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Engaging with First Responders to Prevent Falls in Older Adults

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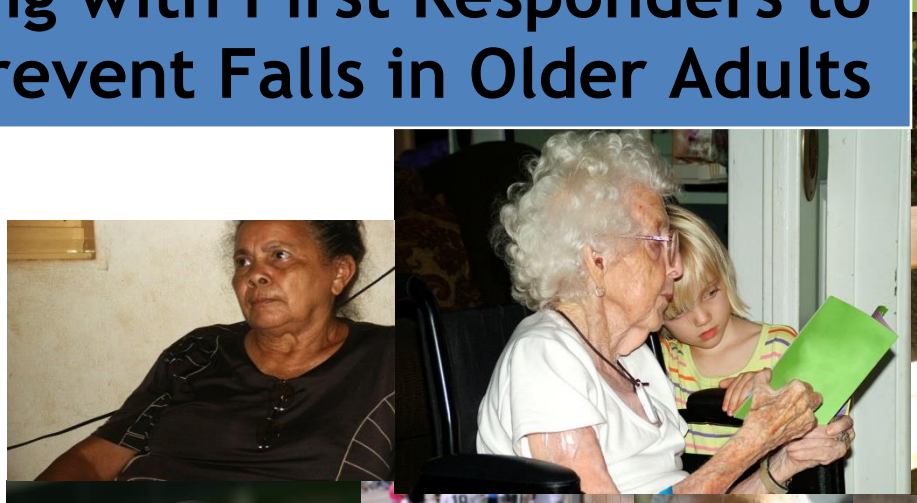
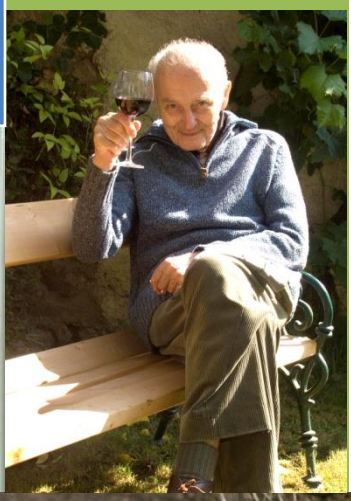



Novato Fire Protection District

Dominican University

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Executive Summary

Statement of the Problem

The older adult population is growing rapidly in the United States as the Baby Boomer generation reaches 65 years of age and over. People age 65+ represented 12.4% of the U.S. population in the year 2000 but are expected to grow to be 19% of the population by 2030 (Administration on Aging, 2012). California's elderly population is considered one of fastest growing in the nation with Marin County keeping pace with the rest of the state (California Department of Aging, 2012). In 2010, the number of people in Marin age 60 years and older was 75,900, and it is expected to increase to 90,300 by 2015 (Martin, 2012). In the city of Novato, approximately 13% of the population is 65 years and older (American Towns, 2012).

Falls are one of the top major health concerns in older adults. One in three older adults experiences a fall every year (CDC, 2012). Among those age 65 and older falls are the leading cause of injury death and the most common cause of nonfatal injuries and hospital admissions for trauma (Hausdorff, Rios, Edelber, 2001) (Hornbrook et.al. 1994).

Fall-related injuries are one of the 20 most expensive medical conditions in community-dwelling older adults. Falls incidents are increasing as the older population increases. The total direct medical costs of fall injuries for individuals 65 and above exceeded $19 billion in the year of 2000 and is expected to reach approximately $55 billion in 2020 (CDC, 2012).

The NFPD Older Adult Fall Study

In order to further explore the circumstances of falls in the City of Novato's older adults age 60 and over Novato Fire Protection District (NFPD) partnered with Dominican University Occupational Therapy Department to conduct a study with the support of County of Marin Mental Health Services Act funds. The following were the goals of this study:

1. Identify fall risk factors in community-dwelling older adults.
2. Understand the experiences of older adults who have fallen.
3. Determine whether there is a relationship between falls and depression in older adults.
4. Examine first responder experiences with fall-related calls in older adults.
5. Identify approaches to prevent falls in older adults.

Data sources included Patient Care Reports (PCRs) completed by EMS first responders with narratives coded by the researchers, two focus groups conducted with older adults living in adult care facilities, telephone interviews with four older adults residing at home in the community and a focus group with NFPD first responders.

Summary of Findings

- The study included 412 falls and 59 near falls to older adults treated by NFPD in 2012.

- The older adult patients who were treated for falls or near falls and who were transported to a hospital due to the medical condition leading to the fall or as a result of the fall comprised 13% of all NFPD transports in 2012.
- The average age of this study sample was 81 years and 62% were female.
- 8% of individuals seen by NFPD in 2012 for a fall who had a PCR had a repeat visit for a fall that year.
- 53% of falls were mechanical in cause (trip, slip, fall from object, loss of balance) and 29% were related to medical reasons (e.g., weakness, dizziness, syncope, illness).
- 57% of falls occurred in a home/residence, 24% in an adult care facility, 10% in a public building or retail location, and 8% in another location (e.g., recreational setting). 74% occurred indoors and 25% outside.
- Patients were most likely to be walking during the fall (47%), changing position or elevation (23%), or in a stationary sitting or standing position (17%)
- Nearly one half (47%) of calls were to someone who was alone.
- Adaptive equipment was involved in more falls involving those age 80 and over while other physical hazards were more likely to be present in those under 80 years.
- Long-term consequences of falls as reported by older adults in focus groups and interviews included: contributing to their move into an adult care facility, fear about future falls, fear of loss of independence, and frustration or depression over loss of independence or ability to do things.
- Challenges faced by first responders who treat older fall patients include: obtaining an accurate and complete health history and description of injury location and pain level, responding to non-injured repeat falls, and need for additional referral resources.
- Fall prevention strategies discussed by older adults and first responders included: being prepared for a future fall, receiving educational material, having home fall safety assessments, and addressing issues of polypharmacy.

Recommendations

The following recommendations are based on the quantitative and qualitative data from this study and address both intrinsic and extrinsic factors in falls.

1. Consider factors of age, fall location and setting when targeting interventions.
2. Take into account the aging individual's fear of loss of independence when designing programs.
3. Target services for older adults living alone.
4. Address needs of repeat patients.
5. Conduct home fall safety assessments.
6. Create prevention strategies for falls that occur when an individual is getting out of bed, often in the night to toilet.
7. Reduce unnecessary polypharmacy in older adults.
8. Provide referrals for substance use treatment and mental health services for older adults.
9. Provide EMS training on communicating with older adults.
10. Provide additional referral resources for EMS.
11. Further explore the feasibility of EMS screening for depression.

Background

Falls as a Major Health Concern Among Older Adults[1]

Prevalence and Consequences of Falls

The older adult population is growing rapidly in the United States as the Baby Boomer generation reaches 65 years of age and over. People 65+ represented 12.4% of the U.S. population in the year 2000 but are expected to grow to be 19% of the population by 2030. The number of people aged 85 and older is expected to triple over the next forty years (Administration on Aging, 2012). In California, elderly population is considered one of fastest growing in the nation (California Department of Aging, 2012). The California Department of Aging reported that from 1990 to 2020 the population of older adults (65 years and over) will increase by 112%, and the oldest old population (85 years and over) will increase by 143%. Marin County is keeping pace with the rest of California. In 2010, the number of people aged 60 years and older was 75,900, and it is expected to increase to 90,300 by 2015 (Martin, 2012). In the city of Novato, approximately 13% of the population is 65 years and older (American Towns, 2012).

A fall is defined as **"an event which results in a person coming to rest inadvertently on the ground or floor or other lower level"** (World Health Organization, 2010). Falls are one of the top major health concerns in older adults. One in three older adults experiences a fall every year (CDC, 2012). Among those age 65 and older falls are the leading cause of injury death and the most common cause of nonfatal injuries and hospital admissions for trauma (Hausdorff, Rios, Edelber, 2001) (Hornbrook et.al. 1994). Injuries that result from falls prevent older adults from participating in daily activities such as cooking, cleaning, and even going for walks (U.S. Department of Health and Human Services, 2012b). As a result, many older adults develop sedentary behavior, a fear of falling, depression, and ultimately a decreased quality of life (Healthy People, 2020; U.S. Department of Health and Human Services, 2012c). After experiencing a fall, even if they are not injured, some older adults may acquire a fear of falling. Fear of falling has been shown to increase with age and is associated with depression, poor health status, and decreased quality of life (Lach, 2005). Individuals who have a fear of falling tend to restrict their participation in activities leading to reduced mobility and loss of physical fitness which in turn actually increases their risk of experiencing future falls.

Fall-related injuries are one of the 20 most expensive medical conditions in community-dwelling older adults. Falls incidents are increasing as the older population increases. The total direct medical costs of fall injuries for individuals 65 and above exceeded $19 billion in the year of 2000 and is expected to reach approximately $55 billion in 2020 (CDC, 2012).

[1] The literature review presented here is abstracted from the extensive review of the research prepared by Monica Fernandez, Anita Hin and Chelsea Prado for their occupational therapy masters degree thesis project.

Factors Contributing to Falls

Research has shown that no single factor causes falls among community-dwelling older adults, but rather, there are multiple, interrelated risks factors (Delbaere et al., 2010; Erkal, 2010; Painter, Elliot & Hudson, 2009). The risk of falling increases based on the number of predisposing and precipitating risk factors related to the individual. As adults age, they are more prone to fall due to intrinsic and extrinsic factors. Intrinsic factors, which are within the individual, include age-related physical changes, in particular vision and balance, decreased muscle strength and postural instability, and taking multiple medications concurrently (polypharmacy). Extrinsic factors, which are external to the individual, include environmental hazards, assistive devices, and the time of day and location where falls may occur. While environmental hazards are contributing factors to falls among older people, the interaction between the older adult and the environment must be taken into consideration. For example, older adults who use ambulatory devices have a higher chance of falling because the walker or cane may hit various objects, such as furniture and uneven surfaces (Stevens et al., 2009). The misuse of various assistive devices can also increase the risk of falls in older adults. Assistive devices can be beneficial for older adults when they are taught the proper techniques to safely use the device and when certain modifications are implemented.

