Fall Prevention in the Continuum of Care

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Fall Statistics – Why do we care?

**2010**

*Number of nonfatal fall injuries requiring medical care:*

- 43 per 1,000
- 115 per 1,000 over age of 75
Fall Statistics – Why do we care?

Nation-Wide 2012:

• 8,974,762 individuals (3% of the population) was medically treated for a fall related injury.

Virginia 2005-2009

• Falls are leading cause of hospitalizations from unintentional injury.
• Over 3,000 traumatic brain injuries.
• 1.6 billion dollars in hospital fees for hospitalizations alone (not including care after)
Fall Statistics – Why do we care?

- **Loudoun County 2005-2009**  
  *(Population approximately 315,000)*
  - **1,047 fall related admissions** during this time frame (3% of population).
  - **Median Charge per episode** of care = **$19,209**
  - **Total charges** = **$25,038,744**
Almost 900 individuals >65 were admitted to our Emergency Dept. 2012 / 2013 due to a fall complaint.

Approximately 75 people per month!

In 2000, falls were the leading cause (71%) of hospitalizations for injuries in this age group - DARS
Discharge Disposition

- Admitted to ICU
- Discharged Home
- Short Stay - OBS
- Transferred Out
- Admitted to Hospital
- Other
• Founded in 2008 by Tony and Becky Schaffer

• A *Grass Roots Effort*!
  • *First Annual Summit* hosted < 50 people at local recreation center.
  • *Second Annual Summit* (2010) hosted over 125 people at Inova Loudoun Hospital.
April, 2011 Tony gathered a group of clinicians together to develop a **Community Fall Interaction Plan** based on the CDC Fall Prevention Plan.

**The Team:**
- Anne Blackstone, *Physical Therapist*
- Lee Allison Boris, *Pharmacist*
- Art Brosnard, *Physical Therapist*
- Pat Knauer, *RN*
- Peyam Mojallel, *Optometrist*
- Area Agency on Aging Consults
NVFPC developed a Community Fall Screening Event model based on the CDC’s **4 pillars of Fall Prevention.**

- **Get Some Exercise!**
  - PT/OT Mobility Assessment

- **Be Mindful of Medications!**
  - Pharmacy Consult

- **Keep Vision Sharp!**
  - Optometry Screening

- **Eliminate Hazards at Home**
  - Home Safety Education
  - Assessments
The Beginning...

The First Screening Events

September 20, 2011 – Cascades-Sterling
» 46 participants – 37 at risk for falls (80%)

November 15th, 2011 – Carver Center, Purcellville
» 44 Participants – 32 at risk for falls (73%)

January 18th, 2012 – Leesburg Senior Center
» 44 Participants – 38 at risk for falls (86%)

March 14th, 2012 – Dulles South Senior Center
» 22 Participants – 15 at risk for falls (68%)
Community Screening Events

All participants were given a packet of fall prevention education materials:

- **PERSONALIZED FALL RISK PROFILE REVIEWED 1:1 WITH HEALTH CARE PROFESSIONAL**

- **INDIVIDUAL RECOMMENDATIONS** from each station included.
All Participants also received:

- CDC Exercise Program “Growing Stronger”.
- Schedule of exercise classes / activities at the local senior centers.
- Nutrition Recommendations.
- Education handout regarding safe use of over the counter medications.
- CDC Home Safety Checklist
- NVFPC Handbook with education and area resources.
Data Collection to assist with validation of fall prevention technology
The first year...

• Tony and Becky Schaffer noticed the need and formed the Northern Virginia Fall Prevention Coalition.

• A team of committed, engaged community professionals volunteered time to develop a community screening event based on the CDC recommendations.

• Community fall screening and education events were successfully launched in all county senior centers – fully staffed by volunteers!
First and Only
Fall Prevention Coalition of its kind!!
Grass Roots Community Effort-
All Volunteer!
No Grants!
No risk of program shut down due to lack of funding!

Shifting from emphasis on grant funding (traditional model among coalitions) to community accountability.
It takes many volunteers make each of these Community Fall Risk Screening Events happen. NVFPC members and supporters have stepped up to provide these crucial services to older Virginians. Thank you all!
What happened next….

• A successful community fall screening event model was established in Loudoun County in 2012.

• This model was used to launch successful screening events in surrounding counties.

• This model is continuing to be rolled out throughout counties in Northern Virginia – in a variety of settings.

Goal: Fall prevention education and personalized recommendations for northern Virginia senior residents.
Now that we’ve identified those at risk, what do we do?

