Falls Prevention and Bone Health

Risk Assessment

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Falls- what's the Problem?

- Falls in older people are a serious public health problem and a needless cause of ill-health and death.
- The risk of falling increases as people get older.
- One in three older people fall every year and two-thirds of them fall again within six months.
- As Ireland's population ages, the burden of falls and related injuries could double over the next 25 years.
- Falls can be predicted and prevented.

Report of the National Steering Group on the Prevention of Falls in Older People and the Prevention and Management of Osteoporosis throughout Life June 2008

Falls- what we Know

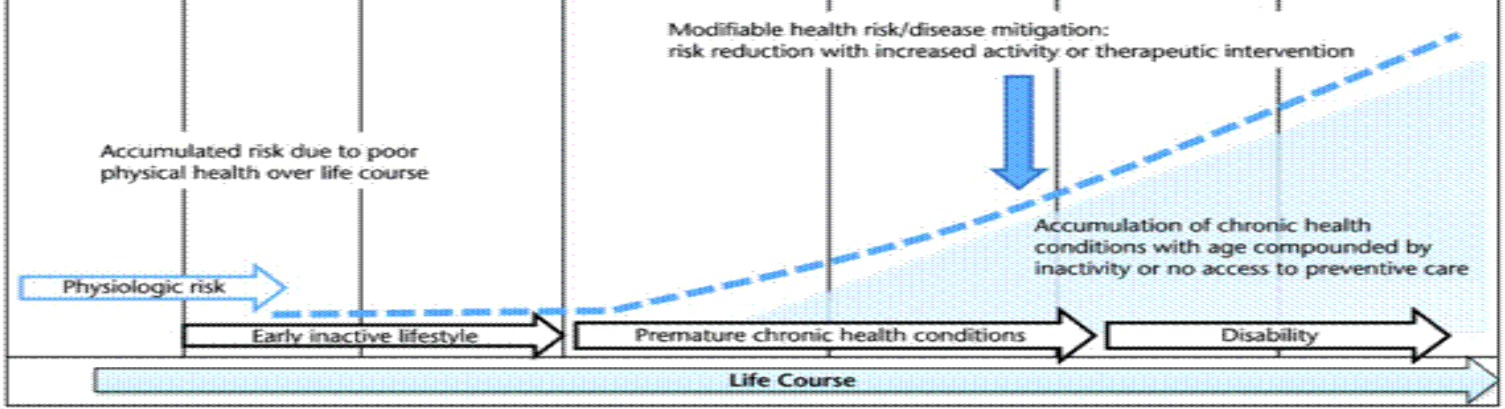
- Falls and consequent injuries are major public health problems that often require medical attention.
- Falls are the underlying cause of 10-15% of all emergency department visits (1).
- Falls are more than 50% of injury related hospitalizations among people over 65 years and older (2). The major underlying causes for fall-related hospital admission are hip fracture, traumatic brain injuries and upper limb injuries.

Falls- the impact

- The duration of hospital stay due to falls varies; however it is much longer than other injuries. It ranges from four to 15 days
- In the case of hip fractures, hospital stays extend to 20 days (3,4). With the increasing age and frailty level, older person are likely to remain in hospital after sustaining a fall-related injury for the rest of their life
- Subsequently to falls, 20% die within a year(4)

Maintaining Functional Independence over the life course

Life Stages	Infancy and Childhood (Birth-10 Years)	Preadolescence and Adolescence (11-17 Years)	Young Adult (18-44 Years)	Middle-Aged Adult (45-60 Years)	Older Adult (61-74 Years)	Senior and Frail Adult (≥75 Years)
Health Promotion	Motor development	Activity behaviors	Physical health with work and family	Active adult life	Independent living	
Prevention	Safe physical environment	Reduce unintentional injury	Health risk monitoring	Health risk management	Reduce unintentional injury for safe mobility in the home and community	



Risk Factors which contribute to Falls

Behavioural Risk Factors

- Multiple medication use
- Excess alcohol intake
- Lack of exercise
- Inappropriate footwear

Biological Risk Factors

- Age, gender and race
- Chronic illnesses (e. g. Parkinsons Disease ,Arthritis, Osteoporosis)
- Physical, cognitive and affective capacities decline
- Eyesight

