

# HIP PROTECTOR PILOT

Catherine Steinmann  
Falls Service Manager  
and  
Chair of the Medway and Swale Falls Steering Group



## DEFINITION OF FALLS

- An untoward event which results in the patient coming to rest unintentionally on the ground or other lower surface (Morris & Isaacs 1980)
- Accidental Fall: A slipping, tripping or other mishap generally related to Environmental factors (Morse 1989)
- Anticipated Physiological Fall: Fall that occurs with patients that are identified As at risk of falling (Morse 1989)
- Unanticipated Physiological Falls: Attributed to physiological causes but are Created by conditions that cannot be predicted before the first occurrences (Morse 1977)

1 in 3 people over the age of 65 years will fall in the UK every year Falls are not natural or a part of ageing and should never be ignored. Falls is not the sole responsibility of health but is a shared responsibility and that includes the service user.

The number of hip fractures each year in the UK is over 60,000 and the cost to the NHS and social care services is at least £1.73 Billion per year (National Osteoporosis Society, 2006).

## C O N T E N T S

	PAGE
1. Introduction	1-3
2. Standards	4
3. Aims and Objectives	5
4. Participants	6
5. Costs and Benefits	6-7
6. Methodology	7
7. Key Results	8-11
8. Recommendations and Action Plan	12
9. Conclusion	12

### Appendices:

1. National Service Framework for Older People Standard Six
2. N.I.C.E. Clinical Guideline 21
3. Hip Protector Care Pathway > 65 Year Olds
4. Hip Protector Pilot Audit Tool
5. Black and Stratify Validated Assessment Tools
6. The economic cost of a hip fracture in the UK

## **Project Lead**

Catherine Steinmann, Falls Service Manager Medway/Swale and Chair of the Medway and Swale Falls Steering Group.  
St Bartholomew's Community Hospital, New Road, Rochester, Kent ME1 1DS

## **1. Introduction**

Research recommendations in the NICE Clinical Guideline (November 2004) N.I.C.E.

"Falls - The Assessment and Prevention of Falls in Older People" states that trials are needed to investigate the effectiveness of hip protectors with other fracture prevention in older people at high risk of falling.

Clinical audit involves healthcare professionals reviewing their own practices against best practice, guidelines and standards set locally and nationally.

The Medway and Swale Falls Steering Group, a multi-disciplinary group who meet bi-monthly, submitted and were successful in their bid to the Charitable Trust to fund a hip protector pilot across Medway and Swale. The Steering Group consisted of members from the voluntary and statutory sectors including service users and carers.

### **Project Team Appointed**

Cathy Steinmann	-	Falls Service Manager Medway and Swale
Gwen Worcester	-	Osteoporosis Specialist Nurse Medway Acute
Sallyann Larkin	-	Lead for Nursing/Care Homes
Sue Betts	-	Hip Protector Programme Co-ordinator for South West Kent NHS Primary Care Trust

### ***The project team looked at recent trials and research :***

- The Rhino Project - Dudley Metropolitan Borough Council 2003/2004
- Hip Protector Trial Programme - South West Kent NHS Primary Care Trust February 2005.
- The economic cost of a hip fracture in the UK

### ***Project team objectives:***

- Develop a hip protector care pathway
- Use of validated Black and Stratify assessment tools to identify target population.
- Where possible service users/family/carers and staff to choose form of hip protector to be used.
- GP, family and carers involvement for shared responsibility
- Provide and delivery training and education in falls prevention and use of hip protectors.
- Evidence durability and cost effectiveness of intervention

Hip protectors are garments with special protective pads sewn into them, covering the hip area to provide added protection and to disperse the force of a fall reducing the risk of fracture injury. Important: to offer the best chance of protection against a broken hip, the hip protectors must sit over the great trochanter area at all times.

It was agreed that the “soft shell” HipSaver hip protectors from Win Health were the preferred choice of assistive device. Compliance of “hard shell” type hip protectors, which need to be inserted manually into garments and removed for washing, were deemed to be too high maintenance for care staff following toileting/washing, i.e. checking correct “placement” of pad over trochanter area. It was also felt that the alternative hard shells actually contributed to injury following a fall.