• Initiated *direct communication with primary care* physicians upon approval from participant.
  • Letters faxed directly to the primary care physician educating about their patient’s participation in the event and their individualized fall risk profile/recommendations.

• **Home Safety Assessments** – The 4th Pillar
  • Participants determined to be at risk for falls will have the option of a home safety assessment complimentary of the Coalition.
Call for Volunteers!

Members of the NVFPC were asked to donate one health care professional a month (8 hours) to participate in home safety assessments for our community residents determined to be at risk for falls.

**Free training** was provided by the NVFPC to ensure consistency and standardization, and to ensure ethical compliance.
Call for Donations!

• “The Tool Kit” ($30 donation) – *kit includes all tools staff member will need to perform indicated safety tasks:*  
  - Rug tape to secure throw rugs ($12 roll)  
  - 5 in 1 screwdriver to perform light maintenance ($5)  
  - Extra light bulbs ($2)  
  - Batteries ($3 for variety)  
  - Duck Tape – orange ($4 roll)  
  - Reflective tape/strip (stairs/thresholds) ($4 roll)  
  
• “The Complimentary” ($17 donation) – *includes items that will be given complimentary to participant based on need.*  
  - Night Lights (two for $8)  
  - Flashlights (2 for $5)  
  - Pill Caddies ($4)  

*A donation of $47 will purchase both kits!*  
*May provide company logo / information on any donation.*
In Summary.....

• The Coalition successfully launched Community Fall Screening and Education Events in Northern Virginia.

• Once the Screening Events were finalized, the Interaction Plan was launched.
  • Direct communication with primary care physicians.
  • Home safety assessments.
Taking it to the Next Level

• Partnership between local hospital and community coalition with goal of:
  • Reducing hospital admission rates due to falls.
  • Reducing the financial cost to the hospital due to fall-related admissions

This partnership will provide opportunity for comprehensive community accountability and responsibility.
Community Coalitions

The North Carolina Falls Prevention Coalition - 2008

- NC Division of Aging and Adult Services
- NC Division of Public Health
- Institute on Aging at UNC-Chapel Hill
- Carolina Geriatric Education Center
Northern Virginia Fall Prevention Coalition – 2008

- Grass Roots effort of community clinicians and volunteers
- Virginia Tech University
- Inova Health System - Loudoun
Taking it to the Next Level – Lit Review

- Factors associated with older patients' engagement in exercise after hospital discharge.
  - Low levels of engagement in exercise after hospital discharge.
  - Design exercise programs that address identified barriers and facilitators
  - Provide education to enhance motivation and self-efficacy

- Falls after discharge from hospital: is there a gap between older peoples' knowledge about falls prevention strategies and the research evidence?
  - Only 2.9% of participants exercise post-discharge.
  - Falls prevention concept was strategies for avoiding an accidental event, rather than engaging in sustained multiple risk reduction behaviors.

Poor Compliance with Exercise Post Discharge
Tailored Education for Older Patients to Facilitate Engagement in Falls Prevention Strategies after Hospital Discharge—A Pilot Randomized Controlled Trial

- **Intervention:** a *tailored education package* consisting of multimedia falls prevention information with *trained health professional follow-up*, delivered in addition to usual care.
- **Result:** *increased engagement in falls prevention strategies after discharge* and is feasible to deliver to older hospital patients.

**Follow-up by Health Professional Post Discharge Increased Engagement in Fall Interaction Plans**
• A single home visit by an occupational therapist reduces the risk of falling after hip fracture in elderly women: a quasi-randomized controlled trial.

• A single home visit by an occupational therapist after discharge from a rehabilitation hospital significantly reduced the risk of falling in a sample of elderly women following hip fracture.

*Decreased Falls Noted With Home Visit Post Discharge*
• Preventing falls in community-dwelling frail older people using a home intervention team (HIT): results from the randomized Falls-HIT trial.

  • **Intervention:** a diagnostic home visit:
    • assessing the home for environmental hazards
    • advice about possible changes
    • offer of facilities for any necessary home modifications
    • training in the use of technical and mobility aids
  
  • **Results:** After 1 year, the intervention group had 31% fewer falls than the control group

*Decreased Falls Noted With Home Visit Post Discharge*
• Home visits by an occupational therapist for assessment and modification of environmental hazards: a randomized trial of falls prevention.

