to demonstrate common injury hazards in a home.

Who will deliver program: A major consideration with the development of any community outreach program is the availability of personnel to deliver the program.

Conventional wisdom would be to utilize Fire Department personnel for this task. However, due to difficult fiscal conditions (K. Maccaffrie, personal communication, February 17, 2009) other sources of personnel resources must be considered.

During an interview with Londonderry Senior Affairs Coordinator Sara Landry she discussed the extent that her agency could provide support. Ms. Landry’s position is funded for 34 hours and is completely paid for by the town’s budget with no grant offsets. The only other employee works 18 hours per week as an administrative assistant. The assistant’s wages are covered under an “Able” grant. Due to the limited hours available Ms. Landry would not be able to devote a significant amount of time to the development of a fall prevention program. A commitment of time towards a new program would result in another program being postponed.

However, Ms. Landry believes that she would be able to find a volunteer program coordinator from the older adults that attend the Senior Center who would have more time to devote to the project. This volunteer coordinator would then report back to Ms. Landry with program developments. According to Ms. Landry the Senior Affairs Department is not funded at a level to be able to provide outreach programs, and would not have the personnel available to provide in-home interventions. She feels that this would be a serious limitation as in her view many of the older adults at greatest risk of falling do not attend programs at the Senior Center.

Ms. Landry stated that a group of volunteers would be essential if this fall prevention program were to provide home visits.

Ms. Landry has had some limited, but positive contact with volunteer community organizations, including working with the A.L.E.R.T. during a major ice storm which struck the area in December, 2008 and caused power outages lasting for weeks for some people.

Literature review identified that the Fire Corp program which is part of the volunteer Citizen's Corp program has had much success delivering community injury prevention programs (Fire Corps, n.d.) with examples in Salema, California (NVFC, Salema Fire Department, n.d.) and Port Jervis, New York (NVFC, Port Jervis (NY) Fire Department Fire Corps, n.d.).

In Londonderry, New Hampshire a community based program with ties to the Citizen Corps is "A Londonderry Emergency Response Team", commonly known as A.L.E.R.T. (ALERT, 2009). This team was formed in 2003 after the death of a three year old boy who wandered away from his home (ALERT). The organization's website mission statement page reads (ALERT):

ALERT's mission is to maintain a trained, dedicated group of volunteers to: 1) assist our community and its public safety departments in times of need; 2) serve as a source for education about emergency preparedness and prevention; and 3) provide a valuable resource for the community through the continuous training and involvement of our members.

According to a letter to the community soliciting donations for A.L.E.R.T., team President Chris Oliverio states the team intends to increase the amount of community education

they are offering including generator safety/carbon monoxide hazards and helping older adults in “times of need” (Appendix C). Some community activities the group already conducts includes volunteering at community shelters, participating at the Londonderry Family Safety Day, an Elementary School Enrichment Program, kindergarten outdoor safety education and traffic control.

Research included performing a focus group discussion at a membership meeting of A.L.E.R.T. on August 7, 2009. The main objective of this focus group was to research the plausibility and willingness for A.L.E.R.T. to be a participant in delivering a local, sustained fall prevention program to the community. The group was asked several questions intended to initiate discussion.

The group was asked if A.L.E.R.T. had considered doing any injury prevention programs for older adults in the past. The participants stated that they have been actively involved with injury prevention programs and had planned to expand efforts. However, the programs have been designed towards children (Outdoor Safety and Survival Tips) and the general population with planned programs such as carbon monoxide awareness.

A discussion was held regarding the group being able to participate in an ongoing program. Coleen Monks, School Outreach Coordinator, indicated that they would be “definitely interested” in providing assistance for an ongoing program. However, other members of the group voiced concern about having time availability, “we all work full-time” one member stated.

The group was asked if the organization would be willing to perform in-home visits with older adults to conduct education, awareness and home risk-assessments. A suggestion was

made, especially concerning home visits that maybe these visits could be scheduled once or twice a year allowing the volunteers to provide a number of home assessments at one time.

Question seven of the focus group asked “Do you have personnel that would be able to perform minor home modifications (such as hand rail repair, light bulb change, stair repairs)? The overriding concern with providing this level of service of the group was liability. One question asked what the liability would be if a member installed a grab rail and then a large person used the rail pulling it out of the floor causing structural damage to the floor. The overall consensus was that the members would likely be able to perform minor tasks such as changing a bulb or batteries in a smoke detector, but not more involved jobs. The group suggested aligning with a contractor who might be able to provide the services at a discount and would be properly insured.

The group was asked what measures have been taken to address liability concerns for the members. The participants explained how when the team is activated by the town or conducting training they are considered a town “entity” and the members are volunteering for the Town, therefore covered under the Town’s liability insurance.

A discussion was held regarding the group’s affiliations. According to the members present A.L.E.R.T. is a CERT (Citizen Emergency Response Team) and is required to register as a Citizen’s Corp program. The group is not a Fire Corps organization, although there had been some discussion of this in the past. The general attitude of the group was about how rapidly they have expanded in the past few years. There was concern about not branching out in “too many directions”.

In closing the group was given an opportunity to ask any questions or make any remarks that they want. The sentiment of the group appeared to be overwhelmingly supportive of becoming involved in a fall prevention program although at such an early time it was impossible to identify how many resources they would be able to provide.

Location to deliver program: According to Senior Affairs Coordinator Sara Landry the Londonderry Senior Center located at 535 Mammoth Road in Londonderry is frequently utilized for group presentations. A fall prevention seminar could easily be accommodated at this facility.

Evaluation of program: Previously identified stakeholders would be responsible for continuing evaluation of the program's effectiveness utilizing similar tools employed in research conducted for this applied research project including EMS chart review and target audience surveys.

Promote your program: During an interview with Sara Landry she indicated that the Senior Affairs Department distributes a newsletter to all of its approximately 400 members. This newsletter would be an effective method in which to reach the target audience. Ms. Landry also indicated she has used the "Londonderry Times", "Derry News" and "Lawrence Eagle Tribune" newspapers, and the local cable access channel to promote programs. Ms. Landry stated that Dottie Grover (Director of the Cable Access Department) has been "great" with providing assistance.

Sustain your program: Financial support is critical to sustaining and expanding an older adult fall prevention program. Literature review indicates that there are opportunities at the federal level for grants, such as the Assistance to Firefighters Grants Program Fire Prevention and Safety Grants (U.S. Department of Homeland Security/FEMA, 2009, February) eligible

projects for this program include “injury prevention or other community hazards that could be justified in the narrative”.

Ms. Landry said that she had previously successfully applied for a New Hampshire Department of Health and Human Services Health and Wellness grant, however this program has recently been discontinued. Ms. Landry suggested the Robert Wood Johnson Foundation (www.rwjf.org) may be a possible source of grant funding.

Locally one funding source that may be available is the Alexander Eastman Foundation which was founded in 1983 when the Alexander Eastman Hospital in Derry, New Hampshire was sold to the Hospital Corporation of America and the proceeds were utilized to fund this charitable foundation (Alexander Eastman Foundation, History of the Foundation, 2008). The Foundation provides grants to promote good health and healthcare outreach to communities in the Derry, New Hampshire area, including Londonderry. Among the stated priorities of Alexander Eastman Foundation grants are (Alexander Eastman Foundation, Grants, 2008):

Education

- Provide information and community education to improve the health and well-being of residents of the greater Derry area;
- Address goals for healthy individuals and families through a long-term commitment to prevention, health promotion and education of consumers and providers;
- Foster individual responsibility, independence, self-care and healthy life-style choices;

Family Systems

- Strengthen families as the critical unit for community health and well-being
- Recognize the changing nature of families and provide resources and assistance to reduce stress on families and improve family function;

Access

- Expand access to quality health care and prevention services for people with financial need.

A fall prevention program for older adults would seem to meet a number of these priorities including: community education, long-term commitment to prevention, foster individual responsibility and self-care, strengthen families and their well-being, reduce stress on families and expand access to prevention services for people with financial need.

An additional consideration is the Assistance to Firefighters Grants Program Fire Prevention and Safety Grants. The most recent application period for this program closed on March 9, 2009 and had \$35 million available for awards (U.S. Department of Homeland Security/FEMA, 2009, July, 20). According to the FAQ guide projects that are eligible for fire prevention and safety grants include public education campaigns. In the 2008 Fire Prevention and Safety Grants Program Application and Guidance document (U.S. Department of Homeland Security/FEMA, 2009, February) eligible projects under public education is further clarified to include “injury prevention or other community hazards that could be justified in the narrative”.

Based on the findings of literature review and the five research questions it is clear that falls among older adults is a problem requiring an intervention strategy. The research questions answered in this research paper describe the problem on a local level and provide information to support the need for intervention, ideas of whom to seek out as partners and stakeholders, implementation resources and guides, considerations for provision of personnel to deliver the program, and how to obtain support both for program requirements and financial needs.

Further, the development of supporting documents to assist in program implementation was warranted. A listing of possible stakeholders is contained in Appendix O, a Community Risk Reduction Model flow chart, based on the National Fire Academy's Community Risk Reduction Model template, detailing specifics of a Londonderry fall reduction program is contained in Appendix P.

An implementation plan was developed as well. Although literature review indicates a single intervention, group seminar is not likely to reduce falls (NCIP, 2008, p.8), research has indicated that awareness of this problem among older adults is very low (Appendix F). This would indicate that quicker implementation of an initial group seminar intervention program is warranted. This strategy would start building awareness while additional partners are brought onboard and additional interventions provided. An implementation plan outlining the steps to form the initial group seminar based fall prevention program is included with this research paper (Appendix Q).

DISCUSSION

Literature review and research support the premise that older adults are at greater risk of falling in the home and sustaining an injury than the entire population as a whole. With a

coordinated, organized effort there are sufficient resources available to assemble a team of stakeholders and develop and implement a local fall prevention program.

The problem of older adult falls is serious and we know it is not going away. In 2005 there were 36.8 million older adults in the United States (Bernstein, 2006). In 2005 there were 1,823 older adults living in Londonderry, New Hampshire (Appendix L).

It is expected that 35-50% of generally healthy older adults will have a fall annually (American Geriatrics Society, et al., 2001). These falls often result in injuries. In the United States in 2000 there were 2.6 million falls of older adults that required medical treatment (Stevens, Finkelstein, et al., 2006) resulting in \$19 billion in direct medical costs. We know that Londonderry Fire Department responded to 87 fall related incidents involving older adults between July 1, 2008 and June 30, 2009. Based on extrapolation of national statistics it can be estimated that every year in Londonderry there are between 638 and 729 falls of older adults, of which 135 will seek treatment resulting in \$986,000 in direct medical costs (based on 2000 medical costs).

In the United States \$200 million was spent in the year 2000 due to fatal falls (Stevens, Finkelstein, et al., 2006). In 2004, 43% of all unintentional deaths for older adults in the United States were attributable to falls (CDC, 2007, p.27).

The number of older adults in the U.S. is expected to reach 71 million by 2030 (CDC, 2003). The number of older adult falls doubled between 1993 and 2003 although the number of older adults only increased by 13% (CDC, 2007, p.29). The Londonderry Fire Department is experiencing an increase in annual call volume to the general population at a rate of 5.9% per

year over three years. When looking at responses only to older adults for the same study period the increase in responses is 10.8% per year.

The success of an intervention program depends on identifying and partnering with a variety of stakeholders, thereby creating a team of experts from multiple disciplines (NCIP, 2008, p.13). Some stakeholders include health professionals, community service providers and health care providers (LeMier, 2002). Stakeholders for a fall prevention program in Londonderry would likely include the Fire Department, the Senior Affairs Department according to an interview with Sara Landry, the Health Department (NCIP, 2008, p.65) and a community service organization such as the “A Londonderry Emergency Response Team” (Fire Corps, n.d.). For this research paper a complete list of possible stakeholders for a Londonderry fall prevention program has been developed. This list is attached to this report as Appendix O and should be utilized as a guiding document for the development and implementation plan of a Londonderry fall prevention program.

Literature review shows that this problem is very well known in the healthcare field with numerous research papers written about a variety of aspects of this problem. Evidence of this is that there are a number of compendiums that have been compiled of the research papers (NCIP, n.d.).

Many state health agencies have developed fall prevention campaigns with a public awareness component that frequently coincides with the beginning of the fall season such as California (Providence Health and Services, 2009) and Wisconsin (Wisconsin Department of Health Services, 2008).

In Londonderry, New Hampshire Senior Affairs Coordinator Sara Landry is very well aware of the problem and considers it one of the “biggest problems facing seniors at the (Londonderry) Senior Center”. Ms. Landry has coordinated past fall prevention programs, the last one being a group seminar in April, 2008. However she has found that fall prevention is similar to other unpleasant issues such as Alzheimer’s and dementia and there is not a lot of enthusiasm among the older adults to hear about these issues. Ms. Landry has tried to increase attendance by offering the program in conjunction with meals.

Ms. Landry believes that although there may be awareness among older adults of the risks of falling, many of them have an “it’s not going to happen to me” attitude about the issue and that many do not consider what a life threatening event a fall could be.