Environmental Risk Factors

•-Poor building design
•-Slippery floors and stairs
•-Loose rugs
•-Insufficient lighting
•-Cracked or uneven walking areas/footpaths/public areas

Socio-Economic Factors

•-Low income and education levels
•-Inadequate housing
•-Lack of social interactions
•-Limited access to health and social services
•-Lack of community resources WHO 2007

Multifactorial Falls Assessment considerations

- Falls History (Previous fall - with or without injury) ,
- Fear of falling, motor dexterity ability
- Assessment Gait/Balance/Mobility/Muscle Weakness
- Assessment Osteoporosis risk
- Assessment of Personal safety- i.e. footwear, hearing, eyesight
- Assessment Cognitive Impairment
- Assessment Urinary Incontinence
- Assessment Environment Hazards
- Assessment of Medications- high risk, 4 or More, timely review
- Assessment of Postural hypotension
- Assessment of dietary plan – to support bone health

Assessment of Risk

- Physiotherapists often take the lead in gait and balance assessment, using validated assessment tools such as the Berg Balance Scale.
- Physiotherapists also lead out on many exercise programmes and provide individual exercise and goal based interventions.

Assessment of Falls

- Occupational therapists & Nurses provide a holistic assessment of physical, cognitive, environmental and social factors that contribute to the falls.

- Most falls require multi-factorial interventions, typically including medication review, patient education, home modifications, and an exercise programme that incorporates high intensity muscle strengthening and balance components. *Clinical Strategy and Programmes Division NCPOP-Specialist Geriatric Team Guidance on Comprehensive Geriatric Assessment*

Assessment of Risk of Falls

- Berg Balance Scale
- Elderly Mobility Scale
- Functional Assessment Grid
- Fear Of Falling Score

Berg Balance Score

Berg Balance Scale

	SCORE	
1. Sitting to Standing	( )	
2. Stand Unsupported	( )	
3. Sitting Unsupported	( )	
4. Standing to Sitting	( )	
5. Transfers	( )	
6. Standing Unsupported with Eyes closed	( )	
7. Standing Unsupported with Feet Together	( )	
8. Reaching Forward with Outstretched Arm	( )	
9. Retrieving Object from Floor		( )
10. Turning to Look Back	( )	
11. Turning 360º	( )	
12. Placing Alternate Foot on Stool		( )
13. Standing with one Foot in Front		( )
14. Standing on one Foot	( )	

TOTAL MAX SCORE 56)

Berg Balance Scale

45 or > usually indicates patient less likely to fall, safe ambulator, no assisstive device

37 or > usually indicates safe ambulator with assisstive device

36 or lower relates to 100% risk of falls in community living older adults

EMS Elderly Mobility Scale

Elderly/Mobility Scale

1. **Lying to Sitting** ( ) 2
Independent
- Needs help of 1 person
- Needs help of 2+ people
-

2. **Sitting to lying** ( )
2 Independent
Needs help of 1 person
Needs help of 2+ people

3. **Sit to stand** ( )
3 Independent in < 3 seconds
2 Independent in > 3 seconds
Needs help of 1 person
Needs help of 2+ people

4. **Stand** ( )
3 Stands – support* and able to reach
2 Stands – support* needs support to reach
Stands but needs support*
Stands only with physical support
Support means needs to use upper limbs

5. **Gait** ( )
3 Independent (Including use of one stick)
Independent with frame/crutches/two sticks
Mobile with frame but erratic/unsafe turning (needs occasional supervision)
Needs physical help x 1 to walk or constant supervision

6. **Timed Walk (6 meters)** ( )
3 <15 seconds
16 – 30 seconds
> 30 seconds
Unable to cover 6 meters

7. **Functional Reach** ( )
4 > 16 cm
2 8 – 16 cm
0 < 8 cm or unable

TOTAL **(MAX SCORE 20)**
EMS
0 – 9 Unsafe for discharge (further intensive rehabilitation/Physio)

10 – 13 Borderline (will require further rehabilitation and full package of care if discharged to the community)