The benefits of the **soft shell** HipSavers were as follows:

- Scientifically validated soft hip protector designed with users in mind.
- Dual-mechanism energy absorbing and energy shunting air pads. reduce the forces of impact of a fall from the vulnerable hip area.
- Wide range of hip protectors : knicker, pyjama and trousers for comfortable day and night wear.
- Individual measuring to ensure well-fitting, comfort and appearance.
- Handles could be added to hip protectors for those with arthritic hands.
- Additional protective pads covering coccyx and shin areas available.
- Open crutch hip protectors available for catheter users.
- Wrap round types for those unable to step into garments.
- Made from soft/skin friendly materials with speedy wicking of moisture away from the wearer.
- Bacterial growth is inhibited even on heavily soiled garments.
- Durable washable in domestic/industrial washing machines. Withstands very high temperatures (95 degrees C as dictated by institutional infection control procedures. They can be boil washed and tumbled dried at 95 degrees C (203 Degrees Fahrenheit).
- Pads sewn into garments avoid loss during washing process.
- Soft pads inflate following a fall, reducing injury around the hip area.
- Low maintenance for staff i.e. sewn in pads mean staff do not need to keep checking they are covering the hip area following toileting.
- Inexpensive and one price for all types of knicker forms to ensure hip protectors meet the needs of the patient and not cost restraints.
- The HipSavers sewn in pads provided protection to the hip area even if the service user put them on back to front or inside out.
- Do not wake patients up if worn at night during normal sleep movement
- Carries CE Mark awarded by the medicines and healthcare products regulatory agency (MHRA) demonstrating that the hip protectors have undergone rigorous testing or clinical evaluation for safety.

It was identified that training of staff, service users + carers was paramount to the success of the pilot This was agreed and provided free of charge by Win Health, who provided 2 separate training sessions, for Medway and Swale prior to the start of the pilot.

## *Why do people fall?*

### ***Person Specific Risk Factors***

- Age Related Physiological changes
- Medical Conditions
- Instability, Balance and Physical Activity
- Footwear (tight or uncomfortable shoes)
- Use of Mobility Aids
- Medication – toxic reactions
- Frequent Toileting
- Fear

### ***Environmental Risk Factors***

- Safe Moving and Handling
- Flooring
- Lighting
- Use of colour and pattern
- Furniture
- Fitting and Appliances
- Housekeeping
- Maintenance of Equipment

## 2. Standards

### ***National Service Framework for Older People encompassing standards :***

NSF 1: Age Positive Practices

NSF 2: Person Centred Care

NSF 3: Intermediate Care

NSF 4: Appropriate Specialist Care

NSF 5: Stroke

NSF 6: Falls

NSF 7: Promotion of Health and Active Life in Older People

Medicines Management

### **The White Paper Saving Lives Our Healthier Nation (1999)**

Identified accidental injury as a key and set a target by 2010 to :

Key Objective: Reduce serious injury by at least a tenth (injury) must be sufficiently severe to require a hospital stay of 4 days or more i.e. Hip Fracture

### 3. Aims and Objectives

- Identify:**
- Target Groups, those at high risk of falls with injury.
  - Education and Training needs.
  - Positive and negative outcomes.
  - Compliance and durability.
  - Cost effectiveness
- Reduce**
- Unnecessary hospital and nursing care admissions
  - NHS and social care services is at least £1.73 Billion per year In the UK (National Osteoporosis Society, 2006).
  - Interference of patient care
- Promote:**
- Independence, privacy and respect whilst maintaining safety.
  - Patient dignity, individual needs and choices
  - Assessment of communication needs.
  - Care in the community that actively encompasses respect.
  - Use of robust documentation of incidents in line with Trust CNST policies and protocol.
  - Compliance of Mental Health and Mental Capacity Acts.
  - Adherence to policies/guidelines on restraint
  - Effective use of nursing time/resources.
  - Recommendations for change in risk management.
  - GP, family, carers and staff Involvement for shared responsibility
- Provide:**
- Evidence to assist the PCTs in implementing the National Service Frameworks for Older People Standards
- Raise:**
- Awareness of use of hip protectors in reducing falls with injury
- Encourage:**
- Staff IPR objective to reduce the number of falls and fractures
  - Falls Prevention Initiatives for health and well-being
- Benefits:**
- Maximises mobility and independence
- Exclude:**
- Anyone suffering from pressure sores or who may be confined to bed or rest care for a period of 24 hours or longer.