Ms. Landry’s observations are echoed in a survey taken of mostly older adults at the Londonderry Senior Center. In this survey 30% of the respondents indicated that they had sustained at least one fall in the home since turning 65. Another question asked participants how likely they felt they were to sustain an injury from a fall in their home. Only 28% of the respondents felt that they were either “likely” or “very likely” to be injured in a home fall.

Research has shown that there are numerous fall prevention programs available. A research paper by Parra and Stevens (2000) lists the attributes of 18 different programs from around the country. Available programs include locally developed programs such as “Slips, Trips and Falls – Avoid Them All, A Falls Risk Reduction Program” developed by the New Hampshire Falls Risk Reduction Task Force (NH Falls Risk Reduction Task Force, 2003), as well as nationally developed and distributed programs like the “Remembering When”TM program developed and distributed by the National Fire Protection Association (NFPA).

According to the NFPA this program is intended to be a “complete, step-by-step program that teaches life-saving lessons to this high risk (older adults) group” (NFPA, n.d.).

During the course of research for this applied research paper this researcher attended a fire and fall injury prevention seminar. As part of being a participant in this program this researcher was presented with a “Remembering When”TM starter package. This material will be available to the community to assist in implementing a fall prevention program.

Whichever program or programs are utilized to build a fall prevention program an effort should be made to create a multi-intervention program. We know from the research by the CDC and Merck (2007, p. 31) that multifaceted programs are the most effective. Day et al. (2002) tells us that the most effective combination of interventions was exercise, vision intervention, and home hazard reduction. This combination resulted in a 14% reduction in falls.

According to Sara Landry there are a number of programs available and it did not seem necessary to “reinvent the wheel” and develop a new program. Ms. Landry felt that starting with a smaller program with materials available and building upon this to add additional interventions would be a prudent path to developing a fall prevention program.

Research indicates that there is a desire to have these services available. The results of a survey of mostly older adults indicated that 70% of the respondents would attend a fall prevention group seminar and 65% would utilize a fall inspection program in their homes if available. Although we know that a single intervention (such as increased awareness) is likely to be ineffective (NCIP, 2008, p.9) we know based on survey results that many do not see this issue as a problem, and based on interviews with Sara Landry many older adults don't see this as an

issue that impacts their lives. It would stand to reason that by first increasing awareness of the risks of older adult falls that participation in future interventions may be higher.

Many resources that have traditionally been available to deliver this type of program are simply not available under current economic conditions. Whereas the Fire Department in the past may have had personnel to devote to a project like this, budget cuts and revenue shortfalls have caused the Department to consider lay-offs of personnel (K. Maccaffrie, personal communication, February 17, 2009). According to Sara Landry, the Senior Affairs Coordinator is only 34 hours per week with an 18 hour per week assistant. If Ms. Landry was to take on a new program another program would be ignored. Additionally the Senior Affairs Department is not funded to be able to provide community outreach programs.

These considerations require examination of alternative, non-conventional methods of funding, delivering, and sustaining a fall prevention program. Literature review and research have identified some possible resources to utilize. Several of these areas will be discussed including program coordinator, program materials, funding sources, and program delivery personnel.

According to an interview with Sarah Landry she would likely be able to provide a volunteer program coordinator. She believes that one of the older adults that utilize the Senior Center would be interested in serving in this capacity. Ms. Landry believes that this person would be able to make contact with the various stakeholders and coordinate meetings as well as serve as one of the stakeholders representing older adults on a fall prevention task force.

As identified earlier there are numerous fall prevention programs available. Ms. Landry identifies that there is little to be gained by developing a new program from scratch. One

program, “Remembering When”TM, was developed by the National Fire Protection Association (NFPA) in conjunction with the CDC’s Division of Unintentional Injury Prevention (National Resource Center for Safe Aging, n.d.) and is designed to teach life saving lessons to older adults. As a result of attending a seminar, this researcher attended Londonderry Fire Department has been presented with a “Remembering When”TM starter package at no cost. The kits were provided to seminar participants free of charge from the New Hampshire Fire Marshall’s Office and were paid for with grant money. Purchase of supporting material, such as brochures, would be required at relatively minor costs (NFPA, n.d.). Ms. Landry observes that the availability of these materials would provide for an inexpensive and quick way to begin group seminars to increase awareness of the problem.

Support and resources are available at the State level through the New Hampshire Falls Risk Reduction Task Force. As part of research for this paper this researcher attended a meeting of this task force. There were a number of experts in this subject matter actively participating with the task force. Additional State level resources are available through the State Fire Marshall’s Office who maintains a “Safe House” prop that is available to loan for community awareness training. This prop is similar to a large doll house with a number of common household hazards identified.

The Senior Center would be available to hold the group seminars according to Ms. Landry. Seminars are routinely held here and with enough notice Ms. Landry can incorporate a new program into the schedule. Refreshments, tables and chairs, as well as volunteers to set them up are available. Ms. Landry will also provide access to the Senior Center’s newsletter for awareness education as well as promotion of upcoming programs.

There are several grant sources both locally and federally that should be pursued. On the local level the Alexander Eastman Foundation's purpose and goals appear to be well aligned with the goals of a fall prevention program. Among the stated priorities a few that strongly correlate to a fall prevention program's guide are to "address goals for healthy individuals and families through a long-term commitment to prevention..."; "foster individual responsibility, independence..."; "reduce stress on families..." and "expand access to quality health care and prevention services for people with financial need" (Alexander Eastman Foundation, 2008).

Another source of funding is the Assistance to Firefighters Fire Prevention and Safety Grants, for the application period that ended March 9, 2009 there was \$35 million in grants available to be awarded (U.S. Department of Homeland Security/FEMA, 2009, July 20). This grant program is available to the nation's fire departments and goals include addressing "injury prevention or other community hazards that could be justified in the narrative." (U.S. Department of Homeland Security/FEMA, 2009, February). These grants are frequently renewed annually.

There is a limited amount of reimbursement opportunities through Medicare and private insurance. Medicare will not cover preventative services and interventions, however if a medical practitioner partners with a fall prevention program there is a possibility of some symptom-based reimbursement (Minnesota Falls Prevention Initiative, n.d.).

A fall prevention program requires utilization of personnel to deliver the program. If home visits are considered as an outreach tool this can be very personnel intensive. A pool of community volunteers should be considered. According to the Fire Corps (Fire Corps, n.d.) there

are a number of community outreach and injury prevention programs throughout the country that utilize Fire Corps volunteers to deliver the program to the public.

Londonderry is served by a volunteer organization called A.L.E.R.T. which, while not a Fire Corps program it is a Citizen Corps program which oversees the Fire Corps (Fire Corps, n.d.). A.L.E.R.T. recently distributed a fund raiser letter to the community (Appendix D) in which they state that one of their future objectives is to “do more community outreach” and to “help the elderly”.

During a focus group held at an A.L.E.R.T. membership meeting the group expressed that they felt participation in a program like this was within their scope and that it was something that they were very interested in participating in. There was concern about availability of personnel and having the organization pulled in too many directions. However the membership’s sentiments overall were that they would like to be involved in the development and delivery of a fall prevention program.

A resource available when developing a fall prevention program or any community risk reduction program is the “Community Risk Reduction Model” taught by the National Fire Academy’s Executive Analysis of Community Risk Reduction course (U.S. Department of Homeland Security, 2008, SM 1-7). A proposed model for a Londonderry Falls Prevention Program was developed and is attached to this paper as Appendix P. This is a useful guide as it assures that a proven implementation model is followed to establish a strong foundation for a sustainable program.

A final resource available is the proposed program implementation plan developed based on the findings of this research paper. This plan is designed around the suggested program

implementation strategies as listed by the National Center for Injury Prevention and Control (2008, p. 8-12). This document should be used as a guide on developing a local program. It is attached to this research paper as appendix Q.

RECOMMENDATIONS

Based on literature review, original research including surveys, interviews and data analysis the need for a sustainable falls prevention program for the older adults of Londonderry, New Hampshire is very evident.

The Londonderry Fire Department and Senior Affairs Departments are key stakeholders in this problem and should take the lead to develop a program. The following recommendations are made to the Londonderry Fire Department and Londonderry Senior Affairs Department:

- a. Establish a goal of developing a fall prevention program to serve the needs of older adults in Londonderry
- b. Utilize the Community Risk Reduction Model to assure a sustainable, comprehensive fall prevention program is implemented.
- c. Assign an enthusiastic, motivated volunteer to work with employees of the Fire Department and Senior Affairs Department to identify and involve additional stakeholders and form a Londonderry Fall Prevention Task Force.
- d. Utilize available materials, such as “Remembering When”TM, to begin a public awareness phase of a fall prevention program as soon as possible. Use this program as the foundation to build a more comprehensive, multi-faceted fall prevention program.

- e. Promote the fall prevention efforts by enlisting the help of local media and the local cable access channel.
- f. Utilize agencies that already are in the homes to identify people at risk such as the Fire Department and Visiting Nursing Associations.
- g. Build upon the initial fall prevention program to promote the existing exercise programs and add additional fall prevention interventions and home visits.
- h. Pursue local and federal grants such as Alexander Eastman Foundation and The Assistance to Firefighters Grants Program.
- i. Enlist the help of local volunteer programs such as A.L.E.R.T. to provide personnel to help deliver group seminars and home visits.
- j. Perform an additional study analyzing the percentage of Fire Department fall responses to persons under 65 years old as compared to persons 65 and older.
- k. Conduct one and two year data analysis and follow-up surveys to gauge effectiveness of fall prevention efforts.

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APPENDIX A

Ambulance Run Data Report

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Ambulance Run Data Report
Londonderry Fire Department
From 07/01/06 To 06/30/07
Total Number of Runs Based on Search Criteria: 1823

Runs by Provider Impression

Provider Impression	# of Times	% of Times
Abdominal Aortic Aneurysm	1	0.05%
Abdominal Pain/Problems	44	2.41%
Airway Obstruction	11	0.60%
Allergic Reaction	20	1.10%
Altered Level of Consciousness	18	0.99%
Asthma	14	0.77%
Back Pain (Non-Traumatic)	29	1.59%
Behavioral/Psychiatric Disorder	66	3.62%
Bowel Obstruction	1	0.05%
Cancer	2	0.11%
Cardiac Arrest	5	0.27%
Cardiac Rhythm Disturbance	29	1.59%
Chest Pain/Discomfort	92	5.05%
CHF (Congestive Heart Failure)	12	0.66%
COPD (Emphysema/Chronic Bronchitis)	16	0.88%
Dehydration	2	0.11%
Diabetic Hyperglycemia	5	0.27%
Diabetic Symptoms (Hypoglycemia)	33	1.81%
Diarrhea	4	0.22%
Electrocution	1	0.05%
Epistaxis (Non-Traumatic)	3	0.16%
ETOH Abuse	9	0.49%
Fever	12	0.66%
G.I. Bleed	7	0.38%
General Malaise	20	1.10%
Headache	16	0.88%
Heat Exhaustion/Stroke	1	0.05%
Hypertension	7	0.38%
Hypotension	2	0.11%
Hypothermia	3	0.16%
Migraine	2	0.11%
Nausea/Vomiting (Unknown Etiology)	20	1.10%
No Apparent Illness/Injury	177	9.71%
Not Applicable	271	14.87%
Not Known	3	0.16%
OB/Delivery	2	0.11%
Obvious Death	3	0.16%
Other	9	0.49%
Other Abdominal/GI Problem	9	0.49%
Other Cardiovascular Problem	1	0.05%
Other CNS Problem	4	0.22%
Other GU Problems	5	0.27%
Other Illness/Injury	6	0.33%
Pain	75	4.11%
Patient Assist Only	61	3.35%

Ambulance Run Data Report

Poisoning/Drug Ingestion	14	0.77%
Respiratory Arrest	1	0.05%
Respiratory Distress	39	2.14%
Seizure	31	1.70%
Sexual Assault/Rape	1	0.05%
Stings/Venomous Bites	2	0.11%
Stroke/CVA	16	0.88%
Substance/Drug Abuse	15	0.82%
Syncope/Fainting	64	3.51%
TIA (Transient Ischemic Attack)	6	0.33%
Toxic Exposure	5	0.27%
Traumatic Injury	382	20.95%
Unconscious	10	0.55%
Unknown Problem	14	0.77%
Vaginal Hemorrhage	3	0.16%
Weakness	72	3.95%
Unknown	15	0.82%
Total	1823	100%

Runs by Response Disposition

Response Disposition	# of Times	% of Times
Cancelled	196	10.75%
Cancelled - Out of Primary Service Area	4	0.22%
Cancelled - Request Transferred to Another Provider	5	0.27%
Dead at Scene	3	0.16%
No Patient Found	33	1.81%
No Treatment Required	233	12.78%
Not Applicable	3	0.16%
Not Known	1	0.05%
Patient Refused Care	267	14.65%
Standby Only - No Patient Contacts	42	2.30%
Treated and Released	28	1.54%
Treated, Transferred Care	52	2.85%
Treated, Transported by EMS	5	0.27%
Treated, Transported by EMS (ALS)	668	36.64%
Treated, Transported by EMS (BLS)	269	14.76%
Treated, Transported by Law Enforcement	3	0.16%
Treated, Transported by Private Vehicle	2	0.11%
Unable to Locate Patient/Scene	6	0.33%
Unknown	3	0.16%
Total	1823	100%