Several studies have focused on the mental health of older adults who fall. Of these studies, some have reported an association between depressive symptoms and risk for falls (Painter et al., 2012). Depression is one of the most common mental health disorders and is prevalent in about 13% to 23% of community-dwelling older adults (Eggermont, Penninx, Jones, & Leveille, 2012; Painter et al., 2012). Eggermont et al., (2012) found that older adults with depressive symptoms had higher rates of falls. Results from this study also revealed that older adults with more depressive symptoms were mostly women, were less physically active, used more medications, had heart disease, poor cognitive function, slower gait speed, and poor balance.

Interventions to Decrease Falls

In order to create a fall prevention intervention that is effective and well received by the older adults, it is crucial to consider their beliefs, ideas, and perceptions in relation to falls. Calhoun et al. (2011) suggested that the one difference between joiners and non-joiners in fall risk assessment and management programs was their perception of need for the program. In addition to addressing older adults' beliefs, it is also important to educate them about fall prevention programs in relation to their independence and level of functioning, which were highly valued by the majority of the older individuals. Older adults' attitudes, beliefs, and values in relation to fall prevention programs can highly influence their adherence to the intervention.

Considering the importance of the beliefs and thinking patterns of older adults in fall prevention, it may be beneficial for healthcare professionals and first responders to incorporate a cognitive-behavioral approach to the multifactorial interventions. The Stepping On program, a multifaceted community-based program that adopted a cognitive behavioral approach in a small group environment, demonstrated a 31% reduction in falls in the elderly (Clemson et al., 2004). Additionally, a multicomponent cognitive behavior intervention had positive effects on the fear of falling and associated activity avoidance in community-dwelling older adults (Zijlstra et al., 2009). Multicomponent

interventions with a cognitive behavioral approach appear to be effective in reducing falls while supporting the notion that older adults' beliefs and thoughts are vital factors in determining the success of fall prevention programs.

Interventions that address problems related both to the individual and the environment appear to be the most effective in decreasing falls in community-dwelling older adults, (Day et al., 2002; Chang et al., 2004). Research demonstrates that interventions addressing multiple factors and which involve occupational therapists who provide older adults with client-centered therapy in the area of home modifications and assistive devices are highly successful in minimizing falls (Clemson, Mackenzie, Ballinger, Close, & Cumming, 2008; Leland, Elliott, O'Malley, & Murphy, 2012). First responders also play an important role in caring for older adults who have fallen by conducting screenings and assessments and making referrals (Shah et al., 2006; Shah et al., 2010). Past studies have shown the positive outcomes of interdisciplinary approaches in reducing falls, and that the collaboration between occupational therapists and first responders can be highly beneficial in preventing falls (Cacciatore, Carlson, Michaelis, Klimek, & Steffan, 2011; Elliot et al., 2012).

The Novato Fire Protection District's Older Adult Falls Study

The Novato Fire Protection District (NFPD) is an "All Risk" service provider. To that extent it focuses on the community and the needs within. NFPD staff have seen firsthand elderly patients that have needs and the district wants to be part of the solution. NFPD has an ever presence in the Novato community with five fire stations staffed 24 hours a day 365 days a year. Prevention is at the core of the Fire Service and injury prevention fits in that charge. NFPD is now turning its attention to falls in the elderly with the goal of seeking to identify prevention approaches. In order to further explore the circumstances of falls in Novato's older adults age 60 and over to better target intervention approaches Novato Fire Protection District partnered with Dominican University Occupational Therapy Department to conduct a study with the support of County of Marin Mental Health Services Act funds. The following were the goals of this study:

1. To identify fall risk factors in community-dwelling older adults.
2. To understand the experiences of older adults who have fallen.
3. To determine whether there is a relationship between falls and depression in older adults.
4. To examine first responder experiences with fall-related calls in older adults.
5. To Identify approaches to prevent falls in older adults.

Methodology

Design

This is a retrospective descriptive study of falls in older adults (age 60 and over) for which the Novato Fire Protection District was called to provide care in 2012. A mixed methods design combined quantitative analysis of electronic Patient Care Records (PCR) and focus groups and telephone interviews with older adults who have fallen and are at-risk of future falls as well as a focus group with NFPD EMS first responders. All study procedures were reviewed and approved by the Dominican University Institutional Review Board (approval #IRBPHS10109).

Participants

The sample included EMS calls for falls in patients age 60 and over for which the NFPD responded to provide care in calendar year 2012. The initial reason provided for a call requesting emergency medical services, which may ultimately be determined to be a fall, can include a number of descriptors. In order to obtain as complete as possible a sample of falls, the NFPD computer programmer selected all PCRs in which the narrative description of the incident contained at least one of the following key words: fall, fell, down, ground, floor, tripped, dizzy and lightheaded. This generated 922 cases of patients age 60 or older. The researchers then reviewed the narrative description of each call to determine if the incident was indeed a fall. The definition used for a fall was: **"An event which results in a person coming to rest inadvertently on the ground or other lower level.**" This definition has been adopted by the World Health Organization. All PCRs in 2012 that were determined to be for treatment of a fall were included in this study.

We also included in this study "near falls" in which an individual breaks an impending fall by leaning on or sliding down on an object or another person. A near fall can also occur during a transfer when the caregiver cannot complete the transfer and instead lowers the individual in a controlled fashion to the ground rather than dropping him/her.

Of the 922 PCRs identified through the process described above , 471 calls (51%) were determined to be falls (n=412) or near falls (n=59). If a call for a fall or near fall did not result in a PCR then these cases were not included in this analysis. For example, if there is no injury and the only service provided is lifting the individual up to a bed or chair an internal report may be completed rather than a full PCR.

Older adult focus group participants were volunteers at two adult care facilities in Novato. There were five participants in one of the focus groups and seven in the other. All participants had experienced at least one fall in the recent past. A separate focus group conducted with NFPD first responders included six individuals during their regularly scheduled training period.

The potential list of older adult interviewees who were living at home was generated from the PCR database. Of an original list of 33, telephone interviews were completed with four older adults who had experienced a fall in the last six months. One interview was begun and then the individual decided not

to proceed due to an impending lawsuit. Of the remaining sample, 20 did not answer their phone after repeated attempts, two refused, one moved, one number was disconnected and three were not contacted or there was no follow-up.

Data Sources & Analysis

Patient Care Reports

PCRs are completed by the NFPD for each fall incident and contain information about the patient including: demographics, medical history, medications, reason for call, timestamps, medical assessment results, medical treatment information and a narrative section of the incident. Three student researchers from Dominican University Occupational Therapy program reviewed each PCR narrative and abstracted data relevant to this study using a coding sheet (included in Appendix). This coding form was designed in conjunction with NFPD and underwent several iterations of review. In order to maximize inter-rater reliability a series of reviews of sample narratives were conducted and results compared. Differences were resolved either through uniform coding instructions or revisions to the coding form. Data from both the coded narratives and data entered by NFPD are included in this report.

Frequencies and means are generated as appropriate. Comparisons are made between complete falls and near falls and for the following variables: gender, age (grouped by decade), location (residence, care facility, other) and setting (indoor vs. outdoor).

Focus Groups and Interviews

Three researchers attended each focus group. One of the researchers took field notes during the focus groups while the other two researchers facilitated the discussions. The focus groups and phone interviews were audio-recorded and transcribed with participants' identifying factors eliminated. Once transcriptions were completed, the researchers analyzed them using thematic content analysis, identifying important and recurring themes to answer the research questions regarding older adults' experiences with falls, the relationship between falls and depression, and ideas for prevention efforts.

Findings

The data that follows presents findings from PRC data including that which is entered directly by NFPD, narratives recorded by NFPD responders and coded by the research team and interviews and focus groups conducted by the research team. For some of the coded items data was not available for all of the narratives. The number of cases for which data is available is noted and percentages are based on available data.

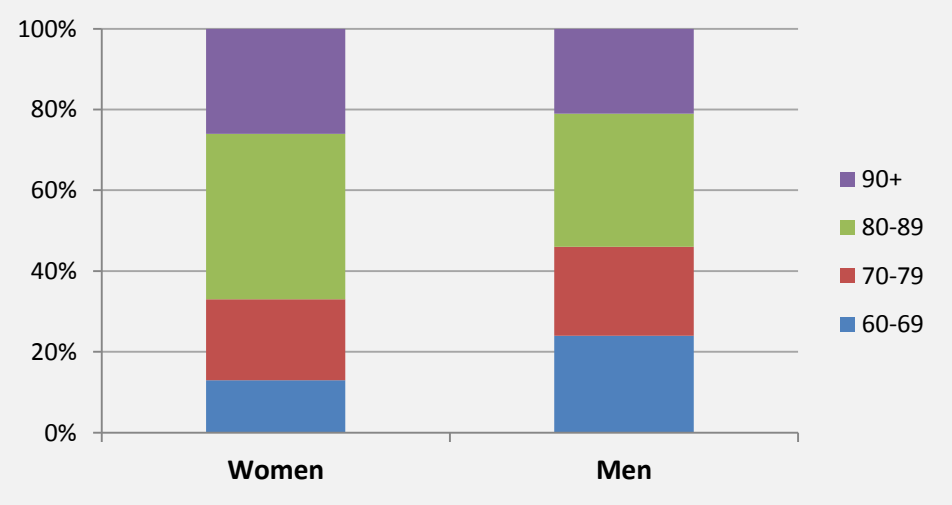
There were a total of 412 calls for falls to individuals age 60 or over in 2012. In addition there were 59 calls for near falls. A fall is defined as "an event which results in a person coming to rest inadvertently on the ground or other lower level." In some cases an individual with an impending potential fall was assisted to the ground by an individual or held onto an object or lowered themselves to the ground. These were termed near falls and are analyzed separately from complete falls in this report.

Who are NFPD's older adult fall patients?

Age and Gender

This study was restricted to patients who were 60 years or older at the time of the call to NFPD for a fall incident. The average age of the 412 patients who experienced a fall was 81 years (median=84; range=60 to 101). The majority of patients were female (62%). The average age of male patients was a few years younger than that of female patients (79.2 vs. 82.3 years). This is likely due to the difference in life expectancy of women which for Marin County in 2009 was 85.1 for women and 81.6 for men.[2] The average age for near falls was similar at 81 years (median=85; range=61 to 97).