## **4. Participants**

Healthcare professionals received training on how to identify the target population using the validated Black and Stratify tools for those at high risk of Falls and Fracture in the following areas:

- Nursing/Care Homes
- EMI (Elderly Mentally Infirm) Units
- Hospital Wards
- Community

Those that met the criteria for the pilot were measured around the waist, hip area and inside leg to ensure correct sizing according to their choice of hip protector. There was a choice of garment colours, additional protection pads for the coccyx and shin areas plus handles for those with arthritic hands.

## **5. Costs and Benefits**

WinHealth offer a wide range hip protectors in various knicker and clothing types. All knicker types cost the same irrespective of size and style. This ensured that the garment met the users needs and was not chosen because of cost restraints. Hip protectors in trouser or pyjama styles were slightly more expensive but provided further choice and met seasonal changes.

Participants were provided with three pairs, one wash, one wear and one spare. However, additional pairs were available for those with severe incontinence problems and to management climate changes (weather). WinHealth also agreed to replace any faulty hip protectors that did not last not last the duration of the pilot without question and free of charge. Deliver of hip protectors from order was extremely quick averaging 3-5 days.

The NHS cost of three pairs of knicker hip protectors is approximately £100, which is comparative with other hip protector companies. Clothing type hip protectors were more expensive up to £150 for three pairs. For the purpose of the trial, postage and packaging was not charged by WinHealth but is estimated at £5.50 per person. The Project Team invested in kit which contained various styles and types of hip protectors from WinHealth for training and education purposes.

The personal cost of a hip fracture is devastating and painful. The cost to the NHS for each hip fracture currently stands at between £15,000 and £20,000. Per person. The National Osteoporosis Society reports that 20% of all hip fracture patients will die within 12 months of their hip fracture and this is evidenced in the recent Royal College of Physicians Falls and Bone Health Audit Phase II completed in June 2007 which the Trust has just completed.

Hip fractures are a major cause of death and disability in the older population and often precipitate early admission to a nursing home. Patients who remain healthy, fit and active both mentally and physically have fewer accidents. The most effective way to manage falls is to take a preventative approach.

### **Types of Hip Protectors included in the Pilot:**

- **Slim Fit Model** suitable for those who are independent and slight incontinence.
- **Nursing Care Model** popular with nursing home care staff managing thick incontinence pads providing user with as much independence, privacy and respect.
- **Quick Change Model** with popper gusset popular for allowing quick changes of incontinence wear without need to remove knickers each time.
- **Open Bottom Model** for ease of catheterised and those with need to rush to the toilet
- **Easy Fit Model** – Wrap around types for those with reduce mobility unable to step into garments.
- **Active Long Trousers Models** – For those with wandering as a large part of their condition or history of Parkinson sticky shoes – as crashed to the floor are part of their condition and the trouser models can be fitted with shin, hip and coccyx pads for added protection.
- **Pyjama Model** – Older people admitted to hospital are most likely to fall within the first 24 hours of their admittance. Provides protection until patient is orientated and stable. Also beneficial to those who have frequent toileting at night.

## 6. Methodology

A concurrent audit of patients identified at high risk of falls and fractures. A audit tool was designed by the project team to capture compliance, durability, number of falls and hip fractures. Simple yes or no answers were required with additional use of coding to record any reasons why hip protectors were not being worn as follows:

01	Refused	04	None Available
02	Uncomfortable	05	Hip Protector not required at night
03	Too Hot	06	Other (please state reason in writing)

All participants were assessed using the validated Black and Stratify assessment tools for falls and fractures by trained healthcare professionals. Participant's waist, hip and inside leg measurements were taken depending on choice of garment and everyone was provided with three pairs of hip protectors of their choice free of charge. A stamped addressed envelope was supplied for the return of completed monthly audit tools sent back to the Falls Service for data analysis and feedback.

Completed audits concluded with a report, recommendations and action plan with presentation at the Steering Group Meeting and disseminated stakeholders.

