



RHINO PROJECT
2003/2004
REPORT AND EVALUATION



A PROJECT TO REDUCE HIP INJURY
IN NEEDY OLDER PEOPLE

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EXECUTIVE SUMMARY

Locally, the number of people admitted to Russell's Hall Hospital with a fractured neck of femur has increased year on year. By funding long term hip protector provision to the most vulnerable groups, it is hoped that we can slow the rate of this increase.

The RHINO Project aimed to reduce the number of hip fractures in fallers by providing free hip protectors for frail elderly people in a variety of settings. By recording compliance, falls and fracture numbers in each setting, the project has highlighted the optimum areas for long term funding and continued provision. The project also aimed to compare compliance and client feedback between 2 different kinds of hip protector, Robinson's hard shell type and Win Health's flexible pad type.

The settings chosen included acute hospital wards, rehabilitation wards, psychiatric hospital wards, hospital step down beds, Social Services community rehabilitation, EMI care homes, residential care homes and people supported in their own homes. All areas involved in the project received training and ongoing support from the project co-ordinator and appointed one or more key workers.

The project recorded and evaluated; type of hip protector issued, compliance, falls, injuries and client or carer anxiety.

Project Outcomes

These results were almost all derived from clients using Win Health's "Slimfit" Hip Protectors.

- Wearing hip protectors appears to reduce hip fracture rates in high risk fallers
- High compliance rates can be achieved with client selection based on risk assessment and maintained by carer or client enthusiasm
- EMI care homes recorded the highest compliance rates at 80%
- Compliance rates are difficult to maintain after a client returns home
- Clients who choose to wear hip protectors are more anxious about falling than those who refuse
- To succeed in an acute hospital setting, a hip protector project needs a designated co-ordinator rather than a key worker

The project was deemed to be a success in a care home setting especially when targeting EMI clients

It was less successful when people were in their own homes, but could be modified to provide hip protectors for outdoor use, enabling people to have confidence to increase their mobility and broaden their horizons

The Project will now be incorporated into the Dudley Falls Service.

INTRODUCTION

The RHINO Project was a year-long project funded by a dti modernisation grant. The project commenced in July 2003 and concluded in June 2004.

The aim of the project was to trial the use of two types of hip protectors (H.P.s) amongst frail dependent fallers and fallers with dementia, both in their own homes and in a care home setting, with a view to highlighting the most cost-effective use of future funding.

The project brief allowed for 250 people to be provided with 3 Hip Protectors each. Unfortunately many incontinent clients required up to 6 pairs to maintain adequate supply. I also found that, garments often seemed to evaporate into thin air when clients moved from one area to another. These missing garments were replaced from stock. By the end of the project, and the end of the funds, Hip Protectors had been issued to 216 people.

Local evidence of need

Locally, in 2001/2002, there were 279 people admitted to Russells Hall Hospital with a fractured (#) neck of femur. This number had risen to 303 in 2002/2003 and by 2003/2004 was a staggering 408. The numbers are expected to increase year on year.

Between 1st Jan '01 and 31st Dec '01, Dudley Group of Hospitals reported 316 In-patients falling on just 3 wards (2 medical wards and 1 rehabilitation ward). Obviously, not all falls resulted in serious injury, but many of these patients will continue to fall once they have been discharged back into the community or other care setting.

By measuring a reduction in the number of fallers fracturing their hip, the RHINO Project aimed to help people maintain their quality of life and mobility levels and reduce number of hospital bed days needed for serious injuries following falls.