Figure 1: Age and Gender of NFPD Patients with Falls



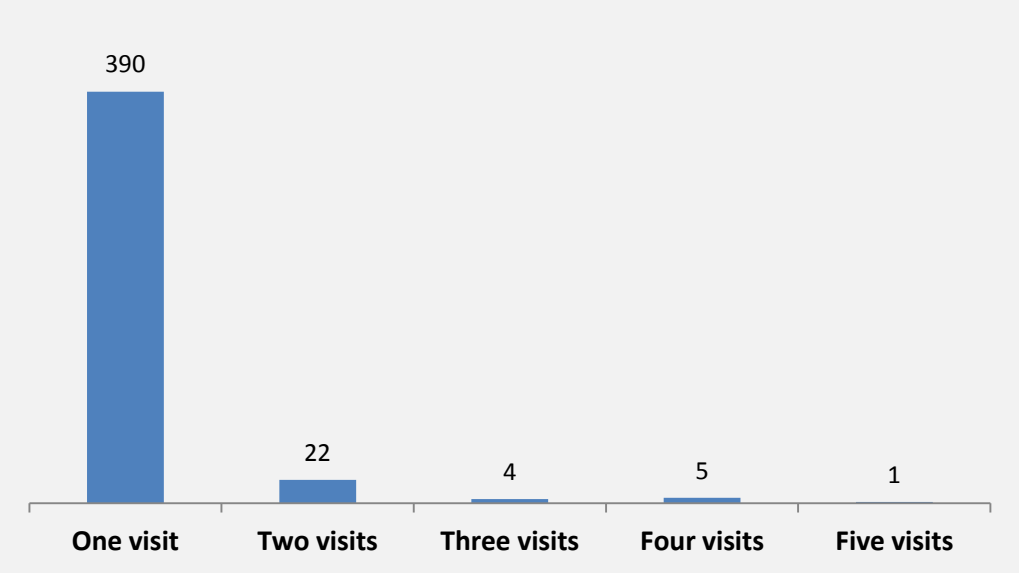
Note: Figure 1 is based on 412 calls for falls in 2012. Individuals who have had more than one call in 2012 will be represented more than once.

[2] Institute for Health Metrics and Evaluation. (2012, April 19) Life expectancy by county and sex (US), 1989-2009. Retrieved June 26, 2013.

Number of NFPD Visits for Falls & Near Falls

A total of 422 unique individuals were visited by NFPD in 2012 for a fall or near fall. Thirty-two (8%) of these individuals placed more than one call for a fall or near fall in 2012.

Figure 2: Number of Visits by NFPD for a Fall



Note: Figure 2 is based on a total of 471 responses by NFPD to a fall or near fall.

What was the Primary Cause of Falls?

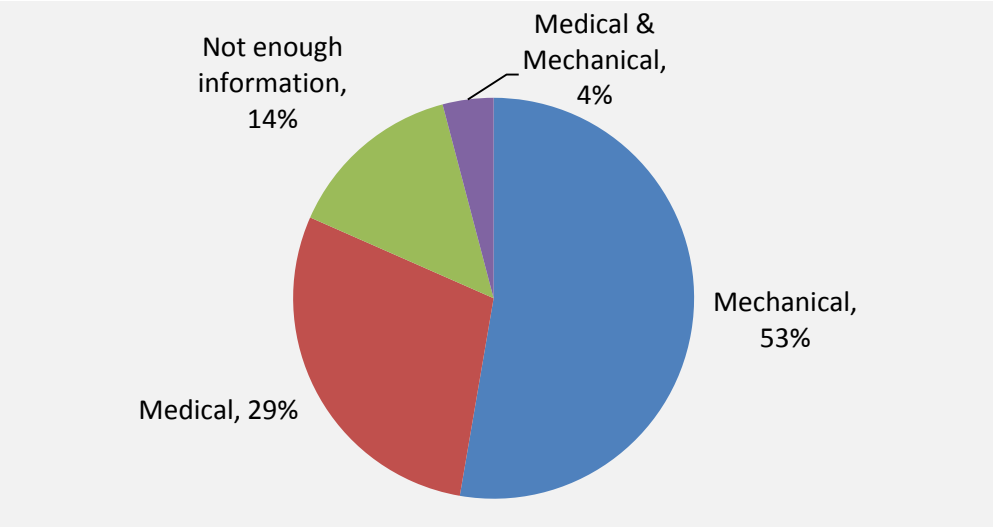
The cause of the fall for this study was determined through review of the narrative description of the call recorded by the NFPD personnel in the PCR. Researchers coded the cause of the fall based on patient or observer report included in the narrative.

Mechanical vs. Medical

Falls are categorized generally as mechanical or medical in cause. A mechanical reason is what is generally envisioned when talking about falls. They are due to a trip, slip or stumble at ground level or fall from an object (e.g., bed, chair, bike, horse, ladder). Mechanical falls accounted for about one-half (53%) of NFPD calls for complete falls in 2012 to those 60 years and over. The primary reason for a fall may instead have a medical cause for example due to weakness generally or in a limb, syncope (fainting), dizziness or a medical event (e.g., seizure, stroke, heart attack). Medical reasons were the cause of falls in 29% of the cases in this study. Sometimes a patient has a medical condition or is taking a prescription medication that puts them at risk or is primary factor in a mechanical fall. The researchers created a category in which there was a mechanical fall that also had a primary medical cause (4% of cases). A more extensive discussion of medical and person factors that may have contributed to a fall are discussed later in this report. In 14% of cases the fall was not witnessed and the patient was not able to recount the circumstances of the fall or the narrative did not contain enough information to make a

determination of the cause. Near falls differed in their cause from complete falls with 93% of near falls being medical in their cause.

Figure 3: Primary Cause of Fall



Note: Figure 3 is based on the coded narratives of 412 complete falls.

Stated Reason for Fall

Narratives will frequently contain the patient, caregiver or witness's stated reason for the fall. This is not a medical diagnosis of the cause but reflects what the patient was experiencing or doing at the time. The top reasons are listed separately for medical and mechanical falls. Percentages are based on the number of cases where at least one reason was provided. Not surprisingly the most frequently stated reason for a mechanical fall is a ground level trip/slip/stumble or a fall from an object (e.g., bed, chair, bike, ladder, horse). Explanations for medical falls included: weakness (my legs gave out), dizziness, fainting, or an illness or medical event (Parkinsons disease, suspected stroke, heart attack or seizure).

Table 1: Top Reasons for Fall - Mechanical and Medical

Mechanical	Medical
Trip/slip/stumble/fall from object – 74%	Weakness – 36%
Loss of balance – 20%	Dizzy – 32%
Transfer – 3%	Syncope – 22%
Reaching – 3%	Illness/medical event – 14%
	Loss of balance – 11%

Table 1 is based on 204 falls attributed to mechanical reasons and 118 falls due to medical reasons. The table excludes "medical to mechanical" reason due to the small number in that category and cases in which no reason was provided. Percentages are based on cases where at least one reason for the fall was provided. Multiple reasons were noted so totals may sum to greater than 100%. This table excludes near falls.

What were the Circumstances of the Fall?

In a focus group conducted with NFPD, the following were a list of factors first responders have observed to contribute most frequently to falls in older adults:

- Tripping hazards in the home
- Weakness
- Being left alone
- Polypharmacy (multiple medications taken concurrently)
- Alcohol and drug abuse

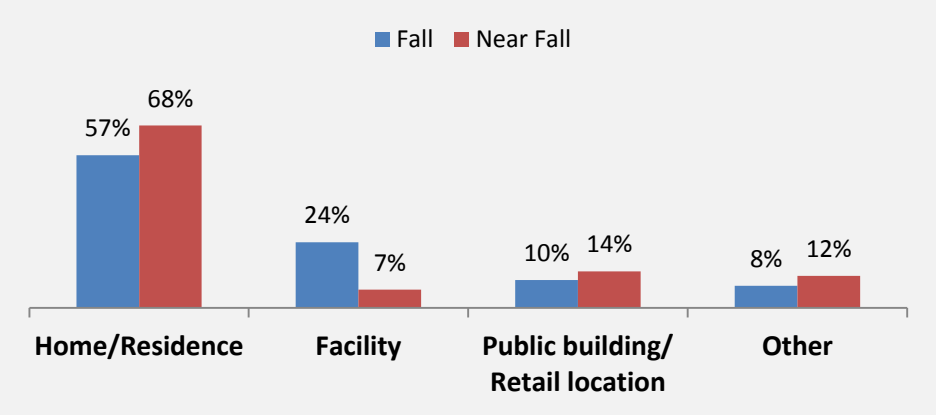
The section that follows will review the circumstances of the fall (location, stated reason, task engaged in at time of fall, personal and medical factors, and physical hazards) based on the PCR (patient care record).

Location of Fall

Over one-half of calls for falls were to a home or residence and one-quarter were to a residential institution or health care facility (Figure 4). A smaller proportion of falls took place in a public building or retail location. The category of other included places of recreation, street or highway, or not stated.

Near falls were more likely than complete falls to occur in a home/residence (68% vs. 57%) and less likely to occur in a health or residential facility (7% vs. 24%).

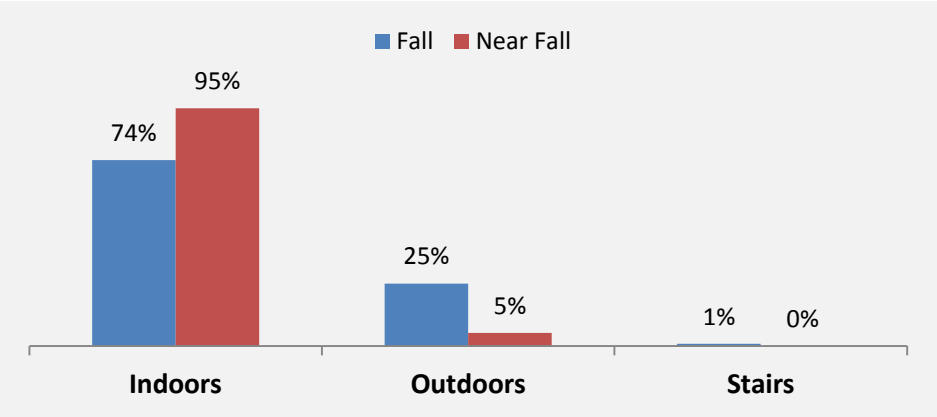
Figure 4: Location of Fall



Note: Figure 4 is based on 412 falls and 59 near falls.