## 7. Key Results

Data analysis was completed by the Falls Service using excel spreadsheet, pivot tables and charts in the Microsoft Office Programme.

### **Group A** EMI Unit (Elderly Mentally Infirm Unit Medway)

Patient	Age	Sex	Pilot Period	Compliance Day	Compliance Night	No. Falls
1	64	F	Sept 2005-2006	97%	95%	20
2	70	F	Sept 2005-2006	95%	96%	12
3	82	F	Sept 2005-Nov05*	87%	64%	1
4	80	M	Sept 2005-2006	96%	97%	8
5	77	M	Sept 2005-2006	96%	97%	7
6	71	F	Sept 2005-Mar06**	99%	97%	10
7	71	M	Oct 2005-Sept06	96%	97%	5
8	79	M	Jan 2006-Sept06	90%	89%	2
9	70	F	Aug 2006-Oct06	100%	100%	2
10	82	M	Aug 2006-Oct06	93%	100%	2
11	72	M	Aug 2006-Sep06***	92%	94%	2
Total Falls: N = 69				Total Hip Fractures: 1		
* <b>Patient no longer met criteria for pilot</b>						
** <b>Patient moved to another location</b>						
*** <b>Patient Died</b>						

### **Group B** EMI Unit (Elderly Mentally Infirm Unit Swale)

Patient	Age	Sex	Pilot Period	Compliance Day	Compliance Night	No. Falls
1	70	M	June 2005-April06	74%	74%	19
2	78	F	Oct 2005 – April06	85%	79%	12
3	93	F	Nov 2005 – April06	78%	90%	5
Total Falls: N = 36				Total Hip Fractures: N = 0		
Hip Protector Pilot concluded early, unit transferred to Mental Health Trust						

### **Group C** Community Patient Identified by Senior Physiotherapist working in the Medway Acute Trust.

Patient	Age	Sex	Pilot Period	Compliance Day	Compliance Night	No. Falls
1	70	M	Aug 2005-Aug06	92%	N/A	3
Total Falls: N = 3				Total Hip Fractures: N = 0		
<b>Feedback from user:</b> Whilst arranging church flowers, I crouched down to pull open a low cupboard and as it opened suddenly, I lost my balance and rolled onto my back. Fortunately no injury, perhaps prevented by my hip protectors.						

## Group D

Community Patient Identified by Medway Alzheimer's Carers Support Group living independently

Patient	Age	Sex	Pilot Period	Compliance Day	Compliance Night	No. Falls
1	81	M	Oct 2005-Nov 2005		N/A	0
2	81	F	Nov06-Dec06	100%	N/A	0

Clients found it too difficult to complete the data collection forms. Agreed that Service Users did not need to complete data collection forms but to provide any feedback. Below is feedback from 1 service user who took 4 attempts before he sent the response to us.

**Feedback from User:** Community Patient with history of Parkinson's (Effort 4 - writing) Sorry about my writing. I have Parkinsons.

Choice of Hip Protectors: Long active trousers and mid-calf pyjamas

**Good Points:**

- The long trousers are comfortable to wear
- The trousers stay up and fit well
- Wearing the trousers presents no problems
- The hip protectors has already proven it's worth
- The material is soft and pleasant

**Bad Points:**

- There needs to be a fly. Twice I have wet myself getting the trousers down.
- I wear long pants, so when I go out I have to wear long pants and those with the padding on top.
- Similarly, the night wear could do with longer legs

My conclusion, like many older people have problems. The bottom of my legs (knee downwards) gets very cold so they really do need to be covered.

I went out 3-4 times with the pants on. There are no problem. You can forget you have them on. I had a bad fall. My head hit my hi-fi my hip hit the floor with a thud. My hip still hurts when touched, I feel certain that the hip protectors saved my hips. The clothes are very useful, well thought out. Small adjustments will make them even better. Thanks

**Group E**

Community Patients – Identified by Head Occupational Therapist – St Bartholomew's Hospital

Patient	Age	Sex	Pilot Period	Compliance Day	Compliance Night	No. Falls
1	79	F	Feb 2006- Feb07	93%	N/A	17
Total Falls : N = 17			Total Hip Fractures: N = 0			

Patient	Age	Sex	Pilot Period	Compliance Day	Compliance Night	No. Falls
2	90	F	January 2006 Only	Poor	N/A	0
Total Falls : N = 0			Total Hip Fractures: N = 0			

**Group F**

Community Patients – Identified by Occupational Therapy Bureau Sittingbourne.