14 – 20 Safe for discharge with some home support and review in the community

Risk assessment test considerations

- Timed up and go (TUG test) – Mobility
- 30 second chair stand test (gender/ age)- leg strength and endurance
- Four stage balance test – assess static balance
- Blood pressure monitoring – postural hypotension

Falls Risk Assessment Tool (FRAT)

(adapted from Penninsula Health Falls Prevention Service 2009)

Clients Name:---------- DOB:_____

Unit:_____ Date:_____

Part 1: Postural Hypotension / Dizziness Yes ↑ No ↑

If **Yes** client is High Risk of Falls – **Refer for medication review**

Part 2: Falls Risk Status (The FRAT is a Validated Tool)

Risk Factor ;Recent Falls

None in Last 12 months

One or more between 3 and 12 months ago

One or more in last 3 Months

One or more in last 3 months or while in patient

Medications

(Sedatives, Anti depressants, Anti Parkinsons, Anti Hypertensives, Hypnotics)

Not taking any of these

Taking One

Taking Two

Taking more than two

Psychological

(Anxiety, Depression, Decreased Co operation, decreased Insight, Decreased judgement re mobility)

Does not appear to have any of these

Appears mildly affected by one

Appears moderately affected by one or more

Appears severely affected by one or more

Cognitive Status Mini Mental Score (MMSE)

Score:

Intact - 25-30

Mildly Impaired - 21-24

Moderately Impaired - 10-20

Severely Impaired <10

Low Risk 5-11

Medium Risk 12-15

High Risk 16-20

PRINT NAME_____

SIGNATURE:_____

Identify Falls Risk - Then What?

- High Falls Risk Identified → referral to Physiotherapy/Occupational Therapy/Dietitics (Low BMI)

- If Medication or Hypotension is identified as an issue – 'Four Or More' → referral to GP/ Pharmacist/ Clinical Dr
- If vision is an issue → referral to Optician/Opthalmologist

Identify Falls Risk - Then What?

- Referral to PHN/GP in the community to support specialist referrals
- Partner with patients and families- information leaflet/ posters
- Identify exercise/activity programmes to support muscle strengthening and gait

Falls Prevention considerations

- Appropriate **training** programmes covering knowledge and skills in falls prevention and management should be a priority in primary heath care (PHC) settings, where increasing number of patients are older people.
- GPs and Health Care Professionals should have **knowledge and ability to diagnose** and manage falls and fall-related injuries. Falls in older age are often caused by incorrect diagnoses and treatments. (7)
- Older people on psychotropic **medications** should have their medication reviewed, with specialist input if appropriate, and discontinued if possible to reduce their risk of falling. NICE [2004]

Falls Prevention considerations

- Examples include over-prescription of medications that cause side effects and interactions among the drugs, inadequate dosage and lack of warning regarding risks of non adherence or medication abuse. (7)
- Also as people age, they develop altered mechanisms for absorbing and metabolizing drugs. (7)
- **Cardiac pacing** should be considered for older people with cardioinhibitory carotid sinus hypersensitivity who have experienced unexplained falls. NICE **[2004]**

Falls Prevention considerations

- Access for Older people to falls prevention **exercise programmes** is critical. (4)

- **Moderate physical activity** and exercise also lowers risk of falls and fall-related injuries in older age through controlling weight as well as contributing to **healthy bones, muscles, and joints** (4).
- Exercise can **improve balance, mobility and reaction time**. It can increase bone mineral density of post menopausal women and individuals aged 70 years and over (5).

Falls Prevention considerations

- Eating a healthy balanced **diet** is central to healthy ageing. Adequate intake of protein, phosorus calcium, essential vitamins and water are essential for optimum health.
- where deficiencies exist, it is reasonable to expect that weakness, poor fall recovery and increase risk of injuries will ensure. (6)
- Growing evidence supports dietary calcium and vitamin D intake improves bone mass among persons with low bone density and that it reduces the risk of Osteoporosis and falling(6)

Falls Prevention At Home

- Older people living at home should be asked routinely whether they have fallen in the last year NICE Guidelines 2004
- Older people reporting a fall should have a multifactorial risk assessment NICE 2004
- Older people reporting a fall or considered at risk of a fall should have a balance risk assessment and would benefit from intervention to improve strength and balance NICE 2004

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