Based on coded narratives in cases where the location was described, nearly three-quarters of complete falls (74%) occurred inside the home, facility, public or commercial building, 25% were outside and 1% were noted to have occurred on stairs. Near falls were much more likely to occur indoors (95%).

Figure 5: Setting of Fall/Near Fall



Note: Figure 5 is based on 382 falls and 57 near falls. Percentages are based on the number of cases where the setting was indicated in the narrative.

Task at the Time of the Fall

The researchers coded the activity in which the patient was engaged when that information was included with sufficient detail in the narrative. For the 412 complete falls the task was noted in 289 cases (70%). For the 59 near falls the task was specifically noted in 49 cases (83%). The task is missing most frequently when the fall occurred at a facility (47%). In some of these situations the staff or caregiver did not witness the fall and the patient could not provide enough detail. In other cases the narrative states that the staff or caregiver "witnessed a mechanical fall" but provided no additional detail. The task was missing in 27% of falls occurring at a home/ residence and 11% of falls occurring in another location (public building, store, park etc.). [The percentages presented in this section are based on the number of cases for which researchers were able to code the task.]

The activities or tasks were grouped broadly under the following headings:

- Walking
- Changing position or elevation: transfer to or from a wheelchair, stepping up to or down from an object, getting one's self up or down from an object, reaching or bending
- Remaining in a stationary position: sitting or standing
- Activities of daily life: dressing, toileting, cooking
- Recreation: exercise, gardening

The largest portion of falls occurred when the individual was walking (47%). This is consistent with a trip/slip or stumble occurring in the form of a mechanical fall. Changing one's position or elevation was the next largest activity at the time of the fall (23%) with getting into or out of bed being the most frequent reason in this category. Getting into or out of bed to use the bathroom in the night was a common scenario. Falls also occurred when individuals remained in a stationary position such as standing or sitting (17%), most likely due to medical reasons.

The common task for near falls was standing or sitting (49%) followed by walking (31%).

Table 2: Task Engaged in at Time of Fall

	FALL		NEAR FALL	
	number	*percent*	*number*	*percent*
Walking	**135**	**46.7%**	**15**	**30.6%**
Changing Position/Elevation	**67**	**23.2%**	**3**	**6.1%**
Getting into/out of bed; adjusting in bed	23	8.0%	2	4.1%
Transfer to or from wheelchair	14	4.8%	0	0.0%
Sit to stand or stand to sit	13	4.5%	1	2.0%
Reaching up or bending down	12	4.2%	0	0.0%
Step onto or off of an object	5	1.7%	0	0.0%
Stationary	**49**	**16.9%**	**24**	**49.0%**
Standing	35	12.1%	14	28.6%
Sitting	14	4.8%	10	20.4%
Activities of Daily Life	**22**	**7.6%**	**5**	**10.1%**
Toileting	18	6.2%	3	6.1%
Bathing/Dressing	4	1.4%	1	2.0%
Cooking	0	0.0%	1	2.0%
Recreation	**12**	**4.1%**	**2**	**4.1%**
Exercise	9	3.1%	2	4.1%
Gardening	3	1.0%	0	0.0%
Other	**4**	**1.4%**	**0**	**0.0%**

Note: Table 2 is based on 289 falls and 49 near falls. Percentages are based on the number of cases where the task/activity was indicated in the narrative.

Medical & Person Factors

Polypharmacy

Polypharmacy refers to the concurrent use of multiple drugs. Concerns arise not only as the number of drugs increases but when an individual is taking more drugs than are clinically indicated or too many inappropriate drugs (e.g., two or more to treat the same condition or two or more of the same chemical class). Polypharmacy is more likely to occur when prescriptions are written by a number of doctors and filled in different pharmacies. The occurrence of drug-related problems has been shown to increase with the number of drugs used.[3]

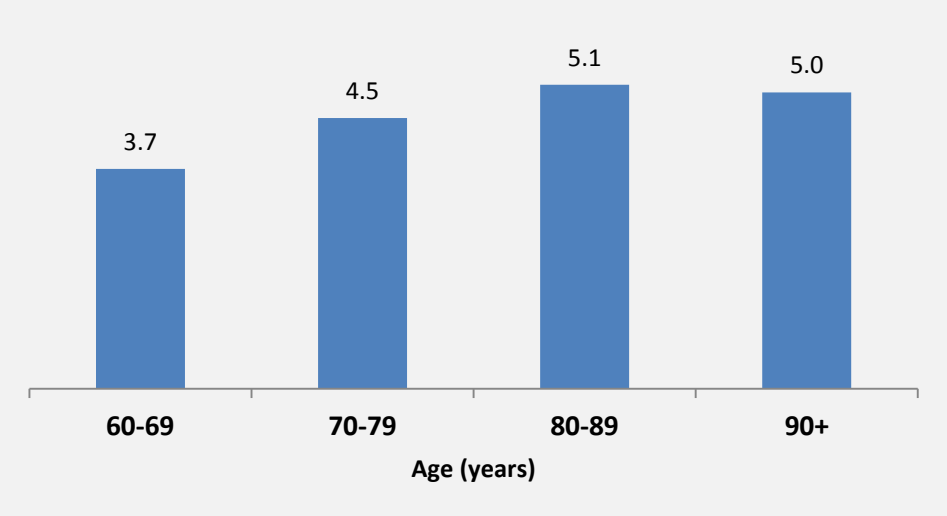
Nearly all fall and near fall patients, 94%, reported taking at least one medication. Of the 463 different medications taken by the patients in this study, 80 were identified by the NFPD Medical Director to be known to have the potential to cause syncope.

The total number of medications was calculated when the patient or caregiver was able to provide a specific list of medications and that was recorded on the PCR. Thus, if the note in the PCR says patient does not recall or it just says “list attached” that individual was excluded from this calculation. The average number of medications taken at the time of the fall was 4.7 for falls and 4.2 for near falls.

[3] Hajjar, E., Cafiero, A., Hanlon, J. (2007) Polypharmacy in Elderly Patients. *The American Journal of Geriatric Pharmacotherapy*. 2007, Vol 5(4): 345-351.

Nearly half of patients were taking five or more medications (46.5% for falls and 47.1% for near falls). The number of medications was associated with the age of the patient.

Figure 6: Average Number of Medications by Age



Note: Figure 6 is based on 421 falls and near falls. Percentages are based on the number of cases where the list of medications was provided in the PCR.

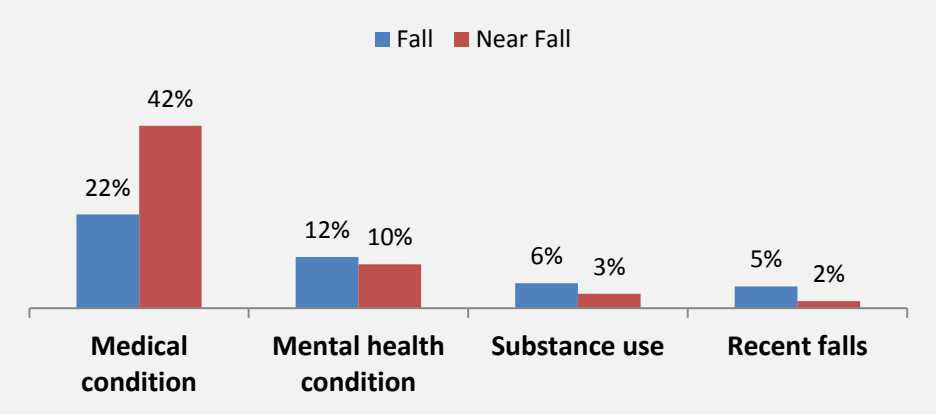
Health Conditions

- Medical Conditions and Factors: In the coded narratives of over one-fifth of falls (22%) and two-fifths of near falls (42%) an existing medical condition that may have been a contributing factor in the fall event was noted. This may include diseases such as Parkinsons, heart disease/attack/irregular heart, stroke, flu symptoms, current pain or weakness or paralysis in a limb, recently reported general weakness, recent dizziness or shortness of breath, history of syncope, nausea and/or diarrhea, etc.
- Mental Health Conditions: A particular interest for this study is the association of mental health issues, depression in particular, with falls. In 12% of falls and 10% of near falls a mental health condition was noted. Most frequently this was dementia (8%). Depression was noted in the PCR medical history for 6% of falls. It was not uncommon for a patient to have a history of both dementia and depression. A mental health condition was more likely to be reported in calls to a facility than a residence or other location, most likely due to NFPD serving facilities with dementia wards.
- Substance Use: In 6% of falls there had been either current indications of alcohol use or a history of substance abuse noted in the narrative or medical history. NFPD first responders observed as described in the focus group that substance use was implicated for many of the repeat patient visits to residences. Current or history of substance abuse was more prevalent in the younger age groups (18% of those age 60-69; 9% of those age 70-79; 2% of those age 80-89; 0% for those

90 and over). Alcohol use was more likely to be present in falls that occurred in locations other than a home or facility (5% for home; 4% for facility; 10% other location).

- Recent History of Falls: In 5% of falls there had been a history of falls noted in the narrative or medical history.
- Other Factors: Other factors explored in this study accounted for smaller portions of fall patients:
    - Recent hospitalizations - 2% of falls and 5% of near falls,
    - Poor nutrition – 2% of falls and 3% of near falls,
    - Dehydration – 1% of falls and 3% of near falls,
    - Vision impairment – 1% of falls and 0% of near falls.