Patient	Age	Sex	Pilot Period	Compliance Day	Compliance Night	No. Falls
1	89	F	May 2006-May 2007	98%	N/A	0
Total Falls : N = 0			Total Hip Fractures: N = 0			
<b>Feedback from Service User:</b>						
<b><i>I have been on holiday in France for three weeks, one week in the alps and felt very confident walking on the snow wearing the hip protectors,</i></b>						

**Group G**

Community Patient – Identified by the Falls Service

Patient	Age	Sex	Pilot Period	Compliance Day	Compliance Night	No. Falls
1	71	M	Sept 2006-June 2007	95%	N/A	10
Total Falls : N = 9			Total Hip Fractures: N = 0			

**Group H**

## Residential Home1

Patient	Age	Sex	Pilot Period	Compliance Day	Compliance Night	No. Falls
1	89	F	July06-Jan07	100%	95%	13
2	81	M	Aug06-Nov06	72%	77%	2
3	85	M	Aug06-Dec06	99%	88%	0
4	87	F	Aug06-Jan07	86%	63%	0
5	88	M	Aug06-Oct06*	77%	84%	3
6	85	F	Dec06-Jan07	100%	N/A	0

\* Patient Died

Total Falls : N = 18

Total Hip Fractures: N = 0

## Residential Home 2

Patient	Age	Sex	Pilot Period	Compliance Day	Compliance Night	No. Falls
1	96	F	July06-Dec06	98%	N/A	0
2	94	F	Feb06-Mar06*		N/A	0

\* Patient Died

Agreed six month pilot

Total Falls : N = 0

Total Hip Fractures: N = 0

## Residential Home 3

Patient	Age	Sex	Pilot Period	Compliance Day	Compliance Night	No. Falls
1	87	M	April06-March07	61%	N/A	9
2	80	F	June'05-Feb06*		N/A	0

\*Compliance poor due to spell of very hot weather making wearing trouser hip protectors uncomfortable. Service user provided with knicker type pairs to improve compliance. Client stopped falling and was removed from the pilot March 2006.

Total Falls : N = 9

Total Hip Fractures: N = 0

## 9. Recommendations and Action Plan

1. Roll out hip protector training programme to health and non health care professionals
2. Recommend NHS Logistics stock and provide range of **soft shell** HipSavers for falls prevention to NHS Professionals.
3. Encourage GPs to prescribe hip protectors for falls prevention
4. Implement Black and Stratify Risk Assessment Tool for identification of target group at high risk for falls and fractures.
5. Where possible offer patient choice of hip protector to ensure compliance.
6. Support EMI units by providing ring fenced funding for this intervention. Their target population has wandering as a large part of their long term condition which would benefit by providing hip to minimizes staff intervention in patient care and also provides the service user with privacy and dignity and increased independence and safety.

## 10. Conclusion

You will note from the key results above that pilot periods varied per site/ individual. The Project Team agreed that the pilot should be concurrent to provide a true snapshot of current practice and outcomes. It was decided not to sign up a large number of service users for the pilot all at once to provide an opportunity for healthcare professionals to have on-going education and training, raising their awareness of falls prevention on how to identify and risk assess service users for the appropriate need for this assistive device in reducing the risk of the falls with injury.

The pilot was successful, due in part to the robust hip protector training programme provided by Win Health prior to the start of the pilot and continued by the Falls Service to ensure shared responsibility and commitment to the pilot.

Compliance was extremely good. This was attributable to patient choice of hip protector and involvement of GPs, family, carers and healthcare professionals. The falls with injury was minimized, with only 1 hip fracture during the pilot. It should be noted that hip protectors will not prevent a hip fracture if the bone is already seriously compromised.

The pilot did experience some lack of commitment by healthcare professionals and individual users who agreed to provide feedback for audit purposes and then did not bother. Regrettably their actions will not lead to any change of practice for them as without evidence, implementation of measures to reduce the risk of falls and fractures will not occur so they have not achieved anything.

4 July 2007