Runs by Dispatch Reason

Dispatch Reason	# of Times	% of Times
Abdominal Pain	36	1.97%
Altered Mental Status	6	0.33%
Anaphylactic Reaction	25	1.37%
Animal Bite	3	0.16%
Assault	14	0.77%
Auto vs. Pedestrian	4	0.22%
Back Pain (Non-Traumatic/Non-Recent Trauma)	33	1.81%
Breathing Problem	124	6.80%
Burns	4	0.22%
Cardiac Arrest	9	0.49%
Chest Pain	95	5.21%

Ambulance Run Data Report

Choking	10	0.55%
CO Poisoning/Hazmat	8	0.44%
Diabetic Problem	29	1.59%
Drowning	1	0.05%
Electrocution	1	0.05%
Eye Problem / Injury	5	0.27%
Fall Victim	106	5.76%
Fire Standby	7	0.38%
HAZMAT Standby	3	0.16%
Headache	5	0.27%
Heart Problems	14	0.77%
Heat/Cold Exposure	2	0.11%
Hemorrhage/Laceration	20	1.10%
Industrial Accident/Inaccessible Incident/Other Entrapments (Non-Vehicle)	2	0.11%
Ingestion/Poisoning	2	0.11%
Invalid Assist/Lifting Assist	47	2.58%
Machine/equipment Injury	2	0.11%
Medical Alarm	250	13.71%
Not Applicable	43	2.36%
Not Available	24	1.32%
Not Known	2	0.11%
Other	3	0.16%
Overdose	22	1.21%
Pain	16	0.88%
Pregnancy/Childbirth	3	0.16%
Psychiatric Problems	43	2.36%
Respiratory Arrest	1	0.05%
Seizure/Convulsions	30	1.65%
Sick Person	154	8.45%
Standby	17	0.93%
Stroke/CVA	17	0.93%
Traffic / Transportation Accident	364	19.97%
Traumatic Injury	81	4.44%
Unconscious/Fainting	85	4.66%
Unknown Problem/Man Down	51	2.80%
Unknown	1	0.05%
Total	1823	100%

Runs by Location Type

Location Type	# of Runs	% of Runs
Airport	264	14.48%
Health Care Facility (clinic, hospital, nursing home)	62	3.40%
Home/Residence	825	45.26%
Industrial Place and Premises	49	2.69%
Not Applicable	5	0.27%
Not Known	1	0.05%
Other Location	3	0.16%
Place of Recreation or Sport	34	1.87%
Public Building (schools, gov, offices)	87	4.77%
Street or Highway	400	21.94%
Trade or Service (Business, bars, restaurants, etc.)	89	4.88%
Unspecified place	3	0.16%
Unknown	1	0.05%
Total	1823	100%

Runs by Gender

Ambulance Run Data Report

Gender	# of Patients	% of Runs
Female	728	39.93%
Male	672	36.86%
Not Applicable	384	21.06%
Not Known	1	0.05%
Unknown	38	2.08%
Total	1823	100%

Average Patient Age

Age	# of Runs	% of Runs
Less Than 1	12	0.66%
1 - 4	35	1.92%
5 - 9	35	1.92%
10 - 14	40	2.19%
15 - 19	136	7.46%
20 - 24	102	5.60%
25 - 34	163	8.94%
35 - 44	171	9.38%
45 - 54	207	11.35%
55 - 64	153	8.39%
65 - 74	119	6.53%
75 - 84	179	9.82%
85+	73	4.00%
Unknown	398	21.83%
Total	1823	100%

Average Patient Age: 46

Search Criteria	
Dates	From 07/01/2006 To 06/30/2007
Service	Londonderry Fire Department
Staff	All
Unit	All
Zone/District	All
Type of Service Requested	All
Patient Disposition	All

APPENDIX B

Ambulance Run Data Report

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**Ambulance Run Data Report
Londonderry Fire Department
From 07/01/07 To 06/30/08
Total Number of Runs Based on Search Criteria: 1967**

Runs by Provider Impression

Provider Impression	# of Times	% of Times
Abdominal Pain/Problems	60	3.05%
Airway Obstruction	4	0.20%
Allergic Reaction	26	1.32%
Altered Level of Consciousness	9	0.46%
Asthma	11	0.56%
Back Pain (Non-Traumatic)	13	0.66%
Behavioral/Psychiatric Disorder	51	2.59%
Bowel Obstruction	2	0.10%
Cancer	3	0.15%
Cardiac Arrest	7	0.36%
Cardiac Rhythm Disturbance	35	1.78%
Chest Pain/Discomfort	101	5.13%
CHF (Congestive Heart Failure)	16	0.81%
COPD (Emphysema/Chronic Bronchitis)	22	1.12%
Dehydration	7	0.36%
Diabetic Hyperglycemia	7	0.36%
Diabetic Symptoms (Hypoglycemia)	37	1.88%
Diarrhea	1	0.05%
Epistaxis (Non-Traumatic)	8	0.41%
ETOH Abuse	15	0.76%
Fever	13	0.66%
G.I. Bleed	2	0.10%
General Malaise	28	1.42%
Headache	19	0.97%
Heat Exhaustion/Stroke	2	0.10%
Hypertension	2	0.10%
Hyperthermia	1	0.05%
Hypovolemia/Shock	1	0.05%
Inhalation Injury (Toxic Gas)	1	0.05%
Migraine	4	0.20%
Nausea/Vomiting (Unknown Etiology)	23	1.17%
No Apparent Illness/Injury	233	11.85%
Not Applicable	301	15.30%
Not Available	1	0.05%
Not Known	3	0.15%
Obvious Death	7	0.36%
Other	20	1.02%
Other Abdominal/GI Problem	3	0.15%
Other CNS Problem	2	0.10%
Other Endocrine/Metabolic Problem	1	0.05%
Other GU Problems	3	0.15%
Other Illness/Injury	18	0.92%
Other OB/Gyn	1	0.05%
Pain	84	4.27%
Patient Assist Only	20	1.02%

Ambulance Run Data Report

Poisoning/Drug Ingestion	14	0.71%
Pregnancy/OB Delivery	1	0.05%
Respiratory Arrest	2	0.10%
Respiratory Distress	54	2.75%
Seizure	44	2.24%
Sepsis	1	0.05%
Stroke/CVA	8	0.41%
Substance/Drug Abuse	12	0.61%
Syncope/Fainting	54	2.75%
TIA (Transient Ischemic Attack)	5	0.25%
Toxic Exposure	3	0.15%
Traumatic Injury	387	19.67%
Unconscious	7	0.36%
Unknown Problem	48	2.44%
Vaginal Hemorrhage	3	0.15%
Weakness	94	4.78%
Unknown	2	0.10%
Total	1967	100%

Runs by Response Disposition

Response Disposition	# of Times	% of Times
Cancelled	230	11.69%
Cancelled - Out of Primary Service Area	1	0.05%
Cancelled - Request Transferred to Another Provider	5	0.25%
Dead at Scene	9	0.46%
No Patient Found	51	2.59%
No Treatment Required	180	9.15%
Patient Refused Care	255	12.96%
Standby Only - No Patient Contacts	39	1.98%
Treated and Released	39	1.98%
Treated, Transferred Care	34	1.73%
Treated, Transported by EMS	3	0.15%
Treated, Transported by EMS (ALS)	766	38.94%
Treated, Transported by EMS (BLS)	345	17.54%
Treated, Transported by Law Enforcement	1	0.05%
Treated, Transported by Private Vehicle	2	0.10%
Unable to Locate Patient/Scene	1	0.05%
Unknown	6	0.31%
Total	1967	100%

Runs by Dispatch Reason

Dispatch Reason	# of Times	% of Times
Abdominal Pain	52	2.64%
Altered Mental Status	4	0.20%
Anaphylactic Reaction	26	1.32%
Animal Bite	1	0.05%
Assault	23	1.17%
Back Pain (Non-Traumatic/Non-Recent Trauma)	19	0.97%
Breathing Problem	119	6.05%
Cardiac Arrest	9	0.46%
Chest Pain	131	6.66%
Choking	7	0.36%
CO Poisoning/Hazmat	5	0.25%
Diabetic Problem	32	1.63%
Drowning	1	0.05%

Ambulance Run Data Report

Electrocution	1	0.05%
Eye Problem / Injury	1	0.05%
Fall Victim	87	4.42%
Fire Standby	10	0.51%
HAZMAT Standby	1	0.05%
Headache	14	0.71%
Heart Problems	23	1.17%
Heat/Cold Exposure	2	0.10%
Hemorrhage/Laceration	31	1.58%
Industrial Accident/Inaccessible Incident/Other Entrapments (Non-Vehicle)	5	0.25%
Ingestion/Poisoning	1	0.05%
Invalid Assist/Lifting Assist	21	1.07%
Medical Alarm	273	13.88%
Not Applicable	1	0.05%
Other	10	0.51%
Overdose	36	1.83%
Pain	20	1.02%
Pregnancy/Childbirth	1	0.05%
Psychiatric Problems	25	1.27%
Seizure/Convulsions	51	2.59%
Sick Person	249	12.66%
Standby	20	1.02%
Stroke/CVA	10	0.51%
Traffic / Transportation Accident	381	19.37%
Transfer/Interfacility/Palliative Care	8	0.41%
Traumatic Injury	100	5.08%
Unconscious/Fainting	64	3.25%
Unknown Problem/Man Down	90	4.58%
Unknown	2	0.10%
Total	1967	100%

Runs by Location Type

Location Type	# of Runs	% of Runs
Airport	273	13.88%
Health Care Facility (clinic, hospital, nursing home)	152	7.73%
Home/Residence	820	41.69%
Industrial Place and Premises	71	3.61%
Lake, River, Ocean	1	0.05%
Mine or Quarry	1	0.05%
Not Applicable	1	0.05%
Other Location	6	0.31%
Place of Recreation or Sport	39	1.98%
Public Building (schools, gov, offices)	95	4.83%
Street or Highway	410	20.84%
Trade or Service (Business, bars, restaurants, etc.)	86	4.37%
Unspecified place	9	0.46%
Unknown	3	0.15%
Total	1967	100%

Runs by Gender

Gender	# of Patients	% of Runs
Female	818	41.59%
Male	701	35.64%
Not Applicable	413	21.00%
Unknown	35	1.78%
Total	1967	100%

Average Patient Age

Age	# of Runs	% of Runs
Less Than 1	9	0.46%
1 - 4	40	2.03%
5 - 9	35	1.78%
10 - 14	58	2.95%
15 - 19	131	6.66%
20 - 24	89	4.52%
25 - 34	157	7.98%
35 - 44	190	9.66%
45 - 54	254	12.91%
55 - 64	186	9.46%
65 - 74	134	6.81%
75 - 84	194	9.86%
85+	102	5.19%
Unknown	388	19.73%
Total	1967	100%

Average Patient Age: 47

Search Criteria	
Dates	From 07/01/2007 To 06/30/2008
Service	Londonderry Fire Department
Staff	All
Unit	All
Zone/District	All
Type of Service Requested	All
Patient Disposition	All

APPENDIX C

Ambulance Run Data Report

Page 1 of 4



**Ambulance Run Data Report
Londonderry Fire Department
From 07/01/08 To 06/30/09
Total Number of Runs Based on Search Criteria: 2026**

Runs by Provider Impression

Provider Impression	# of Times	% of Times
Abdominal Pain/Problems	52	2.57%
Airway Obstruction	4	0.20%
Allergic Reaction	20	0.99%
Altered Level of Consciousness	12	0.59%
Asthma	19	0.94%
Back Pain (Non-Traumatic)	16	0.79%
Behavioral/Psychiatric Disorder	89	4.39%
Bowel Obstruction	1	0.05%
Cancer	5	0.25%
Cardiac Arrest	9	0.44%
Cardiac Rhythm Disturbance	44	2.17%
Chest Pain/Discomfort	94	4.64%
CHF (Congestive Heart Failure)	7	0.35%
COPD (Emphysema/Chronic Bronchitis)	27	1.33%
Dehydration	5	0.25%
Diabetic Hyperglycemia	9	0.44%
Diabetic Symptoms (Hypoglycemia)	20	0.99%
Diarrhea	2	0.10%
Electrocution	2	0.10%
Epistaxis (Non-Traumatic)	5	0.25%
ETOH Abuse	6	0.30%
Fever	13	0.64%
G.I. Bleed	7	0.35%
General Malaise	10	0.49%
Headache	10	0.49%
Hypertension	5	0.25%
Hypotension	1	0.05%
Hypothermia	3	0.15%
Migraine	2	0.10%
Nausea/Vomiting (Unknown Etiology)	15	0.74%
No Apparent Illness/Injury	260	12.83%
Not Applicable	295	14.56%
Not Available	1	0.05%
Not Known	16	0.79%
OB/Delivery	2	0.10%
Obvious Death	9	0.44%
Other	51	2.52%
Other Abdominal/GI Problem	6	0.30%
Other Cardiovascular Problem	4	0.20%
Other CNS Problem	3	0.15%
Other Endocrine/Metabolic Problem	4	0.20%
Other GU Problems	1	0.05%
Other Illness/Injury	23	1.14%
Other OB/Gyn	3	0.15%
Pain	85	4.20%