National evidence of need

- The Department of Health recommends that falls is one of the 4 priority areas for further work in the short term and indicated that more work was needed to examine the role of hip protectors in preventing fractures in older people with cognitive impairment and dementia.¹
- The successful "Break the fall not the hip" campaign in Dorset Care Homes showed compliance to be greater in people who were unable to toilet themselves independently. 49% of participants were incontinent and 46% had dementia.
- A combination of a structured education programme plus provision of free hip protectors can increase H.P. use and may reduce the number of hip fractures²
- Cochrane Review concluded that hip protectors appear to reduce the risk of hip fracture within high risk populations in Residential Care or Nursing Homes.³ This has been confirmed by a recent study in Japan.⁴
- The risk of sustaining a hip fracture has been shown to increase by 11 times when people are admitted to hospital⁵
- Research shows that a multifactorial intervention programme is least likely to be effective in preventing falls in people with lower levels of cognition and those who require a high level of care in their own homes.^{6,7}
- 95% of hip fractures are caused by a fall and 90% of hip fractures occur in older people with osteoporosis⁸

- Mortality in the year following hip fracture has been shown to be 20% and up to 50% of people will not be able to walk unaided⁸

The project's target groups, therefore, were chosen to provide evidence of hip protector effectiveness in fallers with dementia, fallers in a care home setting and fallers discharged to their own homes following a hospital admission.

1. Secretary of state for Health. *Saving Lives: Our Healthier Nation*. London: The Stationary Office. July 1999
2. Meyer G et al; *Effect on hip fractures of increased use of hip protectors in nursing homes: cluster RCT*; *BMJ* 2003 Jan 11; 326(7380); 76
3. Parker MJ et al; *Hip protectors for preventing hip fractures in the elderly*; *The Cochrane Library*, Issue 2, 2004
4. Harada A et al; *Hip fracture prevention trial using hip protectors in Japanese nursing Homes*; *Osteoporosis Int.* 2001;12(3):215-21.
5. Uden G, Nilsson B; *Hip fracture frequent in hospital*; *Acta Orthop Scand* 1986 Oct; 57(5); 428-30
6. Jensen J et al; *Falls and injury prevention in residential care-effects in residents with higher and lower levels of cognition*; *J Am Geriatr Soc.* 2003 May;51(5):627-35
7. Buchner DML; *Falls and fractures in patients with Alzheimer-type dementia*; *JAMA.* 1987 Mar 20; 257(11); 1492-5
8. Cryer and Patel. *Falls, Fragility and Fractures*: Nov 2001

The project co-ordinator's role.

Initially, a training role

- Select appropriate assessment and monitoring forms to be used
- Train care staff in the correct identification of at-risk people
- To obtain consent of the wearer to participate in the project
- Measuring and fitting of hip protectors
- The use of monitoring forms to record compliance
- The use of monitoring forms to record anxiety about falling

Subsequently, a monitoring and liaising role

- The on-going role was to support key workers in issuing areas
- Provide stock as necessary
- Liaise with new care homes as people move on from issuing homes,
- Follow-up for compliance and falls information wherever the participant had moved to (by visit or phone call)
- Recording number of falls in compliance and control group
- Assess and issue to people identified outside the normal areas
- Arrange further training sessions as required
- Identify, approach and involve new care homes as the project progressed to meet issuing target

Finally, an evaluating role

- To analyse the records kept
- To evaluate the success of the project,
 1. in reducing serious injury in fallers
 2. giving feedback on compliance rates with different products and in different settings
 3. to make recommendations to the Falls Steering Group on the advantages and disadvantages of providing external hip protection through Dudley Falls Service
 4. to provide a written report to ROSPA and dti

METHOD

IDENTIFYING THE TARGET GROUPS

To involve people returning to their own homes:

- 2 acute medical wards at Russells Hall Hospital
- 2 rehabilitation wards at Corbett Hospital
- 2 Care homes with hospital step-down beds (intermediate care)
- 1 council-run intermediate care home

To involve people in EMI units:

- 3 secondary care (hospital) EMI wards
- Initially 1, and subsequently 4 homes with EMI beds

To involve fallers in a care home setting:

- Permanent residents in one of the Care Homes involved in step-down
- Initially 1, and subsequently 5 other Care homes

EVOLUTION OF PARTICIPATING AREAS

As the project evolved, it became evident that the acute medical wards were struggling to issue any hip protectors.

A questionnaire identified staff shortages and therefore lack of time as the main reason, and hip protection as a low priority in patient care as a secondary reason.