Figure 7: Health Conditions



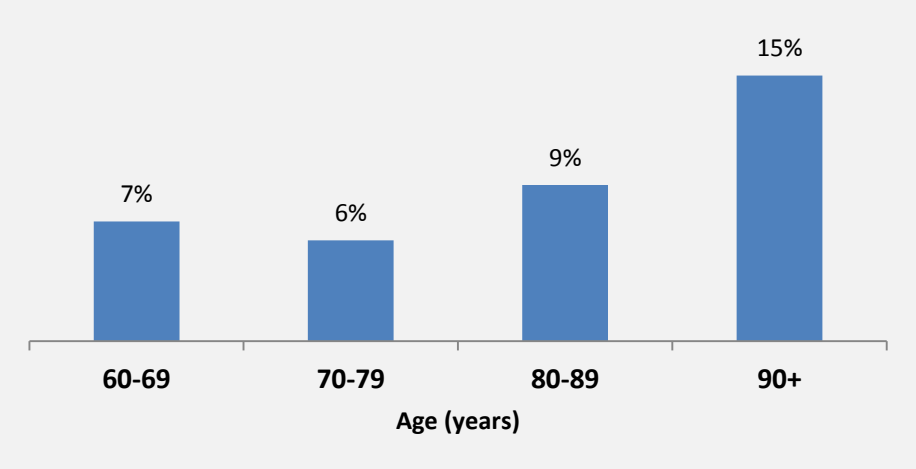
Note: Figure 7 is based on 412 falls and 59 near falls.

Use of Adaptive Equipment

Use of adaptive equipment (i.e., walker, cane, wheelchair) was present for nearly one in ten complete falls (9.5%). Walkers were the most frequently involved adaptive equipment (6%; n=24). Only one near fall involved adaptive equipment. Presence of adaptive equipment was most likely to occur with indoor falls and with a slightly higher proportion of falls occurring at a facility as compared to a home/residence (13% vs.11%). There was no reported use of adaptive equipment for falls occurring in other locations (public buildings, retail locations, recreation sites, etc.).

The average age of those with a fall involving a piece of adaptive equipment was five years older than for those who were not using adaptive equipment (85.6 vs. 80.7 years). For those age 90 and older adaptive equipment was present in 15% of falls.

Figure 8: Use of Adaptive Equipment by Age



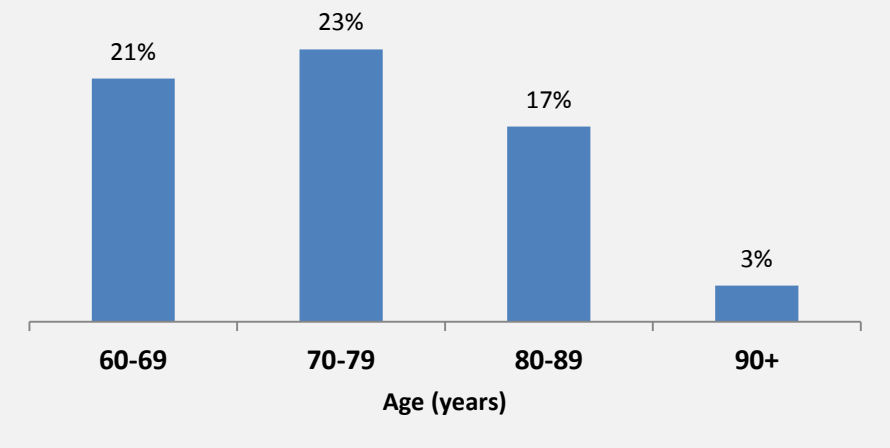
Note: Figure 8 is based on 412 falls.

Presence of Physical Hazards

Physical hazards were involved in 16% of falls. There were no reported hazards reported in near falls. A step or curb was most frequently cited (10%). Common hazards of rugs or mats and clutter or debris were mentioned in just over 1% of falls. However, other hazards such as ladders and furniture were involved in 5% of falls. Although falls occurring outdoors comprised a smaller proportion of all falls in this study they were the most likely to involve a physical hazard (34%). One quarter of falls occurring in locations such as stores or public buildings involved a hazard and only 8% of falls that occurred inside a home or facility involved a physical hazard.

Hazards were more likely to be involved in falls of patients who were under 80 years. The average age of those for whom a physical hazard was noted was 77.4 years as compared to 81.8 years for those for whom a hazard was not present.

Figure 9: Presence of Physical Hazard by Age

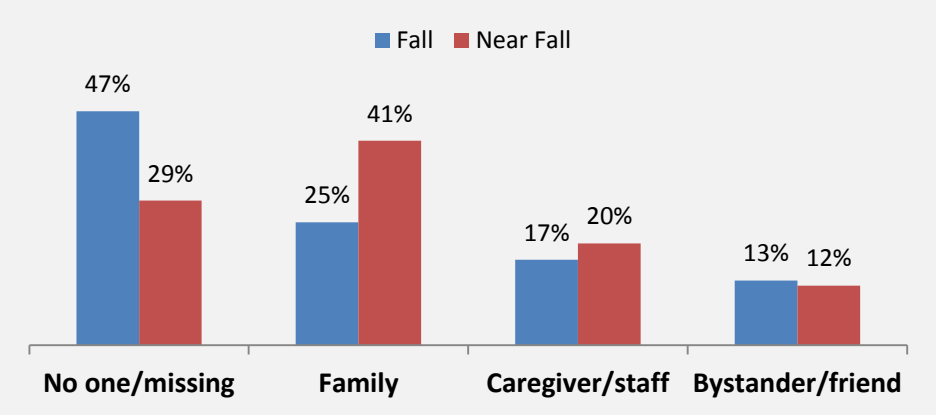


Note: Figure 9 is based on 412 falls.

Others Present

The narratives coded the relationship to the patient of others present when NFPD responders arrived. These individuals may have observed the fall and served as co-reporters of the circumstances. Even if they did not witness the fall event their presence may indicate the existence of a system of support or care. Close to one-half of falls occurred when the patient was alone (this category may also include calls for which a witness was not noted by the first responder in the narrative). Patients of near falls were less likely to be alone and more likely to have family present than were complete fall patients. In particular a spouse was noted as being present more frequently in cases of near falls than for complete falls (20% vs. 11%).

Figure 10: Others Present



Note: Figure 10 is based on 412 falls and 59 near falls. The category of No One may also include cases where those present were not noted in the narrative. In four cases more than one category of person present was noted so percentages may sum to greater than 100.

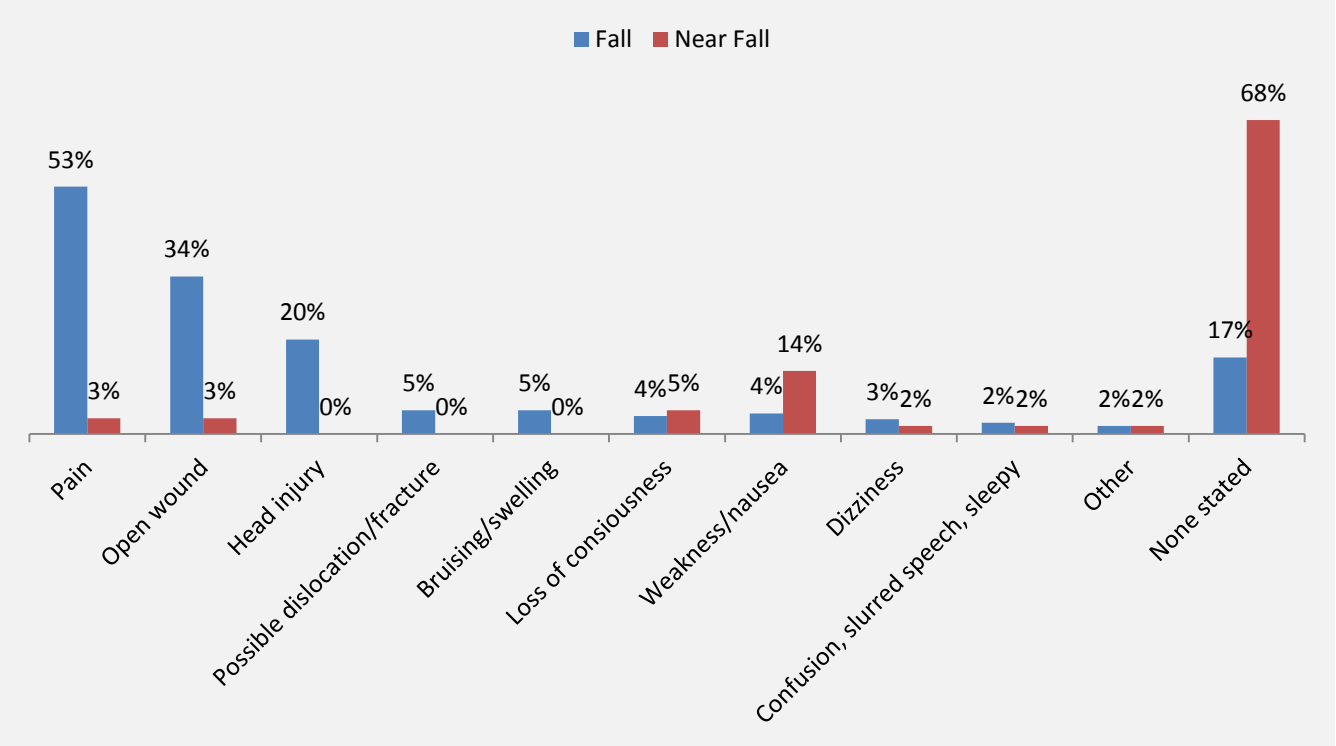
Outcome of fall

Immediate Injuries

Researchers reviewed the narratives to determine the injuries or physical consequences of the fall. Multiple categories of outcomes may be noted so the totals in Figure 9 below will sum to greater than 100%. The most frequently cited symptom as a result of the fall was pain (54%), followed by an open wound (34%) (e.g., cut or skin tear) and head injury (20%).

In 16% of falls and 68% of near falls there were no injuries described in the narrative. This may occur when a caregiver or family member or bystander witnessed a fall and called NFPD to rule out the existence of injuries. For patients in facilities the family may have requested that all falls be treated. Other times the individual requires lift assistance from the floor after a fall or near fall and this is provided by NFPD.

Figure 11: Physical Consequences of Fall



Note: Figure 11 is based on 412 falls and 59 near falls. Multiple injury types may occur with a fall so percentages may sum to greater than 100.