Ambulance Run Data Report

Patient Assist Only	37	1.83%
Poisoning/Drug Ingestion	20	0.99%
Pregnancy/OB Delivery	2	0.10%
Respiratory Distress	51	2.52%
Seizure	49	2.42%
Sepsis	1	0.05%
Smoke Inhalation	1	0.05%
Stings/Venomous Bites	2	0.10%
Stroke/CVA	16	0.79%
Substance/Drug Abuse	8	0.39%
Syncope/Fainting	42	2.07%
TIA (Transient Ischemic Attack)	7	0.35%
Toxic Exposure	6	0.30%
Traumatic Injury	331	16.34%
Unconscious	11	0.54%
Unknown Problem	31	1.53%
Vaginal Hemorrhage	1	0.05%
Weakness	99	4.89%
Unknown	34	1.68%
Total	2026	100%

Runs by Response Disposition

Response Disposition	# of Times	% of Times
Cancelled	167	8.24%
Dead at Scene	10	0.49%
No Patient Found	37	1.83%
No Treatment Required	178	8.79%
Not Applicable	52	2.57%
Patient Refused Care	312	15.40%
Standby Only - No Patient Contacts	8	0.39%
Treated and Released	19	0.94%
Treated, Transferred Care	20	0.99%
Treated, Transported by EMS	920	45.41%
Treated, Transported by EMS (ALS)	203	10.02%
Treated, Transported by EMS (BLS)	76	3.75%
Treated, Transported by Private Vehicle	2	0.10%
Unknown	22	1.09%
Total	2026	100%

Runs by Dispatch Reason

Dispatch Reason	# of Times	% of Times
Abdominal Pain	44	2.17%
Altered Mental Status	8	0.39%
Anaphylactic Reaction	17	0.84%
Animal Bite	3	0.15%
Assault	14	0.69%
Back Pain (Non-Traumatic/Non-Recent Trauma)	16	0.79%
Breathing Problem	130	6.42%
Burns	3	0.15%
Cardiac Arrest	19	0.94%
Chest Pain	136	6.71%
Choking	4	0.20%
CO Poisoning/Hazmat	11	0.54%
Diabetic Problem	23	1.14%
Electrocution	2	0.10%

Eye Problem / Injury	1	0.05%
Fall Victim	89	4.39%
Fire Standby	3	0.15%
Headache	4	0.20%
Heart Problems	17	0.84%
Hemorrhage/Laceration	16	0.79%
Industrial Accident/Inaccessible Incident/Other Entrapments (Non-Vehicle)	5	0.25%
Ingestion/Poisoning	4	0.20%
Invalid Assist/Lifting Assist	35	1.73%
Medical Alarm	170	8.39%
Not Applicable	20	0.99%
Not Available	1	0.05%
Not Known	10	0.49%
Other	24	1.18%
Overdose	31	1.53%
Pain	16	0.79%
Pregnancy/Childbirth	3	0.15%
Psychiatric Problems	59	2.91%
Respiratory Arrest	1	0.05%
Seizure/Convulsions	64	3.16%
Sick Person	329	16.24%
Standby	15	0.74%
Stroke/CVA	22	1.09%
Traffic / Transportation Accident	325	16.04%
Transfer/Interfacility/Palliative Care	25	1.23%
Traumatic Injury	92	4.54%
Unconscious/Fainting	58	2.86%
Unknown Problem/Man Down	154	7.60%
Unknown	3	0.15%
Total	2026	100%

Runs by Location Type

Location Type	# of Runs	% of Runs
Airport	189	9.33%
Farm	6	0.30%
Health Care Facility (clinic, hospital, nursing home)	200	9.87%
Home/Residence	978	48.27%
Industrial Place and Premises	47	2.32%
Mine or Quarry	1	0.05%
Not Applicable	1	0.05%
Not Known	1	0.05%
Other Location	7	0.35%
Place of Recreation or Sport	33	1.63%
Public Building (schools, gov, offices)	93	4.59%
Residential Institution (assisted living, jail/prison)	3	0.15%
Street or Highway	373	18.41%
Trade or Service (Business, bars, restaurants, etc.)	86	4.24%
Unknown	8	0.39%
Total	2026	100%

Runs by Gender

Gender	# of Patients	% of Runs
Female	939	46.35%
Male	802	39.59%
Not Applicable	232	11.45%
Unknown	53	2.62%

Total 2026 100%

Average Patient Age

Age	# of Runs	% of Runs
Less Than 1	8	0.39%
1 - 4	31	1.53%
5 - 9	37	1.83%
10 - 14	61	3.01%
15 - 19	170	8.39%
20 - 24	108	5.33%
25 - 34	155	7.65%
35 - 44	195	9.62%
45 - 54	281	13.87%
55 - 64	232	11.45%
65 - 74	168	8.29%
75 - 84	194	9.58%
85+	93	4.59%
Unknown	293	14.46%
Total	2026	100%

Average Patient Age: 47

Search Criteria	
Dates	From 07/01/2008 To 06/30/2009
Service	Londonderry Fire Department
Staff	All
Unit	All
Zone/District	All
Type of Service Requested	All
Patient Disposition	All

APPENDIX D



EXECUTIVE COMMITTEE

Chris Oliverio
President

Rich Semaski
Vice President

Joanne Paradis
Secretary

Kim Drinan
Treasurer

BOARD OF DIRECTORS

Keith Tharp

Wayne Hall

Al Benson

EMAIL TO:
info@londonderryalert.org

WEBSITE:
<http://londonderryalert.org>

A Londonderry Emergency Response Team

PO Box 253

Londonderry, NH 03053

The road to community is paved by volunteers

To whom it may concern;

ALERT was formed over 6 years ago as a nonprofit totally volunteer group to aid in search and rescue activities within the town of Londonderry in the memory of one of our own, a three year old who lost his life here in Londonderry in 2003.

Over the years we have grown as a group into an organization dedicated to serving the town of Londonderry in times of need and in various outreach programs.

Our accomplishments for the past year are detailed on the following page showing that we do just what is stated above.

Our most recent call out was the ice storm of 2008 when we gathered as a group and performed duties from clearing roads to helping with shelter operations.

During that time we recognized that we like most others during that time had work to do. Although our training prepared us in ways that we didn't realize, it brought to our attention that as a group and town we have improvements to make such as barriers in communications and the number of volunteers that would be needed. Since then we have chartered to make improvements in these areas.

To do this we depend on donations from groups such as yours and independent fundraising.

All money raised goes back into our training and community outreach programs. One such program is educating our youth about the dangers of the outdoors and how to better prepare and how to react in certain situations.

As a group we are not stopping there, we have plans to do more community outreach such as educating residents on generator safety and carbon monoxide education. We also plan on helping the elderly in times of need by performing checks in conjunction with the town departments.

We as a collective group appreciate your consideration for a donation to our program. If there are any questions we can answer, please do not hesitate to ask.

Sincerely,

Chris Oliverio
ALERT President

*Someone can't help everyone
Everyone can help someone*



ALERT Chosen Londonderry Citizens of the Year 2008

2008 / 2009 Accomplishments

December Ice Storm

Volunteers for Red Cross Shelter at LHS
Traffic Control
Open Roads
Clear Down Trees

Community Support

Londonderry Old Home Days Booth & Float
Londonderry Family Safety Day

Education

Elementary School Enrichment Program
Moose Hill School Outdoor Safety Presentation

Traffic Control

Primary & Election Day traffic control for LPD

Training

CERT (Citizens Emergency Response Team)
training 20+ certificate course
First Aid CPR/AED
Shelter Operation Psychological First Aid
Line Search Stokes Basket Carry
GPS/Compass Chain Saw Safety
Traffic Training PSNH Power Line Safety

Membership

35 Active members
5 new members

APPENDIX E

Older Adult Injury Survey

The Londonderry Fire Department is concerned about injuries sustained by people at home. Please take a moment to complete this survey regarding fall risk in your home so that we can better analyze this issue. *Thank you for taking the time to complete this survey.*

Question 1: (please check only one selection)

Please indicate what age group you are in:

- 50 – 64 years old 65 – 74 years old 75 – 84 years old 85 + years old

Question 2 (please check only one selection)

Have you sustained at least one fall *inside* your home since turning 65?

- Yes No Not applicable

Question 3 (please check only one selection)

If you answered "YES" to question 2: Have any of these falls required medical attention(911, hospital or doctor's visit)?

- Yes No Not applicable

Question 4 (check all that apply)

If you answered "YES" to question 3: Please indicate what type of medical services you have received as a result of a fall in your home:

- Called an ambulance Emergency Department Hospital admission Went to Doctor's office
 Required surgery Required rehab/physical therapy Required visits to medical specialist

Question 5 (please check only one selection)

Have you ever had your home inspected for fall and injury prevention?

- Yes No Never heard of this

Question 6 (please check only one selection)

If fall and injury prevention inspections were available, would you utilize this service?

- Yes No

Question 7 (please check only one selection)

Would you attend a group seminar educating older adults about the risks of falls and other injuries in the home?

- Yes No

Question 8 (please check only one selection)

How likely do you feel you are of sustaining an injury from a fall in your home?

- Very likely Likely Unlikely Very unlikely

Question 9 (please check only one selection)

How much would you be willing to pay for modifications to your home to reduce your risk of injury?

- Nothing \$1 - \$50 \$51- \$100 \$101 - \$500 \$501 or more

Question 10 (check all that apply)

Please indicate any type of injuries you have sustained in or around your home since turning 65:

- Slip on ice Burns Fall from ladder Working w/tools Using kitchen utensils

Please return to: Londonderry Senior Center or Londonderry Fire Department, Attention: Don Waldron, 280 Mammoth Road, Londonderry, NH 03053

APPENDIX F

Older Adults Fall Survey Results
Donald Waldron

PERTINENT RESULTS

RAW DATA

1. What age group are you in?

50-64	8	65-74	29	45%
65-74	29	75-84	26	41%
75-84	28	85+	9	14%
85+	9	Total	64	
Total	72			

2. Have you sustained at least one fall inside your home since turning 65?

Yes	20	Yes	20	30%
No	46	No	46	70%
N/A	5		66	
Total	71			

3. If you answered yes to question 2, have any of these falls required medical attention (911, hospital, or doctor visits)?

Yes	10	Yes	10	45%
No	12	No	12	55%
N/A	41	Total	22	
Total	63			

4. If you answered yes to question 3, please indicate what type of medical services you received as a result of a fall in your home.

Called ambulance	2	Called ambulance	2	20%
Required surgery	4	Required surgery	4	40%
Emergency Department	4	Emergency Department	4	40%
Required rehab/physical therapy	3	Required rehab/physical therapy	3	30%
Hospital admission	1	Hospital admission	1	10%
Doctor's office visit	3	Doctor's office visit	3	30%
Required a medical specialist	5	Required a medical specialist	5	50%
Did not answer	62	Total respondents	10	
Total	84			

5. Have you ever had your home inspected for fall and injury prevention?

Yes	10	Yes	10	14%
No	53	No	53	76%
Never heard of this	7	Never heard of this	7	10%
Did not answer	2		70	
Total	72	Total		

Older Adults Fall Survey Results
Donald Waldron

6. If fall prevention inspections were available would you use this service?

Yes	45	Yes	45	65%
No	24	No	24	35%
Did not answer	3			0%
Total	72	Total	69	

7. Would you attend a group seminar educating older adults about the risk of falls and other injuries in the home?

Yes	49	Yes	49	70%
No	21	No	21	30%
Did not answer	2			0%
Total	72	Total	70	

8. How likely do you feel you are of sustaining an injury from a fall in your home?

Very likely	1	Very likely	1	2%
Likely	17	Likely	17	28%
Unlikely	38	Unlikely	38	58%
Very unlikely	9	Very unlikely	9	14%
Did not answer	7			
Total		Total	65	

9. How much would you be willing to pay for modifications to your home to reduce the risk of injury?

Nothing	41	Nothing	41	60%
\$1-\$50	16	\$1-\$50	16	24%
\$51-\$100	9	\$51-\$100	9	13%
\$101-\$500	2	\$101-\$500	2	3%
\$500 or more	0	\$500 or more	0	0%
Did not answer	4	Total	68	

10. Please indicate the type of injuries you have sustained in or around your home since turning 65:

Slip on ice	21	Slip on ice	21	64%
Burns	5	Burns	5	15%
Fall from ladder	6	Fall from ladder	6	18%
Working with tools	2	Working with tools	2	6%
Utilizing kitchen utensils	5	Utilizing kitchen utensils	5	15%
Did not answer	39	Total respondents	33	

APPENDIX G

Londonderry Fire Department
EMS Response to Falls in persons over 64 years old - FY2007