The project was withdrawn from this area after 6 months as only 1 person had been issued with hip protectors and the compliance of that person (or monitoring of compliance) was poor. It was agreed that hip protectors would continue to be available to the wards, but on an individual referral basis, rather than from stock held on the wards.

The initial Care Home involved was recommended by a local G.P. who has an interest in hip fractures in the elderly. This home had a history of several residents falling and fracturing their hips.

This home, despite many training sessions, found it difficult to assess and issue hip protectors. They also cited staff shortages as the main reason for not issuing.

Unfortunately, both areas experienced a patient/resident fall and fracture their hip before they were able to offer them hip protectors.

On 25th September 2003 Dudley MBC, Primary Care Trusts and NHS Trust organised a conference study day, entitled,

“OSTEOPOROSIS & FALLS PREVENTION AWARENESS DAY” (Appendix 1)

I presented an outline of the RHINO Project to the audience, after which 3 further Care Homes volunteered to join the project.

It was decided to involve these new homes in the project and training began soon after the study day.

These homes were a joy to work with; the staff were keen and enthusiastic and saw the extra paperwork as a small price to pay for a worthwhile intervention.

As issuing numbers fell below monthly targets it became necessary to invite more Care Homes to join the project. The remaining homes involved were the ones that accepted that invitation.

CHOOSING THE HIP PROTECTOR TYPE

After careful consideration of available hip protectors, two different styles were chosen for the project.

1. SAFEHIP from Robinsons

A hard shell hip protector that reduces impact to the neck of femur by deflecting the force of a fall onto the area surrounding the shell.

2. HIPSAVER from Win Health

A flexible pad hip protector that reduces impact to the neck of femur by absorbing the force of the fall.

Of the two types, SAFEHIP is the most well known in this country and has more documented research (not all positive).

It was thought that HIPSAVER might be more comfortable and therefore may be better tolerated by the wearer.

EVOLUTION OF HIP PROTECTOR SELECTION

Each area involved in issuing was given a stock of all available sizes in both types of hip protector. The stock was replenished by the Project co-ordinator as it was used. The key worker was recommended to alternate the type of hip protector offered so that both types were used equally.

The staff on the EMI wards decided not to issue SAFEHIP (hard shell) at all because comfort was their main priority, and they felt that the soft HIPSAVER would be more acceptable to their patients.

Most other areas, in practise, also chose to issue HIPSAVER rather than SAFEHIP as they felt that they would be accepted more readily by their patients/residents.

This left me unable to draw a conclusion about future choice of hip protector from wearer feedback.

To rectify this, one of the Care Homes with hospital step down beds agreed to issue both types of hip protector to each person identified over a three-month period.

This would enable me to obtain user feedback on both types for comparison.

Supply

There were serious supply problems with Robinson's SAFEHIP. I would usually wait weeks, and once, months, for orders to arrive.

Win Health's HIPSAVER generally arrived within one week of ordering.

Process of delivery

Stock was ordered from Robinsons and Win Health by the Project Co-ordinator, who then distributed it to the issuing areas.

All areas that had undertaken training were given a stock box containing 3 pairs of each size of hip protector in both hard and soft styles.

The stock was replenished weekly, unless a specific request was made.

They were also given access to the co-ordinator via telephone or fax so that any problems could be discussed immediately.

IDENTIFYING THE PRODUCT USER

ASSESSMENT

Falls Risk Assessment

Hospital wards already use the falls risk assessment -“FRASE” (appendix 2). It identifies low, medium and high risk fallers.

I decided to use a simpler risk assessment - a modified version of “STRATIFY” (appendix 3) in areas that had no previous falls risk assessment process as it could be used by the care assistants that were to be my key workers. For original ‘STRATIFY’ see appendix 3a.

Osteoporosis Risk Assessment

BLACK’S FRACTURE INDEX (appendix 4) has been validated for use with white females. It allows the osteoporosis risk to be scored, so was suitable for use in this project.

After searching extensively, I was unable to find a risk assessment specifically for men.