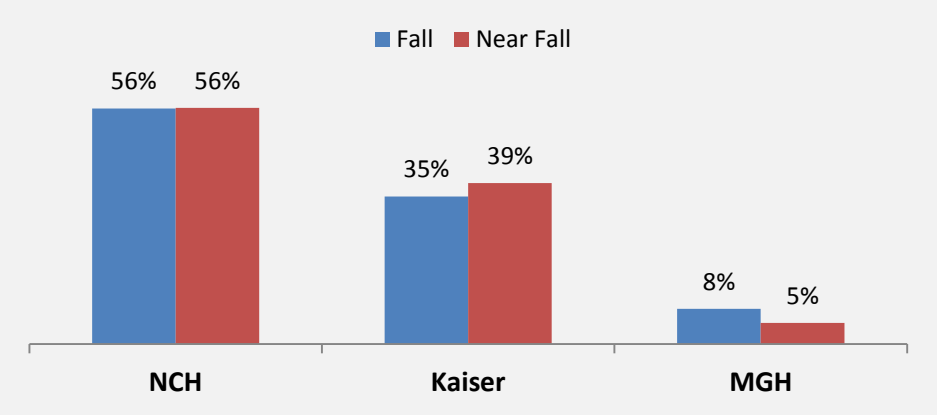
Transport

NFPD provided medical transport to a local hospital for the great majority of patients with falls (89%) and near falls (92%) for medical follow-up for the condition that caused the fall or the injuries that resulted from the fall. According to agency records for 2012, NFPD provided hospital transport for a total of 3,348 patients of all ages for all medical reasons. Thus, the 421 older adults included in this study who were transported for falls or near falls in 2012 comprised 13% of all ambulance transports.

If an individual has no injuries or refuses transport NFPD may instead assist them into a chair, wheelchair or their bed. If NFPD has assessed that their injuries or medical condition indicate the need for further evaluation they will strongly urge the patient to allow them to transport them to a hospital. Sometimes a patient will refuse transport and in that case must sign an AMA form (against medical advice).

The largest group of falls and near falls were transported to Novato Community Hospital. Kaiser Permanente Hospital was the second most frequent destination. Marin General Hospital represented relatively few transports. Transport destination was not stated in the narrative for 22% of falls and 28% of near falls.

Figure 12: NFPD Hospital Transport Destination



Note: Figure 12 is based on 286 falls and 39 near falls where transportation was provided by NFPD and the location was noted in the narrative.

Long-term Consequences of Falls

Focus groups were conducted at two adult care facilities and telephone interviews completed with four older adults living at home. All of these individuals had experienced falls and were asked about the impact of that experience.

These older adults were asked to share how the fall has affected their life including changes in quality of daily life, independence, social life and enjoyment of life. Focus group participants and interviewees described the following changes.

- Participants in both of the care facilities commented that the fall(s) they had experienced were a primary or contributing factor to their moving out of their homes and into the facility. For some the injury they experienced as a result prompted the move. In other cases the concern after multiple falls over the possibility of future falls combined with an existing medical condition was the impetus for living in the facility.
- Increased fear about future falls was a common concern. Several commented on how worry about falling impacted them.
    - Several commented generally on trying to be more careful to avoid a future fall.
    - One was so embarrassed of falling in public that she stays at home more and noted greater isolation.
    - Another who has some constant dizziness stays in bed to avoid falling.
    - Two said that they use their cane much more.
    - Two adopted using a walker as a result.
    - One installed a stair chair and threw away a favorite pair of shoes that may have been implicated in the fall.

- Fear of loss of independence was commented on by focus group participants and interviewees. They must ask for more assistance as a result of the fall which is difficult to face when one places a high priority on independence. One interviewee shared that there is "almost everything that I can't do anymore." For this individual the tension over wanting to do things and concern over falling has caused domestic problems with the spouse. Another shared that they can no longer drive. One participant said that the desire to maintain independence could cause one to hide falls from friends and family. This same individual recounted the story of a roommate who wanted to go home from the facility so tried to do things independently that the individual should not have done in order to try to exhibit that they could live alone. One focus group participant described this tension and resulting denial of the problem as follows:

  > *You keep telling yourself that "Oh I'm capable" it's just a one-time thing even though you've fallen 14 times in a year. You know. "Oh I won't do that again so I won't fall." And I didn't want anyone to know because then my family – if they had been aware of how often I had fallen, they probably would have insisted that I needed more care and help.* (focus group participant)

- Frustration and loss due to reduced independence and increased reliance on others was a common theme. One interviewee shared that they had been dealing with depression prior to the fall but that it worsened as a result of the physical consequences of the fall event. This individual commented that the depression was triggered even more due to pain and restrictions on daily activities. Two individuals in the focus groups commented on their episodes of sadness when they learned that they would need to move to the facility as a result of their falls and declining ability to care for themselves.

Challenges Faced by First Responders in Treating Falls in Older Adults

First responders were asked in a focus group what challenges they face in treating older adults and what would help them in their job.

1. Obtaining a good health history from older adults can be challenging. It is important for the first responder to learn about the patient's medications, existing medical problems, allergies, pain level and location, circumstance of the fall, and if symptoms are a result of the fall or were pre-existing. Obtaining this information is more difficult in cases where patients have dementia, are hard of hearing or if language barriers are present for the patient or caregiver. Additionally, some patients divert the conversation or have difficulty focusing on the question which can cause delays in a full and accurate assessment.

2. Responding to repeat non-injury falls is frustrating. There are a number of patients or their family members who frequently call for a lift assist. They fall or have a near fall due to substance use, transfer difficulties, or because they live in a challenging situation for their current mobility state. In some situations it appears to first responders that depression is a factor in the substance use or refusal of help. These individuals are not ready to change their situation and don't want transport to the hospital so they are assisted back into their bed. (Note: non-injured

lift assists may not generate a full PCR but rather result in an internal report and thus may not have been included in this study data.)

3. Lack of knowledge of alternative resources to make referrals. First responders will refer to Adult Protective Services when they see cause. However, sometimes patients don't want that level of assistance or are not ready to seek treatment for substance abuse or move to safer situation. First responder focus group participants requested an individual, clearinghouse or phone number to refer people for the various services they might need when they are ready to consider accepting assistance.
4. First responders noted that depression can be an issue, particularly as it is associated with patients with repeat calls and substance use issues. One of the goals of this study was to implement and analyze the results of first responders screening patients for depression with the two-item PHQ-2. However, there was some resistance expressed in the focus group in terms of the screening questions refocusing their efforts away from treating the acute fall or medical problem, discomfort asking these types of questions, concern over the variability of answers and the suggestion that this is best done in another setting.

Fall Prevention Strategies

One of the primary purposes of this study as well as a chief line of inquiry during the focus groups and interviews with older adults as well as the focus group with NFPD first responders is how to prevent falls in older adults. Below are comments from the older adult focus group and telephone interviews and the focus group with NFPD first responders.

- A few older adults commented on the importance of accepting the possibility of a future fall and preparing for it. One individual in the focus group said they learned how to fall so they don't hurt themselves and another mentioned learning fall recovery training. One interviewee suggested that people need to be exposed to and learn how to properly use adaptive equipment (e.g., cane, walker) *before* they need it because it can be difficult to learn after. This individual's mother has difficulty remembering how to use her cane from day to day.
- During the focus group with older adults there was some positive reception to receiving educational material. A few members said that they did make modifications to their home in the past based on this type of education. During one of the focus groups there was discussion of educating society in general so that they can help older family members (parents and grandparents) and fall prevention becomes part of general societal knowledge.
- Individuals were specifically asked their thoughts on having the NFPD conduct home fall safety assessments.
    - A couple of participants said that they thought NFPD is too busy to do this.
    - One individual expressed concern regarding the potential cost.
    - Two of the four interviewees were interested in this idea. One was not and another said they did not need this because Kaiser already checked their home.

- One individual in the focus group recalled the fire department talking about their services and what people could do to prevent falls, leaving flyers with information. This same individual found it much more helpful when an occupational therapist had come to her home and made very specific suggestions about modifications such as a grab bar in the bathroom.
- First responders in the focus group suggested home screening could be beneficial and compared this to fire prevention efforts.

> *We have a program here that we go out once a year to let homeowners know to clean their vegetation around their homes so they don't burn down. We don't really have anything like that for the elderly population and to try to avoid falls*.
>
> *I would like to see an agency or whatever going into people's homes educating them about tripping hazards, extension cords, put grab handles in the shower or bathroom, areas they're vulnerable, where they don't take their walker or cane.*
>
> *I think one of the things that's missing here is not just the education on fall prevention but the funding source and the able-bodied people to go through the homes, to put in the grab bars or pick up the rugs, or uh you know, do that sort of thing because the person likely to fall down who is our target group is probably not the person who is able to do any of these things or maybe not afford them.*

- Addressing the problem of polypharmacy was discussed as a potential fall prevention strategy during the first responder focus group. The question of the role of the pharmacist was raised.

> *When an older adult sees multiple physicians they may prescribe duplicative or conflicting medications. Can pharmacists review these and ask questions if they see a problem? Who is the gatekeeper? Doctors will not be talking with the other doctors the patient sees.*

Discussion

This study sought to better understand the experiences of older adults who have fallen as well as identify fall risk factors, including the relationship between falls and depression, in order to identify approaches to prevent falls in older adults. Through analyses of Patient Care Records as well as interviews and focus groups conducted with older adults and a focus group with first responders we were able to describe the circumstances and consequences of falls, challenges faced by older adults and the first responders who treat them, as well as generated strategies for fall prevention. The recommendations for consideration presented below are based on the data findings from this report and address both the intrinsic and extrinsic factors that contribute to falls.

Recommendations

1. Consider factors of age, fall location and setting when targeting interventions. For example, use of adaptive equipment was more frequently a factor among those 80 years and older while other physical hazards were more common among those under age 80. Substance use tends to be more prevalent among the younger age groups. Location (home, facility, other) and setting (indoor vs outside) of falls are also important factors to consider when targeting interventions.

2. Take into account the aging individual's fear of loss of independence. The resulting denial and in some cases hiding the occurrence of falls could be a barrier to some interventions and accepting of referrals for assistance. If the stated goal of a program is to increase the likelihood of maintaining independence safely that could be a selling factor. Helping older individuals and their families prepare to make a transition when some independence must be relinquished for the sake of safer living would be an intervention approach in and of itself.

3. Target prevention services for older adults living alone. In nearly half of falls no other individual was noted to be present when NFPD treated the patient. This is a particular target group that may be in need of assistance in terms of contact with services, emergency lifelines, home assessments etc.