  • **Intervention**: home assessed for environmental hazards and facilitated any necessary home modifications.
  • **Results**: Home visits can prevent falls among older people who are at increased risk of falling.

*Decreased Falls Noted With Home Visit Post Discharge*
Literature Review: Common Themes

• **EDUCATION** and **REINFORCEMENT of this education.**
  • Preventive lifestyle habits
• **HOME VISITS**
  • Another opportunity to reinforce education
  • Home safety assessments

• These same common themes are found in popular fall prevention protocols:
  • **NCOA – Falls Free Initiative**
  • **Fall Prevention Center of Excellence – Stopfalls.org**
  • **CDC Fall Prevention Program**
Taking it to the Next Level

• **Create a Fall Prevention Continuum of Care**
  
  • **Emergency Department**
    • *Education*
    • *Community programming follow up on discharge.*
  
  • **Inpatient and Sub-acute rehab**
    • *Risk screen and staff training* for modifications while inpatient
      Low vision considerations
      Musculoskeletal considerations
      Population specific considerations
      Nutrition considerations
    • *Education*
    • *Community programming follow up on discharge.*
Taking it to the Next Level

• Create a Fall Prevention Continuum of Care
  • Home Health
    • Risk screen and staff training for home safety assessments and modifications
    • Education
    • Community programming follow up on discharge.
  • Outpatient Rehabilitation
    • Risk screen and staff training regarding prevention plan
    • Education
    • Community programming follow up on discharge.
  • Community Partnerships
    • Screening and Education Events
Goal of Fall Prevention Continuum of Care:

Create consistency across all continuums of care for maximal outcomes!

Repetition, Repetition, Repetition, Repetition.
Taking it to the Next Level

- **Begin Tracking Outcomes**
  - Collect baseline falls data from community Emergency Departments.

- **Follow-up within 24 hours after discharge** from inpatient settings
  - Perform home safety assessment
  - Review discharge recommendations for understanding
  - Educate on fall prevention concepts
  - Reiterate follow up with community programming

- **Community screening events every 6 months** to monitor trends and outcomes.
What Exactly Happens at a Community Screening Event?
Community Screening Events

The Stations:

1. **Registration/Introduction**: Participants learn what to expect during the event, and watch a video of the various testing they will participate in.

2. **Pharmacy**: Brown Bag Consults

3. **Mobility**: Assessments by Physical Therapists

4. **Vision**: Assessments by Optometrists

5. **Exit Interview**: Summary and Recommendations delivered by health care professionals skilled in geriatric population.

6. **Optional participation in Virginia Tech research protocol.**
Pharmacy Station Procedures

- Licensed pharmacist or nurse specialist review medications with participant.
- **Determine risk for falls based on CDC guidelines:**
  - If participant on **4 or more prescription** medications
  - Any **medications that increase risk fall,**
    - Psychotropics, sleep medications, pain medications, some blood pressure medications, etc.
  - Pharmacist makes general recommendations not to be implemented until reviewed with primary physician.
Mobility Station

Northern Virginia
Fall Prevention Coalition
Mobility Station

• Licensed Physical and Occupational Therapists conduct and interpret the following assessments:
  • Activities Specific Balance Confidence (ABC) Scale
    • *Addresses Fear of Falling*
  • Functional Reach Test
    • Quick, *easy screen for fall risk* – valid in most populations.
  • Gait Velocity
    • High *predictor of morbidity / function*
ABC Scale

- A 16 item questionnaire to assess a person’s subjective confidence in his/her ability to perform specific balance tasks performed on a daily basis.

- **Valid and reliable predictor for fall risk** when used with community dwelling elders.

- Fall Risk Score = <67%
Functional Reach Test

- Yardstick placed on wall at humeral head

- “Reach forward as far as you can with both arms,” using any strategy along yard stick. No touching yard stick or any surface, no stepping.

Score < 6" predictive of falls; > 10" OK

**Not valid for people with Vestibular dysfunction or Parkinson's disease**
Gait Velocity

- 10-Meter Walk Test

- Gait Velocity is *directly correlated to future health and mortality*.
  - “Grim Reaper” study in BJM 2011

- Useful in determining fall risk (based on age related norms) and safe community mobility – crossing intersections and parking lots.
Gait Velocity Interpretation