Date	Incident #	Age	Male	Female	Transport	Non-transport	POV	Cause	Location	Place	Injury	
7/24/2006	20061489	80			1		Tripped	Tripped	Outside	Outside	No injury	
8/16/2006	20061659	74	1				Tripped	Tripped	Home	Walkway	Abraision	
8/20/2006	20061407	86			1				Home	Home	No injury	
8/27/2006	20061727	85			1		Fell out of bed	Fell out of bed	Home	Bedroom	No injury	
9/8/2006	20061805	92	1				Fall	Fall	Home	Bedroom	No injury	
9/11/2006	20061825	76			1		Fall	Fall	Home	Bedroom	Facial injury	
9/12/2006	20061832	94			1		Fall	Fall	Home	Bedroom	No injury	
9/10/2006	20061817	78			1		2 CVA	2 CVA	Home	Shower		
9/14/2006	20061844	83	1		1		Lost balance	Lost balance	Outside	Driveway	Hip pain, arm injury	Previous falls
9/20/2006	20061889	88	1		1		Fall	Fall	Home		Head wound	Fallen 2 days earlier
9/26/2006	20061925	68			1		fall	fall	Commercial	Outside front door	Leg injury	
9/27/2006	20061931	88			1		Fall	Fall	Commercial	Outside front door	Facial injury	
10/11/2006	20062024	80	1		1		Fall	Fall	Outside	Off tractor	Head wound	
10/16/2006	20062058	77	1		1		Fall	Fall	Home	Home	Shoulder injury	
10/25/2006	20062121	68			1		2 CVA	2 CVA	Home	Bedroom		
10/25/2006	20062122	92			1		Fall	Fall	Commercial	Entry door	Thoracic pain	
10/29/2006	20062181	70	1		1		Fall	Fall	Home	Outside	Leg pain	Working on pool
10/27/2006	20062138	69			1		Fall	Fall	Home	Bathroom	Altered LOC	
11/1/2006	20062178	85	1		1		Collapse	Collapse	Home	Hallway		
11/3/2006	20062194	93	1		1		Fall	Fall	Home	Home	Leg pain	Fell 2 days ago
11/10/2006	20062238	78			1		Fall	Fall	Home	Home	No injury	
11/12/2006	20062250	83	1		1		Fall	Fall	Home	Home		
11/14/2006	20062285	78			1		Fall	Fall	Home	Home		
11/16/2006	20062277	83	1		1		Fell out of bed	Fell out of bed	Home	Bedroom	Back pain	Fell 13 hours earlier
11/20/2006	20062301	67	1		1		Fell out of bed	Fell out of bed	Home	Bedroom	No injury	
11/23/2006	20062326	84	1		1		Fell out of bed	Fell out of bed	Commercial	Stairs	Head wound, arm injury	
11/24/2006	20062331	81			1		Fall	Fall	Home	Bedroom	Arm injury	Fell 2 days ago
12/1/2006	20062371	78	1		1		Fall	Fall	Home	Bathroom	Thoracic pain	
12/6/2006	20062400	76	1		1		Fall	Fall	Home	Home	Arm injury	
12/7/2006	20062405	82	1		1		Fall	Fall	Home	Kitchen	Leg injury, thoracic injury, head wound	2 falls today
12/7/2006	20062407	79	1		1		Fall	Fall	Home	Bathroom	Unsteady gait	
12/8/2006	20062422	103	1		1		1 Fall	1 Fall	Home	Kitchen	No injury	2 falls today
12/19/2006	20062488	75	1		1				Home	Stairs	Leg injury	
12/21/2006	20062510	92	1		1		Fall	Fall	Home	Bedroom	Leg injury	
12/22/2006	20062519	67	1		1		Tripped	Tripped	Commercial	Bedroom	Leg injury	
12/23/2006	20062526	66	1		1		Fell out of bed	Fell out of bed	Nursing Home		Soft tissue injury, head, leg, deformity	
12/30/2006	20062576	79	1		1		Syncope	Syncope	Home	Kitchen	Confusion	
1/7/2007	20070042	92	1		1		1 Fall	1 Fall	Home	Home	Soft tissue injury, head	
1/8/2007	20070044	86	1		1		Fall	Fall	Home	Home	Weakness	
1/14/2007	20070074	76	1		1		Fall	Fall	Home	Home	No injury	
1/16/2007	20070202	73	1		1		Fall	Fall	Home	Home	Back pain	
2/5/2007	20070370	82	1		1		Fall	Fall	Home	Bedroom	Weakness	
2/6/2007	20070378	79	1		1		Fall	Fall	Home	Bedroom	Dizziness	

APPENDIX H

Londonderry Fire Department
 EMS Response to Falls in persons over 64 years old - FY 2008

Date	Incident #	Age	Male	Female	Transport	Non-transport	POV	Cause	Place	Location	Injury	
7/5/2007	20071466	77	1	1	1	1	1	Trip	Home	Inside	Arm injury	
7/6/2007	20071471	77	1	1	1	1	1	Trip	Home	Inside	No injury	Transported 1 day earlier also
7/6/2007	20071474	76	1	1	1	1	1	Trip	Home	Inside	Hip pain	
7/7/2007	20071485	92	1	1	1	1	1	Trip	Home	Bedroom	Facial wound	
7/8/2007	20071487	78	1	1	1	1	1	Trip	Commercial	Outside	Altered LOC	
7/16/2007	20071548	79	1	1	1	1	1	Trip	Home	Inside	Weakness	
7/18/2007	20071565	73	1	1	1	1	1	Trip	Home	Inside	Shoulder injury	
7/23/2007	20071603	91	1	1	1	1	1	Slip	Home	Inside	Left injury	
7/24/2007	20071611	72	1	1	1	1	1	Slip	Home	Outside	Head wound	
7/28/2007	20071628	82	1	1	1	1	1	Dizzy	Home	Kitchen	Shoulder injury	
8/6/2007	20071686	87	1	1	1	1	1	Dizzy	Home		Syncope	Fallen several days earlier
8/22/2007	20071783	72	1	1	1	1	1	Lost balance	Home	Inside	Arm injury, leg injury	
8/22/2007	20071786	70	1	1	1	1	1	Lost balance	Home	Inside	Head wound	
9/24/2007	20071908	70	1	1	1	1	1	Dizzy	Home	Inside	Weakness	
9/28/2007	20071844	88	1	1	1	1	1	Dizzy	Commercial	Escalator	Arm injury	
9/31/2007	20071967	66	1	1	1	1	1	Wheelchair	Commercial	Ramp	Arm injury	Drove off ramp
9/7/2007	20071931	85	1	1	1	1	1		Commercial	Escalator	Arm injury and hip pain	
9/12/2007	20071979	65	1	1	1	1	1		Home	Inside	No injury	
9/14/2007	20071982	81	1	1	1	1	1		Home	Bathroom	Abdominal pain	
9/14/2007	20071983	90	1	1	1	1	1	Trip	Home	Bathroom	Facial wound	
9/16/2007	20072004	82	1	1	1	1	1	Trip	Home	Rug	Hip pain	
9/16/2007	20072006	95	1	1	1	1	1	Trip	Home		Back pain	
9/18/2007	20072024	65	1	1	1	1	1	Trip	Commercial	Outside	Facial wound	
9/24/2007	20072069	77	1	1	1	1	1		Home		SOB	
9/25/2007	20072073	81	1	1	1	1	1	Trip	Commercial	Outside	Hip pain	
9/26/2007	20072087	69	1	1	1	1	1	Trip	Home	Kitchen	Facial wound	Falling for few days
10/2/2007	20072122	86	1	1	1	1	1	Trip	Home	Walker	Foot pain	
10/2/2007	20072124	76	1	1	1	1	1	Balance	Home		3 recent falls	
10/4/2007	20072129	73	1	1	1	1	1	Trip	Home		Shoulder injury	
10/16/2007	20072224	92	1	1	1	1	1	Syncope	Home		Dizzy and back pain	Fell 4 days prior
10/26/2007	20072300	78	1	1	1	1	1	Trip	Commercial	Inside	Facial wound	
11/1/2007	20072348	79	1	1	1	1	1	Balance	Commercial	Outside	Leg injury and facial wounds	
11/6/2007	20072380	74	1	1	1	1	1	Trip	Commercial	Inside	Facial wound	
11/10/2007	20072408	77	1	1	1	1	1	Trip	Home	Kitchen	Shoulder injury	
11/24/2007	20072488	93	1	1	1	1	1	Balance	Home		Back pain	
12/2/2007	20072545	74	1	1	1	1	1	Balance	Home	Bathroom	Shoulder injury	
12/17/2007	20072668	89	1	1	1	1	1		Home	Inside	Weakness	
12/24/2007	20072749	68	1	1	1	1	1		Home		Weakness	
1/4/2008	20080030	67	1	1	1	1	1		Commercial	Inside	Finger injury	
1/10/2008	20080082	92	1	1	1	1	1		Home	Inside	No injury	
1/16/2008	20080125	88	1	1	1	1	1	Slip	Home	Kitchen	Back pain	
1/28/2008	20080186	87	1	1	1	1	1		Home		No injury	

Londonderry Fire Department
 EMS Response to Falls in persons over 64 years old - FY2008

2/2/2008	20080241	85	1	1			Home	Shower	Weakness
2/3/2008	20080250	68	1	1			Home		Weakness
2/6/2008	20080289	80	1	1		Out of bed	Home	Bedroom	No injury
2/7/2008	20080281	80	1	1			Home	Inside	No injury
2/8/2008	20080284	70	1	1					SOB
2/11/2008	20080305	89	1	1			Home		Back pain
2/13/2008	20080329	83	1	1		Dizzy	Home	Kitchen	Back pain
2/17/2008	20080355	82	1	1		Tripped	Commercial	Outside	Hip pain
2/17/2008	20080356	68	1	1			Home	Inside	No injury
2/21/2008	20080384	86	1	1			Home	Bedroom	No injury
3/1/2008	20080467	87	1	1			Home	Kitchen	Leg pain
3/19/2008	20080583	78	1	1			Commercial	Escalator	Head wound
3/20/2008	20080599	85	1	1		Ice		Outside	Weakness
3/21/2008	20080602	96	1	1		Slip	Commercial	Outside	Facial wound
3/24/2008	20080622	72	1	1				Outside	Hip pain
3/26/2008	20080642	76	1	1			Home		No injury
3/30/2008	20080665	79	1	1		Walker	Home		Weakness
4/14/2008	200800777	88	1	1		Tripped	Home	Rug	Facial wound
4/16/2008	200800784	88	1	1		Out of bed	Home	Bedroom	Facial wound
5/4/2008	200800825	75	1	1					Headache
5/4/2008	200800826	70	1	1		Tripped	Home		Head wound
5/23/2008	200801088	92	1	1		Leg stiffness	Home	Kitchen	No injury
5/25/2008	200801096	85	1	1			Home		Hip pain
5/26/2008	200801114	73	1	1		From tractor	Home	Outside	Hip pain
5/27/2008	200801119	88	1	1		? Cardiac	Home		3" Heart block
5/31/2008	200801159	79	1	1			Home		Head wound
6/7/2008	200801211	80	1	1		Leg weakness	Home		Weakness
6/29/2008	200801427	82	1	1		Wheelchair	Home	Inside	No injury
TOTAL	71 PCR's	80,169	25	46	12	1			

APPENDIX I

Londonderry Fire Department
EMS Response to Falls in persons over 64 years old - FY2009

Date	Incident #	Age	Male	Female	Transport	Non-transport	POV	Cause	Place	Location	Injury
7/17/2008	2008001483	88	1		1			Lost balance	Commercial	Outside	Hip pain
7/10/2008	2008001526	82	1		1			Trip	Commercial	Outside	Head injury
7/12/2008	2008001544	79		1	1			Lost balance	Home	Inside	Hip pain
7/19/2008	2008001599	75	1		1			Leg problem	Home	Inside	No injury
7/27/2008	2008001674	77		1	1				Home	Bathroom	Pain
8/18/2008	2008001881	66		1	1				Home		Facial wound
8/25/2008	2008001950	80		1	1				Home	Inside	Arm injury
8/28/2008	2008001963	65	1		1				Home	Seated position	Back pain
8/31/2008	2008001992	73		1	1			Trip	Home	Outside	Hip pain
9/22/2008	2008002003	76	1		1				Home		No injury
9/7/2008	2008002047	87		1	1			Trip	Home	Inside	Thoracic pain, back pain
9/18/2008	2008002137	76	1		1			Trip	Home	Inside	No injury
9/26/2008	2008002224	65		1	1			Trip	Commercial	Inside	Hip pain
9/28/2008	2008002246	88	1		1				Home	Bathroom	Shoulder pain
10/10/2008	2008002347	66		1	1			Trip	Home	Outside	Facial wound
10/20/2008	2008002434	73		1	1			Medical	Home	Outside	Facial wound
10/23/2008	2008002457	75		1	1			Slip	Home	Front door	Head wound
10/23/2008	2008002460	82		1	1				Home	Kitchen	Hip pain
10/23/2008	2008002462	82		1	1			Walker problem	Home	Inside	Hip pain
11/3/2008	2008002566	85	1		1			Fell out of chair	Home	Inside	No injury
11/8/2008	2008002615	92		1	1			Fell out of bed	Home	Bathroom	
11/12/2008	2008002644	74		1	1			Not using walker	Home	Bedroom	Shoulder pain
11/18/2008	2008002673	84		1	1				Home	Bedroom	Arm pain
11/18/2008	2008002690	79		1	1			Lost balance	Home	Kitchen	No injury
11/19/2008	2008002699	78		1	1				Home		Leg pain
11/21/2008	2008002720	80	1		1				Home	Inside	No injury
11/23/2008	2008002734	80		1	1			Walker	Home	Living Room	No injury
11/23/2008	2008002741	76	1		1			Lost balance	Home	Bathroom	Back pain
11/26/2008	2008002766	82		1	1			Slip	Home	Bathroom	Head pain
11/28/2008	2008002782	82		1	1				Home	Inside	Can't walk
11/28/2008	2008002787	79		1	1			Trying to reach something	Home	Inside	Neck pain
11/29/2008	2008002791	65		1	1			? CVA	Home		Syncope
12/9/2008	2008002873	78	1		1			Fell	Home		End stage medical condition
12/12/2008	2008002986	67	1		1			Trip	Home	Basement stairs	No injury
12/19/2008	2008003283	87		1	1			Medical	Home	Inside	Weakness
12/24/2008	2008003374	91		1	1			Weakness	Home	Bedroom	Weakness
12/24/2008	2008003376	89	1		1				Home	Kitchen	Arm injury, head wound
12/28/2008	2008003383	86	1		1				Home	Living Room	Head wound
12/28/2008	2008003402	83		1	1			Medical	Home	Hallway	Weakness
1/6/2009	2008000038	85		1	1			Trip	Home	Inside	Hip pain
1/13/2009	2008000104	70		1	1			? CVA	Home	Inside	Head wound
1/14/2009	2008000117	70		1	1			Cardiac arrest	Home	Inside	Cardiac arrest
											Multiple falls