4. Address needs of repeat patients. Although there were not a great number of individuals with repeat visits reflected in this data, first responders report that this makes up a notable portion of non-PCR calls for falls and other medical conditions. These individuals may be a particular target group for additional county services to deal with the root cause of their frequent medical emergencies and non-emergency needs.

5. Conduct home fall safety assessments. The NFPD has been considering expanding services to include fall hazard assessments for individuals aging at home. This study sought to explore older adults' reception to this plan. Our sample of interviews with older adults living at home was small so findings should take this into consideration. Based on the focus groups and interviews there was some interest in home assessments. However, concerns were raised regarding the perceived cost of this service, feeling that NFPD is too busy dealing with other emergency situations, and fear that the manner in which they keep their home would be criticized. These are potential barriers to acceptance of a home assessment program. There was perhaps slightly more openness to having occupational therapists perform home visits, likely because more older adults have worked with an

occupational therapist in the past. Occupational therapists could also train older adults how to fall safely, recover from a fall, how to safely use adaptive equipment, get out of bed etc. One strategy may be to have a team conduct home assessments or have NFPD refer for an assessment individuals they see for a medical emergency who are at risk of future falls. If a home assessment results in the recommendation for installation of items (e.g., grab bars) then it would be helpful to be able to recommend someone who can perform that installation or modification and even find a way to subsidize the work.

6. Place a focus on preventing falls that occur when an individual is getting into or out of bed, often in the night to use the bathroom. This was noted in focus group comments with older adults and first responders and somewhat in the narrative data. Consider approaches to guide individuals how to safely exit their bed and move around at night, including proper lighting, non-slip footwear, grab bars, keeping the path to the bathroom clear at night etc. This may be a role for occupational therapists.
7. Address polypharmacy. Polypharmacy is of concern to the medical community generally but has specific implications for falls. Over medication and the use of specific medications known to cause syncopal episodes would indicate that reviews of medication lists would be helpful for older adults. This could be a service provided by pharmacists or pharmacy students in a variety of settings including drug stores, medical centers, community or senior centers, etc. If a pharmacist has a concern they can write a note that the patient can bring to their doctor.
8. Substance use treatment for older adults. Substance use was a factor in 6% of falls in this study though more prevalent in the younger patients. First responders report that it is a notable factor in repeat visits for falls and other medical calls. EMTs should have available a resource to refer individuals for substance use treatment targeted specifically for older adults.
9. EMS training on communicating with older adults. NFPD first responders noted difficulty obtaining health histories and assessment of injuries with some older adults. Training should be provided for first responders on obtaining an accurate history from older adults, (particularly those with dementia), including the location of potential injuries, measuring pain, determining if symptoms are new or pre-existing and helping patients stay focused on the question.

   Distribution of Vial of Life forms and decals to the community is a way to inform first responders regarding medications the patient is taking and other important health information (http://www.vialoflife.com). This can be of immense help in cases of dementia, hearing issues and language barriers.
10. Referral resources for EMS. While NFPD first responders will refer patients to Adult Protective Services in severe situations they would benefit from a more comprehensive list of resources or the ability to make a referral to an individual who can assist older adults with issues such as substance use, mental health issues, safety of living situations etc.
11. Depression screening. Piloting a screening tool for depression (PHQ-2) was one of the goals of this study. Due to several challenges including first responders' discomfort asking these questions we

were not able to successfully complete the pilot. Thus the question regarding the feasibility of conducting depression screening in an EMS setting remains unanswered. If barriers to implementation can be addressed and referral sources for mental health services are available, screening should be considered once again.

References

Administration on Aging. (2012, October 4). Retrieved from http://www.aoa.gov/AoARoot/Aging_Statistics/index.aspx.

American towns. (2012, June 27). Retrieved from http://www.americantowns.com/ca/novato.

Cacciatore, J., Carlson, B., Michaelis, E., Klimek, B., & Steffan, S. (2011). Crisis intervention by social workers in fire departments: An innovative role for social workers. *Social Work, 56*(1), 81-88.

Calhoun, R., Meischke, H., Hammerback, K., Bohl, A., Poe, P., Williams, B., & Phelan, E. A. (2011). Older adults' perceptions of clinical fall prevention programs: A qualitative study. *Journal of Aging Research, 2011.*

Centers for Disease Control. (2012, September 17). Retrieved from http://www.cdc.gov/homeandrecreationalsafety/falls/adultfalls.html

Chang, J. T., Morton, S. C., Rubenstein, L. Z., Mojica, W. A., Maglione, M., Suttorp, M. J., Roth, E. A., & Shekelle, P. G. (2004). Interventions for the prevention of falls in older adults: Systematic review and meta-analysis of randomized clinical trials. *British Medical Journal, 328*, 1-7.

Clemson, L., Mackenzie, L., Ballinger, C., Close, J., & Cumming, R. G. (2008). Environmental interventions to prevent falls in community-dwelling older people: A meta-analysis of randomized trials. *Journal of Aging and Health, 20*(8), 954-971.

Clemson, L., Cummings, R. G., Kendig, H., Swann, M., Heard, R., & Taylor, K. (2004). The effectiveness of a community-based program for reducing the incidence of falls in the elderly: A randomized trial. *Journal of the American Geriatrics Society, 52*, 1487-1494.

Day, L., Fildes, B., Gordon, I., Fitzharris, M., Flamer, H., & Lord, S. (2002). Randomized factorial trial of falls prevention among older people living in their own homes. *British Medical Journal, 325*(128), 1-6.

Delbaere, K., Close, J., Heim, J., Sachdev, P., Brodaty, H., Slavin, M., & ... Lord, S. (2010). A multifactorial approach to understanding fall risk in older people. *Journal of The American Geriatrics Society*, *58*(9), 1679-1685.

Eggermont, L. P., Penninx, B. H., Jones, R. N., & Leveille, S. G. (2012). Depressive symptoms, chronic pain, and falls in older community-dwelling adults: The MOBILIZE Boston study. *Journal Of The American Geriatrics Society*, *60*(2), 230-237.

Erkal, S. (2010). Home safety, safe behaviors of elderly people, and fall accidents at home. *Educational Gerontology*, *36*(12), 1051-1064.

Hausdorff JM, Rios DA, Edelber HK. Gait variability and fall risk in community–living older adults: a 1–year prospective study. Archives of Physical Medicine and Rehabilitation 2001;82(8):1050–6.

Hornbrook MC, Stevens VJ, Wingfield DJ, Hollis JF, Greenlick MR, Ory MG. Preventing falls among community–dwelling older persons: results from a randomized trial. The Gerontologist 1994:34(1):16–23.

Lach, H. (2005). Incidence and risk factors for developing fear of falling in older adults. *Public Health Nursing*, *22*(1), 45-52.

Leland, N. E., Elliott, S. J., O'Malley, L., & Murphy, S. L. (2012). Occupational therapy in fall prevention: Current evidence and future directions. *American Journal of Occupational Therapy*, *66*, 149-160.

Martin, J. (2012, August 1). *County of Marin*. Retrieved from http://www.marincounty.org/

Painter, J. A., Allison, L., Dhingra, P., Daughtery, J., Cogdill, K., & Trujillo, L. G. (2012). Fear of falling and its relationship with anxiety, depression, and activity engagement among community-dwelling older adults. *American Journal of Occupational Therapy*, *66*(2), 169-176.

Painter, J., Elliott, S., & Hudson, S. (2009). Falls in community-dwelling adults aged 50 years and older: Prevalence and contributing factors. *Journal of Allied Health*, *38*(4), 201-207.

Shah, M. N., Clarkson, L., Lerner, B., Fairbanks, R. J., McCann, R., & Schmeider, S. M. (2006). An emergency medical services program to promote the health of older adults. *Journal of the American Geriatrics Society, 54*(6), 956-962.

Shah, M. N., Rajasekaran, K., Sheahan, W. D., Wimbush, T., & Karuza, J. (2008). The effects of the Geriatrics Education for Emergency Medical Services training program in a rural community. *Journal of American Geriatrics Society, 56*(6), 1134-1139.

Stevens, J., Thomas, K., Teh, L., & Greenspan, A. (2009). Unintentional fall injuries associated with walkers and canes in older adults treated in U.S. emergency departments. *Journal of the American Geriatrics Society*, *57*(8), 1464-1469.

U.S. Department of Health and Human Services, National Institute of Mental Health (2012c). *Depression and osteoporosis* (NIH Publication No. 11-7743). Retrieved from http://www.nimh.nih.gov/health/publications/depression-and-osteoporosis/complete-depression-and-osteoporosis.shtml.

World health Organization. (2012, October). Retrieved from http://http://www.who.int/mediacentre/factsheets/fs344/en/

Zijlstra, G. A. R., Van Haastregt, J. C. M., Ambergen, T., Van Rossum, E., Van Eijk, J. Th. M., Tennstedt, S. L., & Kempen, G. I. J. M. (2009). Effects of a multicomponent cognitive behavioral group intervention on fear of falling and activity avoidance in community-dwelling older adults: Results of a randomized controlled trial. *Journal of the American Geriatrics Society, 57*(11), 2020-2028.