Following discussion with a National Osteoporosis Society Nurse Specialist, I decided to assess both men and women using Black’s Fracture Index.

EVOLUTION OF ASSESSMENTS

Initially, I suggested that people would have to fall into the HIGH RISK category for both falls and osteoporosis.

In training sessions, I stressed that this was a starting point and would welcome feedback.

It soon became evident that staff thought we weren’t identifying all the people that they were concerned about.

As a result of this, I decided to lower the osteoporosis risk threshold from HIGH (score=7) to MEDIUM (score=4)

Very few people, who the staff thought required hip protectors, failed to score enough to be automatically issued with them. These few were discussed on a case-by-case basis.

OBTAINING CONSENT

Once a person has been identified as “at-risk” he/she would be offered hip protectors. If they agreed to wear hip protectors, they were asked to sign a consent form, (appendix 5). If they were unable to sign, their next of kin was approached. If there was no next of kin, or they were not contactable, the staff would sign to consent on behalf of the patient/resident as a need identified in the patient’s/resident’s care plan.

OBTAINING A CONTROL GROUP

All people who signed the consent form, were issued with hip protectors and subsequently decided not to wear them, were monitored for falls and injury as a control group.

As far as possible, falls were recorded as “wearing” or “not wearing” hip protectors. This was also used as a form of “control monitoring”

EVALUATION PROCESS

COMPLIANCE

In issuing areas, compliance was evaluated using a daily monitoring form (appendix 6). This evolved from a form using 3 columns, morning, afternoon and night, to a 2 column form, recording daytime and night time compliance, as the afternoon column was invariably left blank.

In all other areas, compliance was monitored via monthly telephone calls.

FALLS

In hospital wards and Care homes involved in issuing, all recorded falls in project participants were noted. This was usually done by referring to the incident book. As far as possible, I recorded whether the faller was wearing their hip protectors or not when they fell.

For people living in their own homes, I obtained falls information from the wearer, their relatives, or the home care team, whichever was most appropriate. For people who were regular fallers, I left a form to record the date and consequence of each fall. This information was collected via a monthly phone call.

For people who had moved to other Care Homes, monthly falls information was obtained from the Home Manager.

CONFIDENCE

Hip Protectors have been shown to improve falls self efficacy and reduce fear of falling; (*Ian D Cameron et al; Age and Ageing 2000;29;57-62*)

To monitor this, each person issued with hip protectors was asked to score their anxiety about falling on a Visual Analogue Scale (appendix 7)

If the wearer was unable to score their own anxiety, one of their carers was asked instead. Their anxiety was scored regularly to allow comparisons to be made as the project progressed.

FEEDBACK

Questionnaires were used to evaluate carers' opinions on training, forms and paperwork, hip protector stock and its' quality and ease of use. (appendix 8)

Anonymous questionnaires were used to obtain user feedback on both types of hip protector from the wearer group. (appendix 9)

Anonymous questionnaires were used to allow people to answer honestly, but many signed their forms, and others asked for further information or contact without adding their name. Also, when a particular problem was highlighted by the questionnaire, e.g. too few pairs, I was unable to rectify this unless they had thought to provide me with their name.

In the control group, reasons for refusing to wear were noted.

RESULTS

This project has evaluated;

- carer's feedback on the products
- users feedback on the products
- levels of anxiety in the users, or their carers
- number of falls wearing hip protectors
- number of falls not wearing hip protectors
- serious injuries sustained in both groups
- compliance in issuing homes
- compliance in non-issuing homes
- compliance in people in their own homes
- effect of anxiety on compliance
- comparison of numbers of fallers and non fallers in control group

CARERS FEEDBACK

Training sessions were carried out in all issuing areas. This included background falls and fracture information, local facts and figures, use of the assessment and monitoring forms and the measuring and fitting of garments.

Key worker(s) were nominated to supervise the day-to-day running of the project and protocols for issuing and recording were provided for all carers.