Londonderry Fire Department
 EMS Response to Falls in persons over 64 years old - FY2009

Date	Case #	Age	Sex	Location	Activity	Injury	Location	Notes
1/22/2009	20090002006	80	1	1	? Trip	Home	Inside	Hip pain
1/24/2009	2009000225	82	1	1	Dizziness	Home	Inside	Weakness
1/29/2009	2009000283	76	1	1	Weakness	Home	Inside	SOB
1/29/2009	2009000284	80	1	1	Slip	Home	Inside	No injury
2/1/2009	2009000286	65	1	1	Wheel chair	Home	Inside	No injury
2/2/2009	2009000286	81	1	1	Wheel chair	Home	Inside	No injury
2/4/2009	2009000314	80	1	1		Home	Inside	Head wound, shoulder injury
2/8/2009	2009000338	73	1	1		Home	Inside	No injury
2/8/2009	2009000340	67	1	1		Home	Inside	Pain
2/9/2009	2009000348	76	1	1		Home	Outside	Hip pain
2/12/2009	2009000372	67	1	1	Ice	Home	Outside	Arm injury
2/16/2009	2009000404	77	1	1		Home	Bathroom	Leg pain
2/21/2009	2009000449	77	1	1		Home	Inside	Weakness
2/28/2009	2009000502	77	1	1		Home	Outside	Hip pain
3/7/2009	2009000560	74	1	1	Trip	Home	Outside	Head injury
3/12/2009	2009000599	84	1	1		Home	Inside	SOB
3/15/2009	2009000620	80	1	1	Leg weakness	Home	Inside	No injury
3/17/2009	2009000636	77	1	1	Fell out of bed	Home	Bedroom	Facial wound
3/17/2009	2009000637	89	1	1	Syncope	Home	Bedroom	? CVA
3/21/2009	2009000686	100	1	1	Wheel chair	Home	Inside	Facial wound
3/22/2009	2009000674	67	1	1	Trip	Home	Basement stairs	Arm injury
3/25/2009	2009000689	84	1	1		Home	Inside	Head wound
3/27/2009	2009000719	70	1	1	Walker	Home	Inside	Leg pain
3/31/2009	2009000741	86	1	1	Leg weakness	Commercial	Outside	No injury
4/3/2009	2009000764	67	1	1	Slip	Home	Outside	Leg injury
4/10/2009	2009000806	97	1	1		Home	Bedroom	Back pain
4/17/2009	2009000869	79	1	1		Home	Bedroom	Leg pain
4/21/2009	2009000900	82	1	1		Home	Inside	No injury
4/23/2009	2009000926	86	1	1	Fell out of chair	Home	Living Room	No injury
4/30/2009	2009000988	90	1	1		Home	Inside	Head wound
5/1/2009	2009000996	82	1	1	Slip	Home	Bathroom	Weakness
5/10/2009	2009001074	88	1	1	Balance	Commercial	Inside	Head wound
5/12/2009	2009001083	73	1	1		Home	Bathroom	No injury
5/12/2009	2009001095	73	1	1		Home	Bathroom	Chest pain
5/15/2009	2009001130	87	1	1	Medical	Home	Bathroom	Arm injury
5/18/2009	2009001167	91	1	1	Medical	Home	Inside	Head wound
6/4/2009	2009001300	89	1	1	White sitting	Home		No injury
6/7/2009	2009001327	92	1	1		Home		Head wound
6/9/2009	2009001346	79	1	1		Commercial	Escalator	Leg injury
6/10/2009	2009001350	75	1	1	Trip	Commercial	Outside	Facial wound
6/15/2009	2009001379	92	1	1		Home	Inside	No injury
6/19/2009	2009001413	83	1	1	Trip	Home	Living Room	Back pain
8/23/2009	2009001484	87	1	1	Fell out of bed	Home	Bedroom	Hip pain

Londonderry Fire Department	
EMS Response to Falls in persons over 64 years old - FY2009	
TOTAL	87 PCR's
	78,839
	31
	56
	60
	25
	0

APPENDIX J

Londonderry Fire Department Falls Responses FY2007-FY2009

	FY2007	FY2008	FY2009
Total incidents	1823	1967	2026
Total fall responses	78	71	87
% of fall responses per total responses	4.3%	3.6%	4.3%
Total transports	944	1116	1201
Total fall transports	57	50	60
% of fall transports from all transports	6.0%	4.5%	5.0%
Total 65 or older population	1823	1823	1823
Total fall responses	78	71	87
% of total population needing EMS for falls	4.3%	3.9%	4.8%
Total all population	24837	24837	24837
Total all responses	1820	1967	2026
% of total population needing EMS	7.3%	7.9%	8.2%
Total 65 or older population	1823	1823	1823
Total responses to 65 or older	371	430	455
% of total 65> population needing EMS	20.4%	23.6%	25.0%
Total 65> population responses	371	430	455
Total 65> fall responses	78	71	87
% of total 65> responses for falls	21.0%	16.5%	19.1%

APPENDIX K



Londonderry, NH

Community Contact	Londonderry Community Development Department Andre Garron, Director, AICP 268 B Mammoth Road Londonderry, NH 03053
Telephone	(603) 432-1100 x101
Fax	(603) 432-1128
E-mail	agarron@londonderrynh.org
Web Site	www.londonderrynh.org
Municipal Office Hours	Monday through Friday, 8:30 am - 5 pm
County	Rockingham
Labor Market Area	Nashua NH-MA NECTA Division, NH Portion
Tourism Region	Merrimack Valley
Planning Commission	Southern NH
Regional Development	Rockingham Economic Development Corp.
Election Districts	
US Congress	District 1
Executive Council	District 4
State Senate	District 14
State Representative	Rockingham County District 3

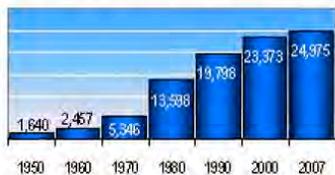
Incorporated: 1722

Origin: This region was settled by Scotch colonists in 1718 at the encouragement of Massachusetts Governor Samuel Shute, when New Hampshire was still considered part of that colony. It was at that time known as Nulfield because of heavily wooded areas. In 1722, the township was incorporated as Londonderry, after the town in Ireland from where many of the settlers had come. At the time, Londonderry was the second-largest town in New Hampshire, and included all or part of Derry, Manchester, and Windham. Early Londonderry settlers spread out into surrounding villages, bringing Scottish and Irish names such as Antrim, Derry, and Dunbarton.

Villages and Place Names: North Londonderry, West Derry, Wilson

Population, Year of the First Census Taken: 2,622 residents in 1790

Population Trends: Londonderry had the fourth largest percent change and the sixth largest percent change over 50 years. Population change totaled



21,733, from 1,640 in 1950 to 23,373 in 2000. The largest decennial percent change was 154 percent between 1970 and 1980. The 2007 Census estimate for Londonderry was 24,975 residents, which ranked ninth among New Hampshire's incorporated cities and towns.

Population Density and Land Area (NH Office of Energy & Planning): 585.5 persons per square mile of land area. Londonderry contains 42.0 square miles of land area and 0.1 square miles of inland water area.



Economic & Labor Market Information Bureau, NH Employment Security, 2008. Community Response Received 08/07/08

All information regarding the communities is from sources deemed reliable and is submitted subject to errors, omissions, modifications, and withdrawals without notice. No warranty or representation is made as to the accuracy of the information contained herein. Specific questions regarding individual cities and towns should be directed to the community contact.

MUNICIPAL SERVICES

Type of Government	Town Council
Budget: Municipal Appropriations, 2008	\$33,328,808
Budget: School Appropriations, 2008	\$60,396,294
Zoning Ordinance	1962/07
Master Plan	2004
Capital Improvement Plan	Yes
Industrial Plans Reviewed By	Planning Board

Boards and Commissions

Elected:	Town Council; School
Appointed:	Planning; Conservation; Library

Public Library Leach

EMERGENCY SERVICES

Police Department	Full-time
Fire Department	Full-time
Town Fire Insurance Rating	5/9
Emergency Medical Service	Municipal
Nearest Hospital(s)	Distance Staffed Beds
Parkland Medical Center, Derry	4 miles 86

UTILITIES

Electric Supplier	PSNH; NH Electric Coop
Natural Gas Supplier	KeySpan
Water Supplier	Pennichuck; Manchester Water Works & private wells

Sanitation Private septic & municipal
Municipal Wastewater Treatment Plant Yes

Solid Waste Disposal	
Curbside Trash Pickup	Municipal
Pay-As-You-Throw Program	No
Recycling Program	Yes

Telephone Company	Fairpoint
Cellular Telephone Access	Yes
Cable Television Access	Yes
Public Access Television Station	Yes
High Speed Internet Service:	Business Yes
Residential	Yes

PROPERTY TAXES (NH Dept. of Revenue Administration)

2007 Total Tax Rate (per \$1000 of value)	\$18.22
2007 Equalization Ratio	98.8
2007 Full Value Tax Rate (per \$1000 of value)	\$17.91

2007 Percent of Local Assessed Valuation by Property Type	
Residential Land and Buildings	72.9%
Commercial Land and Buildings	16.6%
Public Utilities, Current Use, and Other	10.5%

HOUSING SUPPLY (NH Office of Energy and Planning)

2007 Total Housing Units	8,544
2007 Single-Family Units	5,953
Residential Permits, Net Change of Units	51
2007 Multi-Family Units	2,262
Residential Permits, Net Change of Units	0
2007 Manufactured Housing Units	329

DEMOGRAPHICS

(US Census Bureau)

Total Population	Community	County
2007	24,975	296,543
2000	23,373	278,748
1990	19,798	246,744
1980	13,598	190,345
1970	5,346	138,951

Census 2000 Demographics

Population by Gender		
Male	11,443	Female 11,793

Population by Age Group

Under age 5	1,726
Age 5 to 19	6,500
Age 20 to 34	3,408
Age 35 to 54	8,670
Age 55 to 64	1,699
Age 65 and over	1,233
Median Age	35 years

Educational Attainment, population 25 years and over

High school graduate or higher	93.4%
Bachelor's degree or higher	35.9%

ANNUAL INCOME, 1999

(US Census Bureau)

Per capita income	\$26,491
Median 4-person family income	\$73,513
Median household income	\$70,501

Median Earnings, full-time, year-round workers

Male	\$50,566
Female	\$33,821

Families below the poverty level

1.6%

LABOR FORCE

(NHES - ELM)

Annual Average	1997	2007
Civilian labor force	12,747	14,592
Employed	12,345	14,084
Unemployed	402	508
Unemployment rate	3.2%	3.5%

EMPLOYMENT & WAGES

(NHES - ELM)

Annual Average Covered Employment	1997	2007
Goods Producing Industries		
Average Employment	2,243	3,792
Average Weekly Wage	\$774	\$1,074
Service Providing Industries		
Average Employment	5,936	8,542
Average Weekly Wage	\$498	\$723
Total Private Industry		
Average Employment	8,179	12,334
Average Weekly Wage	\$574	\$831
Government (Federal, State, and Local)		
Average Employment	872	1,246
Average Weekly Wage	\$624	\$846
Total, Private Industry plus Government		
Average Employment	9,051	13,579
Average Weekly Wage	\$578	\$832

n = indicates that data does not meet disclosure standards

EDUCATION AND CHILD CARE

Schools students attend: **Londonderry operates grades 1-12** District: **SAU 12**
 Career Technology Center(s): **Pinkerton Academy, Derry; Salem High School Vocational Center** Region: **17**

Educational Facilities	Elementary	Middle/Junior High	High School	Private/Parochial
Number of Schools	4	1	1	1
Grade Levels	P K 1-5	6-8	9-12	K 1-12
Total Enrollment	2,285	1,300	1,828	78