Attachments

1. PCR coding form
2. Focus Group Script: Older Adults
3. Interview Questions: Older Adults
4. Focus Group Script: First Responders from NFPD

Dominican University of California: Department of Occupational Therapy
NFD Patient Care Report (PCR) Narrative Coding Sheet

AO #_____ Coded by_____ Date of Incident_____

1a. Stated reason for fall (check all that apply) ☐ Trip ☐ Loss of balance ☐ Reaching ☐ Transfer ☐ Dizziness/Lightheaded ☐ Fainted ☐ Weakness ☐ Other:_____ ☐ Near fall ☐ Not a fall (stop coding here) ☐ Not stated 1b. Primary Cause of Fall (check one) ☐ Mechanical ☐ Medical ☐ Medical → Mechanical ☐ Not sure	2. Medical/Person Factors (check all that apply) ☐ Poor nutrition ☐ Dehydration ☐ Medical Condition Specify: _____ ☐ Recent hospitalizations ☐ Vision impairment ☐ Alcohol or drug use ☐ Mental Condition o Dementia o Depression o Confusion o Other Mental Condition Specify: _____ ☐ Other:_____ ☐ Not stated
3. Others Present when First Responders arrive (check one) ☐ Caregiver ☐ Spouse ☐ Child ☐ None ☐ Other: _____	

Notes: _____

_____

_____

Mechanical/Contextual factors :

4a. Location
- ☐ Indoors – home or residential facility
- ☐ Indoors – other:_____
- ☐ Stairs
- ☐ Outdoors:_____
- ☐ Not stated

4b. Task
- ☐ Standing
- ☐ Reaching
- ☐ Toileting
- ☐ Bathing/Dressing
- ☐ Getting in/out of bed
- ☐ Transfer
  - o Bed
  - o Toileting
  - o Bathing/Dressing
  - o Chair/Couch
  - o Car
  - o Other_____
- ☐ Cooking
- ☐ Walking
- ☐ Gardening
- ☐ Other:_____
- ☐ Not stated

4c. Hazards
- ☐ Rug/Mat
- ☐ Step, curb, or stairs
- ☐ Clutter/Debris
- ☐ Other:_____
- ☐ Not stated

4d. Adaptive Equipment
- ☐ Walker
- ☐ Cane
- ☐ Wheelchair
- ☐ Other:_____
- ☐ Not stated

Incident Outcome

5a. Physical consequences of fall (check all that apply)
- ☐ Pain
- ☐ Loss of consciousness
- ☐ Fracture(s)
- ☐ Dizziness
- ☐ Open wounds
- ☐ Head injury
- ☐ Other:_____
- ☐ Not stated

5b. Transport to hospital
- ☐ Yes – NFD
  - ☐ NCH
  - ☐ KTL
  - ☐ MGH
  - ☐ Other:_____
  - ☐ Not stated
- ☐ Yes – self transport
- ☐ No

5c. Referral to resources
- ☐ No
- ☐ Yes
  - ☐ Medical provider

  Other:_____

Focus Group Script: Older Adults

Introduction

(OT students will introduce themselves)

Hello, we are occupational therapy students from Dominican University of California in San Rafael. As occupational therapists, our goal is to help individuals do the things they find purposeful and meaningful, whether it is to work, play, or socialize. Sometimes people face challenges in accomplishing these activities due to their health and/or external circumstances. Occupational therapists' role is to bridge the gap between people's current condition and where they want to be functionally.

For the past few months, we have begun a research study on falls in older adults. As most of you know, first responders (firefighters and EMTs) are often called when people fall, so they are also interested in how to prevent falls, especially in older adults. In fact, we were invited by the Novato Fire District to work with them doing this research. One of the goals of our research is to better understand contributing factors to falls and how falls can be prevented in older adults through the collaboration between occupational therapists and first responders. In order to gain a deeper understanding of this issue, we are here today to talk with you about your experiences with falls. We want to let you know that this focus group session will be audio-recorded. However, we assure you that everything you say here will be kept confidential and will only be used anonymously for research and educational purposes. Before we start, please sign the informed consent form provided to you and return it to _____.

Definition of a fall

To help us all understand falls in the same way, we want to talk a little bit about what a fall is and provide you with some examples. A fall is when a person unintentionally comes to rest on the ground or any lower surface. For example, an older adult can fall when getting out of bed to go to the bathroom, slipping on a loose rug, walking on uneven surfaces with poor lighting, or feeling dizzy due to medication side effects. Many times, there is a combination of various factors that lead to falls.

<u>The following questions will guide the discussion of the focus group:</u>

1. Think back on the last time you fell. Tell us about that time.
   Prompts:
   (What do you think caused you to fall?)
   (Where were you when you fell?)
   (What were you feeling at the time?)
   (How did you respond to the fall? What actions did you take?)

2. What changes did you experience in your daily life after a fall?
   Prompts:
   (What activities did you find challenging after the fall?)
   (How did the fall affect your daily routine?)
   (How did the fall affect your mental state or mood?)

3. How did the fall affect your independence and quality of life?

4. How did the fall affect your social life?

5. By a show of hands, how many of you felt down or helpless in your daily life after a fall? Tell us more about that.

6. By a show of hands, how many of you felt less motivated to do the things you use to enjoy doing after a fall? Tell us more about that.

7. What concerns or thoughts do you have about falling again?

8. What changes did you make after a fall?
   Prompts:
   (How many people talked to their doctors or nurses more?)
   (How many people started taking exercise classes?)
   (How many people tried to learn more about how to prevent falls?)

9. What do you think would help you fall less in the future?
   Prompts:
   (What kind of support would likely help you fall less?)
   (What would people in your situation need in order to prevent falls?)
   (What can you do to fall less?)

10. What do you think would help prevent falls in the future?

    *What do you think about having someone from the Novato Fire District or another person visit you in your home to help you assess ways to prevent falls?
    Other Prompts:
    (What if they conducted screenings and referrals?)
    (What do you think about education materials?)
    (What about home evaluations and modifications?)
    (What do you think about working with an occupational therapist?)

11. Are there any further thoughts, comments, or questions you would like to share?

Thank you for taking the time to participate in this focus group! We appreciate all your comments and feedback. We hope this was beneficial for you as it was for us. Thank you again for your time.

Phone Interview Script: Older Adults

Introduction

Hello, my name is _____. I am an occupational therapy student from Dominican University of California in San Rafael. I am part of a team of faculty and students conducting a study with the Novato Fire District on falls in older adults. I am calling you today to talk with you about your experiences with falls because I was given your name by the Novato Fire District as someone who may have fallen recently. I want to let you know that this interview will take about 20-30 minutes and will be audio-recorded. However, everything you say will be kept confidential and will only be used anonymously for research and educational purposes. May I have your consent to participate in this interview?

Continue if consent is given. If not, thank them for their time and terminate the call.

Thank you for agreeing to be a part of this interview. I will now ask you some questions about your experiences with falling.

<u>The following questions will guide the interview with the older adults:</u>

1. Can you tell me about the last couple of times you fell?

2. How did you react to the fall? What was that like for you?

3. How did you feel after you fell? Right away? A while after?

4. What emotions come to mind when you think back on those previous falls?

5. Were you feeling sad or down before or around the time you fell?

6. Were you feeling less motivated to do the things you usually do before or around the time of the fall?

7. What did you do after you fell?

8. What services did you receive after the fall?
   Prompts:
   (Did you see a doctor?)
   (Were any referrals made?)
   (What services do you think would have helped?)

9. In what ways has the fall impacted your daily life at home and out in the community?

10. How did the fall impact your social life?

11. Did you felt down or helpless in your daily life **after** a fall? Tell us more about that.

12. Did you felt less motivated to do the things you use to enjoy doing **after** a fall? Tell us more about that.

13. What steps did you take to help keep you from falling again?
    Prompts:
    (Did you talk more with your doctor?)
    (Did you get your vision checked?)

14. Since the time you last fell, have you made any changes in your living arrangements? If so, what?
    Prompts:
    (Living with a relative?)
    (Moved downstairs?)

15. Did you make any changes in your home? If so, what?
    Prompts:
    (Did you arrange anything differently within your home, such as throw rugs or furniture?)
    (Did you start using any new equipment or devices, such as grab bars or nightlights?)

16. What else do you think would help prevent falls in the future?

    *What do you think about having someone from the Novato Fire District or another person visit you in your home to help you assess ways to prevent falls?
    Other Prompts:
    (What if they conducted screenings and referrals?)
    (What do you think about receiving education materials?)
    (What about home evaluations and modifications?)
    (What do you think about working with an occupational therapist?)

Thank you for your participation in this interview! Your thoughts and experiences will be very helpful for our research study. Thank you again for your time.

Focus Group Script: First Responders (Paramedic and EMS)

Introduction

(OT students will introduce themselves)

Hello, we are occupational therapy students from Dominican University of California in San Rafael. As occupational therapists are licensed health professionals who help individuals of all ages do the things they find important and meaningful, whether it is to work, play, or socialize. Sometimes people face challenges in accomplishing these activities due to their health and/or external circumstances. Occupational therapists' role is to bridge the gap between people's current condition and where they want to be functionally.

For the past few months, we have begun a research study on falls in older adults. We want to better understand contributing factors to falls and how falls can be prevented in older adults through the collaboration between occupational therapists and first responders. In order to gain a deeper understanding of your role and expertise as first responders, we are here today to talk with you about your experiences in responding to calls related to falls in the elderly. We want to let you know that this focus group session will be audio-recorded. However, we assure you that everything you say here will be kept confidential and will only be used anonymously for research and educational purposes. Before we start, please sign the informed consent form provided to you and return it to _____.

Definition of a fall

For the purposes of our research, we are defining a fall as when a person unintentionally comes to rest on the ground or any lower surface. Today, we will be talking about both mechanical and medical falls.

<u>The following questions will guide the discussion of the focus group:</u>

1. By a raise of hands, who here are the paramedics? Who are the EMTs?

2. Thinking back on all the calls you've responded to in the past year, what percentage of those calls was related to falls in the elderly?

3. In your experience as a first responder, what do you think typically cause or contribute to falls in older adults (e.g. medications, clutter, ETOH, depression)?

4. Tell us about your experience in caring for older adults who have fallen.

5. What type of training have you received in responding to falls in older adults?

6. How do you feel about your preparation and training in caring for older adults who have fallen?

7. What challenges do you face when responding to calls related to falls in the elderly?
   Prompts:

(How do you feel about your interactions with older adults?)
(What is your relationship like with the staff at the assisted living and skilled nursing facilities that you normally visit?)

8. What do you think would help prevent falls in older adults?
   Prompts:
   (Fall prevention training?)
   (Exercise?)
   (Safety training?)
   (Environmental modifications?)
   (Screening, referral, education?)
   (Communication with primary care physicians (PCP)?)
   (Understand benefits of seeing PCP?)
   (Medication reconciliation?)

9. What do you think would help you to better respond to falls in older adults?
   Prompts:
   (Education on how to care for the elderly?)
   (Training on how to communicate with older adults?)
   (Training on geriatric mental health?)

10. Think back on the last couple of calls for falls in the elderly that you've responded to. Where would you have referred them to if you had a list of resources to choose from?

11. Are there system changes that you think could help prevent falls (e.g., monthly meetings with healthcare professionals)?

12. Are there any further thoughts, comments, or questions you would like to share?

Thank you for taking the time to participate in this focus group! We appreciate all your comments and feedback. We hope this was beneficial for you as it was for us. Thank you again for your time.