- 0-0.6 m/s indicates dependency in ADLs and more likely to be hospitalized
- 0.82 m/s – walking speed of the “Grim Reaper”
- >1.0 m/s indicates less likely to be hospitalized and Independent ADLs
- < 0.2 m/s indicates most likely d/c to SNF
- > 0.2 m/s indicates most likely d/c to home
- 0-0.4 m/s indicates household ambulator
- 0.4-0.8 m/s indicates limited community ambulator
- 0.8-1.2 m/s indicates community ambulator
- 1.2 m/s indicates ability to cross crosswalk
Vision Assessments

- Natural age related changes occur with vision in the following areas:
  - Visual Acuity
  - Color Discrimination
  - Contrast
  - Depth Perception

Assessment of visual performance in these areas was performed under the direction of a licensed Optometrist.
Impaired Visual Acuity

- Difficulty distinguishing the edges of objects
- Difficulty determining when one object ends and when one begins
- Challenge with judging distances, i.e. reduced depth perception
Impaired Color Perception

- Usually related to the distinguishing between shades of blue and yellow
- Associated with a decrease in nerve fibers
- Mainly related to changes in the lens of the eye

Also contributes to difficulty determining edges of objects, where one object ends and another begins, and depth perception.
Impaired Contrast Sensitivity

- Contrast sensitivity is our ability to differentiate dark from light
  - For example newspaper print has less contrast than a laser printer printed text
  - The greater the contrast the easier it is for us to see
  - Decreased contrast sensitivity is one reason it is harder for us to see at night
  - Also contributes to difficulty determining edges of objects, where one object ends and another begins, and depth perception.
Impaired Depth Perception

- Results from difference in vision between eyes
- Muscle imbalance or palsy
- Unilateral Cataract
- *Wearing the wrong glasses*

Depth perception affects ability to determine edges of curbs/steps, edges of objects and transitions in floors.
The Exit Interview
The Exit Interview

- **Staffed by Geriatric Specialists**
  - Care managers / Social Workers
  - Nurses

- **Participant is educated on:**
  - INDIVIDUAL FALL RISK PROFILES
  - Review of recommendations made by various stations. *Instructed to review these recommendations with physician prior to implementing any changes.*
  - Home Safety Checklist and education issued, participant placed on *Home Safety Assessment* list if determined to be at risk for falls.
The Exit Interview

- Participant leaves event with folder of resources / education materials
  - Personalized fall profile to bring to physician for discussion.
  - Copy of Fall Prevention handbook with education materials and community resources.
  - CDC Exercise Program “Growing Stronger”
  - Schedule of senior center activities (physical and cognitive/social.)
  - CDC Home Safety Checklist (scheduled visit if indicated)
  - CDC Preventing Falls handout
  - General nutrition review and recommendations for fall prevention.
CDC Fall Prevention Pillars

- Get Some Exercise
  - “Growing Stronger” Exercise Program
- Be Mindful of Medications
  - Have an annual medication review with your physician/pharmacist to discuss medications that may increase your risk for falls.
- Keep Vision Sharp
  - Annual vision screening by Optometrist
- Eliminate Hazards at Home
  - Perform annual home safety checks!
    - Complimentary home safety assessments when indicated.
Poor nutrition and dehydration are directly correlated with an increased risk for falls.

Inadequate nutrition can lead to anemia, lethargy, dizziness and muscle weakness – all which can increase risk to fall.
Inova Loudoun PMR Mission

• To create a fall prevention plan that is standardized, consistent and repeatable in the continuum of care:
  • Emergency Department
  • Inpatient Admission
  • Inpatient / sub-acute rehab
  • Home Health
  • Outpatient Rehab
  • Community Partnerships
Developments in Fall Prevention Technology

- Dr. Thurmon Lockhart, Director of the Locomotion Research Laboratory at Virginia Technical University.

- Twenty-two percent (22%) of fall injuries for people aged 65 and older happened when the individual slipped or tripped on a level surface.
  - VA Division for the Aging statistic 200
    - DARS 2014

- Developed the Slip Simulator, which creates perturbations during gait and teaches the body to safely self correct in these situations.

- Technology has been deployed by energy companies and UPS, leading to a significant reduction in slip related workers comp injuries.
Resources

• **CDC**
  - Free handouts for patients
  - Guides – “Preventing Falls”

• **National Council on Aging**
  - Falls Free Initiative – bringing together multiple coalitions/organizations

• **A Matter of Balance Program**
  - Goal is to address fear of falling and increase activity level of participants.

• **Otago Exercise Program**
  - Developed in New Zealand
  - Personalized exercise program delivered by PT’s with goal of fall prevention
Thank you for your time.

Feel free to contact me with any questions.

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