NH Licensed Child Care Facilities, 2008: Total Facilities: **32** Total Capacity: **1,502**

Nearest Community College: **Nashua**

Nearest Colleges or Universities: **Chester College of New England; Hesser; Southern NH University; UNH-Manchester**

LARGEST BUSINESSES	PRODUCT/SERVICE	EMPLOYEES	ESTABLISHED
Insight Technologies	Manufacturing	1,300	
Harvey Industry	Window manufacturer	500	2007
Londonderry School District	Education	493	
Stonyfield Farms	Yogurt producer	375	1989
United Parcel Service Inc.	Parcel delivery services	288	1993
Vibro-meter	Aerospace component manufacturer	188	
Continental Paving	Road construction	165	1986
Coca Cola	Beverage manufacturer	160	
Shaw's Supermarket	Supermarket	140	
CTS, Corp.	Electronic components manufacturer	130	

TRANSPORTATION (distances estimated from city/town hall)

Road Access US Routes
 State Routes **28, 102, 128**
 Nearest Interstate, Exit **I-93, Exits 4 - 5**
 Distance **Local access**

Railroad **No**
 Public Transportation **No**

Nearest Public Use Airport, General Aviation
Manchester-Boston Regional Runway **9,250 ft. asphalt**
 Lighted? **Yes** Navigation Aids? **Yes**

Nearest Airport with Scheduled Service
Manchester-Boston Regional Distance **Local**
 Number of Passenger Airlines Serving Airport **8**

Driving distance to select cities:
 Manchester, NH **10 miles**
 Portland, Maine **96 miles**
 Boston, Mass. **44 miles**
 New York City, NY **247 miles**
 Montreal, Quebec **270 miles**

COMMUTING TO WORK (US Census Bureau)

Workers 16 years and over
 Drove alone, car/truck/van **86.3%**
 Carpooled, car/truck/van **7.9%**
 Public transportation **1.3%**
 Walked **0.6%**
 Other means **0.7%**
 Worked at home **3.2%**
 Mean Travel Time to Work **29.7 minutes**

Percent of Working Residents:
 Working in community of residence **22%**
 Commuting to another NH community **50%**
 Commuting out-of-state **28%**

RECREATION, ATTRACTIONS, AND EVENTS

- X Municipal Parks
- X YMCA/YWCA
- Boys Club/Girls Club
- X Golf Courses
- X Swimming: Indoor Facility
- Swimming: Outdoor Facility
- Tennis Courts: Indoor Facility
- X Tennis Courts: Outdoor Facility
- Ice Skating Rink: Indoor Facility
- Bowling Facilities
- X Museums
- X Cinemas
- Performing Arts Facilities
- X Tourist Attractions
- X Youth Organizations (i.e., Scouts, 4-H)
- X Youth Sports: Baseball
- X Youth Sports: Soccer
- X Youth Sports: Football
- X Youth Sports: Basketball
- X Youth Sports: Hockey
- Campgrounds
- X Fishing/Hunting
- Boating/Marinas
- X Snowmobile Trails
- X Bicycle Trails
- X Cross Country Skiing
- Beach or Waterfront Recreation Area
- Overnight or Day Camps
- Nearest Ski Area(s): **McIntyre**
- Other: **Hiking**

APPENDIX L

Londonderry town, Rockingham County, New Hampshire - ACS Demographic and Housi... Page 1 of 3



Londonderry town, Rockingham County, New Hampshire
ACS Demographic and Housing Estimates: 2005-2007
 Data Set: 2005-2007 American Community Survey 3-Year Estimates
 Survey: American Community Survey

NOTE: Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

For more information on confidentiality protection, sampling error, nonsampling error, and definitions, see Survey Methodology.

ACS Demographic and Housing Estimates	Estimate	Margin of Error	Percent	Margin of Error
SEX AND AGE				
Total population	24,540	+/-866	100%	(X)
Male	12,122	+/-608	49.4%	+/-1.7
Female	12,418	+/-598	50.6%	+/-1.7
Under 5 years	1,494	+/-382	6.1%	+/-1.5
5 to 9 years	1,869	+/-386	7.6%	+/-1.5
10 to 14 years	2,337	+/-425	9.5%	+/-1.8
15 to 19 years	2,076	+/-384	8.5%	+/-1.5
20 to 24 years	1,105	+/-287	4.5%	+/-1.2
25 to 34 years	2,598	+/-548	10.6%	+/-2.2
35 to 44 years	4,065	+/-493	16.6%	+/-2.0
45 to 54 years	3,837	+/-432	15.6%	+/-1.7
55 to 59 years	1,728	+/-301	7.0%	+/-1.2
60 to 64 years	1,810	+/-345	8.6%	+/-1.4
65 to 74 years	1,252	+/-343	5.1%	+/-1.4
75 to 84 years	518	+/-188	2.1%	+/-0.8
85 years and over	53	+/-62	0.2%	+/-0.3
Median age (years)	36.9	+/-1.3	(X)	(X)
18 years and over	17,294	+/-531	70.5%	+/-1.8
21 years and over	18,567	+/-526	67.5%	+/-1.8
62 years and over	2,608	+/-386	10.6%	+/-1.6
65 years and over	1,823	+/-302	7.4%	+/-1.2
18 years and over	17,294	+/-531	100%	(X)
Male	8,576	+/-429	34.9%	+/-1.7
Female	8,718	+/-414	35.5%	+/-1.5
65 years and over	1,823	+/-302	100%	(X)
Male	763	+/-183	3.1%	+/-0.7
Female	1,060	+/-206	4.3%	+/-0.8
RACE				
Total population	24,540	+/-866	100%	(X)
One race	N	N	N	(X)
Two or more races	N	N	N	(X)
One race	N	N	N	N
White	N	N	N	N
Black or African American	N	N	N	N
American Indian and Alaska Native	N	N	N	N
Cherokee tribal grouping	N	N	N	N
Chippewa tribal grouping	N	N	N	N

ACS Demographic and Housing Estimates	Estimate	Margin of Error	Percent	Margin of Error
Navajo tribal grouping	N	N	N	N
Sioux tribal grouping	N	N	N	N
Asian	N	N	N	N
Asian Indian	N	N	N	N
Chinese	N	N	N	N
Filipino	N	N	N	N
Japanese	N	N	N	N
Korean	N	N	N	N
Vietnamese	N	N	N	N
Other Asian	N	N	N	N
Native Hawaiian and Other Pacific Islander	N	N	N	N
Native Hawaiian	N	N	N	N
Guamanian or Chamorro	N	N	N	N
Samoan	N	N	N	N
Other Pacific Islander	N	N	N	N
Some other race	N	N	N	N
Two or more races	N	N	N	N
White and Black or African American	N	N	N	N
White and American Indian and Alaska Native	N	N	N	N
White and Asian	N	N	N	N
Black or African American and American Indian and Alaska Native	N	N	N	N
Race alone or in combination with one or more other races				
Total population	24,540	+/-866	100%	(X)
White	23,868	+/-842	97.3%	+/-1.5
Black or African American	484	+/-410	2.0%	+/-1.7
American Indian and Alaska Native	243	+/-197	1.0%	+/-0.8
Asian	346	+/-206	1.4%	+/-0.8
Native Hawaiian and Other Pacific Islander	N	N	N	N
Some other race	N	N	N	N
HISPANIC OR LATINO AND RACE				
Total population	24,540	+/-866	100%	(X)
Hispanic or Latino (of any race)	N	N	N	N
Mexican	N	N	N	N
Puerto Rican	N	N	N	N
Cuban	N	N	N	N
Other Hispanic or Latino	N	N	N	N
Not Hispanic or Latino	N	N	N	N
White alone	N	N	N	N
Black or African American alone	N	N	N	N
American Indian and Alaska Native alone	N	N	N	N
Asian alone	N	N	N	N
Native Hawaiian and Other Pacific Islander alone	N	N	N	N
Some other race alone	N	N	N	N
Two or more races	N	N	N	N
Two races including Some other race	N	N	N	N
Two races excluding Some other race, and Three or more races	N	N	N	N
Total housing units	8,484	+/-125	100%	(X)

Source: U.S. Census Bureau, 2005-2007 American Community Survey

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

Notes:

For more information on understanding race and Hispanic origin data, please see the Census 2000 Brief entitled, Overview of Race and Hispanic Origin, issued March 2001. (pdf format)

While the 2007 American Community Survey (ACS) data generally reflect the December 2006 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities. The 2007 Puerto Rico Community Survey (PRCS) data generally reflect the December 2005 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in PRCS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

*Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2000 data. Boundaries for urban areas have not been updated since Census 2000. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Explanation of Symbols:

Londonderry town, Rockingham County, New Hampshire - ACS Demographic and Housi... Page 3 of 3

1. An "..." entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
2. An "..." entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
3. An "L" following a median estimate means the median falls in the lowest interval of an open-ended distribution.
4. An "U" following a median estimate means the median falls in the upper interval of an open-ended distribution.
5. An "..." entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
6. An "*****" entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
7. An "N" entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
8. An "(X)" means that the estimate is not applicable or not available.

The letters PDF or symbol  indicate a document is in the Portable Document Format (PDF). To view the file you will need the Adobe® Acrobat® Reader, which is available for free from the Adobe web site.

APPENDIX M

United States - QT-P1. Age Groups and Sex: 2000

Page 1 of 1



QT-P1. Age Groups and Sex: 2000
Data Set: Census 2000 Summary File 1 (SF 1) 100-Percent Data
Geographic Area: United States

NOTE: For information on confidentiality protection, nonsampling error, definitions, and count corrections see <http://factfinder.census.gov/home/en/datatools/expstfu.htm>.

Age	Number			Percent			Males per 100 females
	Both sexes	Male	Female	Both sexes	Male	Female	
Total population	281,421,906	138,053,563	143,368,343	100.0	100.0	100.0	96.3
Under 5 years	19,175,798	9,810,733	9,365,065	6.8	7.1	6.5	104.8
5 to 9 years	20,549,505	10,523,277	10,026,228	7.3	7.6	7.0	105.0
10 to 14 years	20,528,072	10,520,197	10,007,875	7.3	7.6	7.0	105.1
15 to 19 years	20,219,890	10,391,004	9,828,886	7.2	7.5	6.9	105.7
20 to 24 years	18,964,001	9,687,814	9,276,187	6.7	7.0	6.5	104.4
25 to 29 years	19,381,336	9,798,760	9,582,576	6.9	7.1	6.7	102.3
30 to 34 years	20,510,388	10,321,769	10,188,619	7.3	7.5	7.1	101.3
35 to 39 years	22,706,664	11,318,696	11,387,968	8.1	8.2	7.9	99.4
40 to 44 years	22,441,863	11,129,102	11,312,761	8.0	8.1	7.9	98.4
45 to 49 years	20,092,404	9,889,506	10,202,898	7.1	7.2	7.1	96.9
50 to 54 years	17,585,548	8,607,724	8,977,824	6.2	6.2	6.3	95.9
55 to 59 years	13,469,237	6,508,729	6,960,508	4.8	4.7	4.9	93.5
60 to 64 years	10,805,447	5,136,627	5,668,820	3.8	3.7	4.0	90.6
65 to 69 years	9,533,545	4,400,362	5,133,183	3.4	3.2	3.6	85.7
70 to 74 years	8,867,441	3,902,912	4,964,529	3.1	2.8	3.5	78.8
75 to 79 years	7,415,813	3,044,456	4,371,357	2.6	2.2	3.0	69.6
80 to 84 years	4,945,367	1,834,897	3,110,470	1.8	1.3	2.2	59.0
85 to 89 years	2,789,818	876,501	1,913,317	1.0	0.6	1.3	45.8
90 years and over	1,449,769	350,497	1,099,272	0.5	0.3	0.8	31.9
Under 18 years	72,293,812	37,059,196	35,234,616	25.7	26.8	24.6	105.2
18 to 64 years	174,136,341	86,584,742	87,551,599	61.9	62.7	61.1	98.9
18 to 24 years	27,143,454	13,873,829	13,269,625	9.6	10.0	9.3	104.6
25 to 44 years	85,040,251	42,568,327	42,471,924	30.2	30.8	29.6	100.2
25 to 34 years	39,891,724	20,120,529	19,771,195	14.2	14.6	13.8	101.8
35 to 44 years	45,148,527	22,447,798	22,700,729	16.0	16.3	15.8	98.9
45 to 64 years	61,952,636	30,142,586	31,810,050	22.0	21.8	22.2	94.8
45 to 54 years	37,677,952	18,497,230	19,180,722	13.4	13.4	13.4	96.4
55 to 64 years	24,274,684	11,645,356	12,629,328	8.6	8.4	8.8	92.2
65 years and over	34,991,753	14,409,625	20,582,128	12.4	10.4	14.4	70.0
65 to 74 years	18,390,986	8,303,274	10,087,712	6.5	6.0	7.0	82.3
75 to 84 years	12,361,180	4,879,353	7,481,827	4.4	3.5	5.2	65.2
85 years and over	4,239,587	1,226,998	3,012,589	1.5	0.9	2.1	40.7
16 years and over	217,149,127	105,134,229	112,014,898	77.2	76.2	78.1	93.9
18 years and over	209,128,094	100,994,367	108,133,727	74.3	73.2	75.4	93.4
21 years and over	196,899,193	94,737,132	102,162,061	70.0	68.6	71.3	92.7
60 years and over	45,797,200	19,546,252	26,250,948	16.3	14.2	18.3	74.5
62 years and over	41,256,029	17,373,013	23,883,016	14.7	12.6	16.7	72.7
67 years and over	31,101,522	12,594,818	18,506,704	11.1	9.1	12.9	68.1
75 years and over	16,600,767	6,106,351	10,494,416	5.9	4.4	7.3	58.2
Median age (years)	35.3	34.0	36.5	(X)	(X)	(X)	(X)

(X) Not applicable

Source: U.S. Census Bureau, Census 2000 Summary File 1, Matrices P13 and PC112.

APPENDIX N

Falls and Fire Burn Prevention in the Older Adult: Joining Forces

Come explore ways to keep the elderly safe in our communities. This workshop will provide you up-to-date information on falls and fire prevention in the elderly, along with ideas on how to collaborate with other professional organizations in your area on prevention programming.

Workshops include:

Fire and Burns; What is the Risk to New Hampshire's Elder Population?

Presented by: Stephanie Johnson - NH Fire Marshal Office

An overview of NH statistics for our elder population and how to provide education on fire and burn prevention in the home and community.

*Lunch
Provided!*

Elderly Falls in Community Living

Presented by Debra Belanger, OTR/L - Concord Regional Visiting Nurse Association

Falling is not a diagnosis! Do you want to reduce the number of times you go to help assist picking up an elderly person after they have fallen? Collaboration with EMS and the visiting nurse association can do that!

Programs to Bring to Your Community

Presented By: Stephanie Johnson - NH Fire Marshal Office

How can we be proactive with fire and falls prevention with our elderly population? The program "Remembering When" will prepare you and your colleagues!

*Receive
Continuing
Education
Units!*

Panel Discussion

The panelists will bring their expertise and open the floor for discussion on best practices for Fire and Falls Prevention. Please join the discussion!

February 18, 2009	9:00 am to 3:00 pm	Home Healthcare Hospice and Community Services, Keene
March 5, 2009	9:00 am to 3:00 pm	Conway Fire Department
March 27, 2009	9:00 am to 3:00 pm	Weeks Medical Center, Whitefield
Also coming to the Seacoast and Nashua areas later in 2009!		

Presented by:



CONCORD REGIONAL
VISITING NURSE
ASSOCIATION



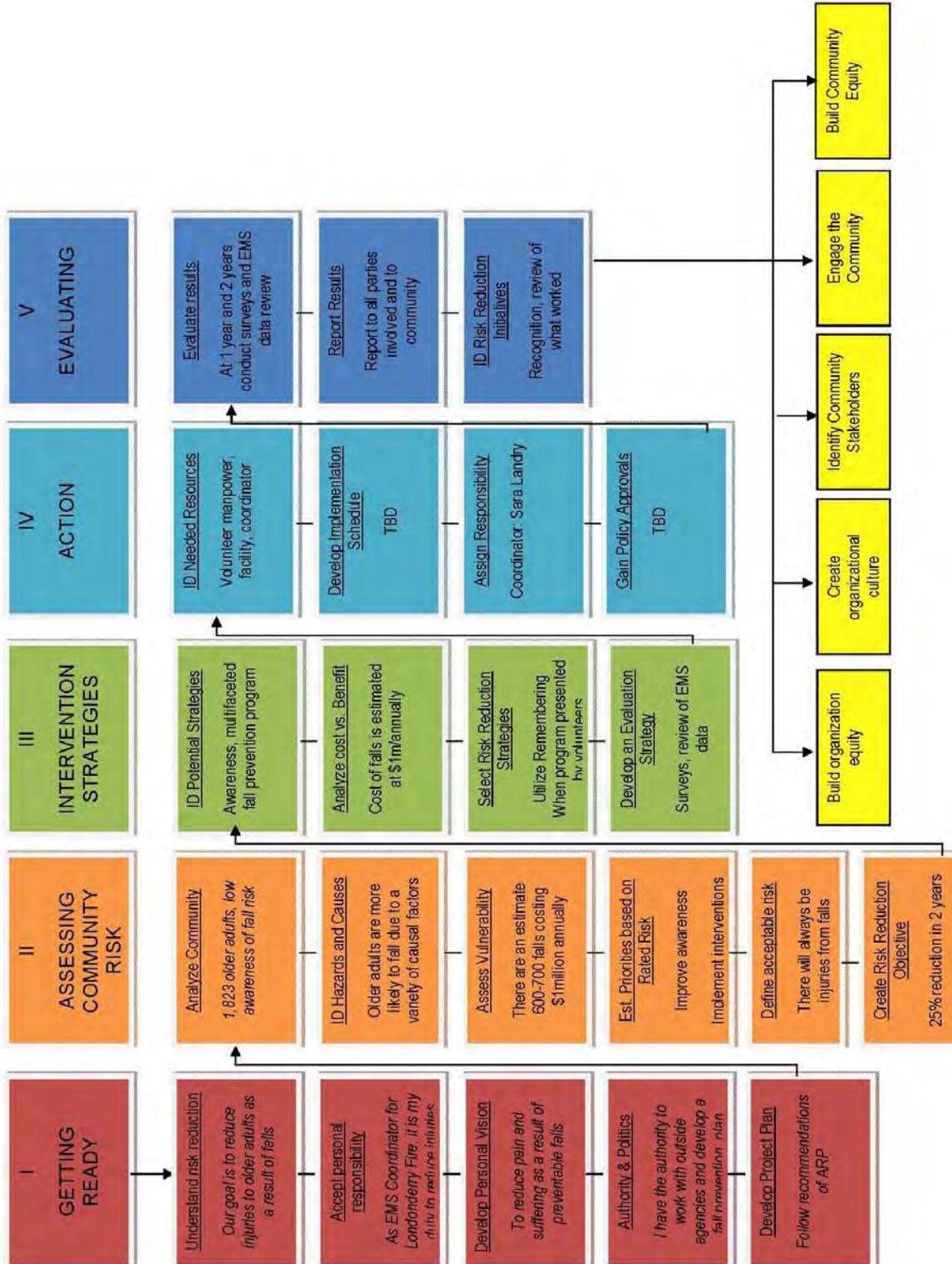
APPENDIX O

Londonderry, NH Older Adult Fall Reduction Potential Stakeholders

Agency	Role
A.L.E.R.T.	Delivery of educational/awareness program
Building materials suppliers (Home Depot, Benson's Lumber)	Donation of home modification construction materials
Contractors (local)	To provide home modifications
Elliot Hospital	RN/Physician support
Londonderry Fire Department	Identify older adults in need of services/referrals, home risk assessments.
Londonderry Health Department	Assist in program administration and delivery
Londonderry Recreation Department	Deliver fall reduction/balance exercise program
Londonderry Senior Affairs Department	Overall coordination and management of falls reduction program
Local fitness center (Workout Club, Executive)	Deliver fall reduction/balance exercise program
NH Falls Risk Reduction Task Force	Provide program and materials support
Older adults	Provide input and feedback, participate in risk reduction programs
Parkland Medical Center	RN/Physician support
Pharmacies (local)	Prescription interaction assessments
Physical/occupational therapists (local)	Perform physical/balance tests and deliver exercise programs
Visiting Nurses Association	Identifying at risk people, delivering in home fall reduction programs, home risk assessments

APPENDIX P

Londonderry Falls Risk Reduction Community Risk Reduction Model



APPENDIX Q

Londonderry Fall Prevention Task Force Proposed Fall Prevention Program Implementation Guide

By Donald Waldron, Londonderry Fire Department

Based on recommendations of "Preventing Falls: How to Develop Community-based Fall Prevention Programs for Older Adults" National Center for Injury Prevention and Control. (2008). Atlanta, GA.

This proposed implementation guide is intended merely to assist with the initial steps of implementing a fall prevention program for Londonderry, New Hampshire. Some items in these documents, such as program goals, may need to be adjusted while preparing to implement this program.

Step 1: Assess Londonderry's needs

Fall prevention needs in Londonderry:

- Increase awareness of problem
- Provide multi-faceted interventions including exercise, vision assessment, poly-pharmacy assessment, home risk assessment and home modifications
- Provide method for Fire Department and Visiting Nursing Associations to recognize people at risk of falls in the community and provide interventions

Support for program

- All community organizations involved with initial discussions about program have expressed support and recognition of the need for this program

Related programs or services are currently being offered by other organizations:

- Exercise programs designed for older adults and improve balance offered through the Londonderry Senior Center

Step 2: Determine program's purpose, goals, and objectives

- Program goals:
 - Increase community awareness of the problem of older adult falls by 50% in two years
 - Reduce the number of ambulance responses to older adult falls by 25% in two years
- Program objectives
 - Provide falls awareness training to 100 people in two years
 - Conduct 25 home visits in two years

- Conduct 25 home modifications in two years
- Conduct 25 poly-pharmacy assessments in two years
- Conduct 25 vision assessments in two years
- Identify 15 residents in the community at risk of falls who were not aware of fall prevention services available to them
- Task force to develop a purpose statement to answer: "What do we hope to accomplish?"

Step 3: Determine what risk factors your program will address

- Awareness: Program will deliver fall prevention awareness training to older adults utilizing NFPA/CDC *Remembering When*TM program
- Balance: Make participants aware of on-going balance improving exercise programs available to and the relevance to fall prevention
- Vision assessment: Provide vision assessments to older adults
- Poly-pharmacy assessment: Provide older adults access to a pharmacist to assess for possible prescription medication interactions which may increase the likeliness of falling
- Home visits: Provide in-home education and risk surveys and make recommendations for home modifications
- Home modifications: Provide basic home modifications and provide resources so that home owner may make arrangements for a contractor to make more substantial modifications
- Outreach: Identify people in the community that are at risk of falls

Step 4: Collaborate with partners to address additional risk

- Possible stakeholders/partners:
 - Fire Department
 - Senior Affairs Department
 - Elliot Senior Health
 - Elliot Hospital
 - A.L.E.R.T.
 - Rockingham Visiting Nursing Association
 - Parkland Medical Center
 - Older adults
 - New Hampshire Falls Risk Reduction Task Force

- Contractors
- Building materials suppliers
- Local pharmacies
- Recreation Department
- Optometrists

Step 5: Who will implement the various program components

- Awareness: Fire Department, A.L.E.R.T.
- Balance: Senior Center on-going exercise programs
- Vision assessment: Optometrist
- Poly-pharmacy assessment: Local pharmacies
- Home visits: A.L.E.R.T., Rockingham Visiting Nursing Association, Fire Department
- Home modifications: Minor: A.L.E.R.T., Fire Department, major: local contractors
- Outreach: Fire Department, Rockingham Visiting Nursing Association

Step 6: Find a location to conduct the program

- Most programs would be offered at the Londonderry Senior Center
- Some exercise programs are offered at the Londonderry YMCA

Step 7: Evaluate the program

- At one and two year points a review of Fire Department run statistics would be compared to pre-program findings
- At one and two year points a survey of mostly older adults at the Londonderry Senior Center Valentine's Day dinner would be conducted. Results would be compared to the findings of the original survey in 2009
- A tally of in-home visits would be calculated and compared with program objectives
- A tally of the number of people attending falls awareness training would be calculated and compared with program objectives
- A tally of home modifications performed would be calculated and compared with program objectives
- A tally of vision assessments performed would be calculated and compared with program objectives

- A tally of poly-pharmacy assessments would be calculated and compared with program objectives
- A tally of at-risk residents identified through outreach programs would be calculated and compared with program objectives

Step 8: Promote your program

- A variety of resources are available to advertise fall prevention programs. The include:
 - ❖ Derry News newspaper
 - ❖ Londonderry Times newspaper
 - ❖ Londonderry Senior Affairs Newsletter
 - ❖ Local access cable channel
 - ❖ Local websites

Step 9: Sustain your program

- Funding sources available to sustain the program
 - ❖ The Alexander Eastman Foundation Grant
 - ❖ Assistance to Firefighter's Grant
 - ❖ Robert Wood Johnson Foundation

APPENDIX R

A.L.E.R.T. Meeting Focus Group Questions

August 6, 2009

Donald Waldron

1. Do you feel that injury prevention programs for older adults are within your scope?
2. Were you aware of the extent of the problem of older adults?
3. Has your organization considered injury prevention programs for older adults in the past?
4. Would your personnel be up to the tasks of an ongoing program, with possibly quarterly community outreach programs?
5. Would your organization be willing to perform group seminar training sessions?
6. Would your organization be willing to perform in-home visits with older adults to conduct education, awareness and home risk assessments?
7. Do you have personnel that would be able to perform minor home modifications (ie: repair of a hand rail, light bulb change, stair tread repair)?
8. How has your organization addressed liability concerns for your members?
9. On your website you have a link to Citizens Corp? Are you a member of Citizen Corps?
10. Have you considered becoming a member of Fire Corps? If so, is there a reason this has not been done?
11. Does your organization have any questions or concerns about doing this?
12. Would your organization be up to the task of being the fall prevention program coordinator if need be?