CARER'S EVALUATION

RHINO hip protector project

August 2003

Name:

Place of work:

*Day staff / Night staff *delete

Please circle the appropriate answer

Day = 17 Night = 3

UNDERSTANDING THE PROJECT

1. Have you attended a training session? Yes = 14 / no = 12

If yes:

2. Do you think the training session prepared you well enough use the hip protectors?

definitely yes 14 mostly yes 11 possibly mostly no definitely no

Comments:

If yes:

2. How easily have you been able to pass on the information to your colleagues?
(including night staff)

very easily 3 easily 11 neither easy nor difficult 1 some difficulty 2 very difficult

Comments: Easily to day staff, difficult to night staff
Some difficulty with people not listening

If no:

3. Do you think that the information provided, prepared you well enough to use the hip protectors?

definitely yes 10 mostly yes 11 possibly 1 mostly no 1 definitely no

Comments: Easy to understand (2 returns)
Don't feel I know enough as I haven't attended a training session

USING THE FORMS

4. Do you think the risk assessment form (falls and/or osteoporosis risk) highlights the correct people?

definitely yes 7 mostly yes 13 possibly 4 mostly no definitely no

Comments: Forms not highlighting all the correct people (3 returns)

5. Do you think the "Daily record of hip protector use" form is easy to use?

definitely yes 11 mostly yes 10 possibly 2 mostly no definitely no

Comments: Not filled in when left in office / needs to be reviewed

6. Do you think the "Falls record" form is easy to use?

definitely yes 8 mostly yes 7 possibly 1 mostly no definitely no

Comments: Don't know, never done one (1 return)

USING THE HIP PROTECTORS

7. Do you think the supply of stock is adequately maintained?

definitely yes 10 mostly yes 11 possibly 4 mostly no 1 definitely no

Comments:

8. Do you think your residents/patients find the hip protectors easy to use?

HARD: yes 5 / no 6 SOFT: yes 19 / no 1

Comments: Unable to ask clients (3 returns)

9. Do you think that 3 pairs per resident is adequate?

definitely yes 3 mostly yes 16 possibly 6 mostly no definitely no

Comments: Depends on continence (5 returns)

10. Do you think that they launder well?

definitely yes 5 mostly yes 17 possibly 2 mostly no definitely no

Comments:

11. Overall, do you think the project is improving the quality of life of your residents/patients?

Yes: 16 No: 1

Comments: Just safer if falls (3 returns)

Summary

Just over half of the staff who replied had attended a training session, and all except 2 were positive about their ability to provide and monitor the use of hip protectors.

The potential problems highlighted were inadequate supply of stock, more than 3 pairs required by incontinent clients, (perceived) difficulties with use of hard H.P.s and forms not highlighting correct clients (rectified by lowering the level of osteoporosis risk needed to be eligible for H.P.s)

WEARERS EVALUATION

Feedback from Hip Protector wearer (single type)

Please underline correct answer to each question

Replies from people wearing soft H.P.s (Total replies = 23)

Replies from people wearing hard H.P.s (Total replies = 3)

1. How far do you normally walk?

- Indoors only 7 3
- Outdoors short distances with the help of another person 8 0
- Outdoors short distances alone 6 0
- Outdoors long distances with or without help 2 0

2. How many Hip protectors do you have?

- 1. 0 0
- 2. 7 0
- 3. 13 2
- More than 3. 3 1

3. Do you think you have enough pairs?

- Yes 19 1
- No 4 1

4. How satisfied are you with the quality of the hip protectors

- Very satisfied 15 1
- Quite satisfied 4 0
- Not very satisfied 2 0
- Totally unsatisfied 1 1

5. How often do you wear your Hip Protectors?

- Every day 14 2
- sometimes 5 0
- occasionally 1 0
- outdoors only 0 0
- never 3 1

6. How much longer do you see your self wearing hip protectors?

- I have already stopped 2 1
- For a short while longer 7 0
- For the foreseeable future 11 0
- Forever 7 2

7. Please tell me why you wear hip protectors (Tick all that apply)

- Because they make me feel safer when I'm wearing them 14 2
- Because I feel safer when I do fall 13 1
- Because they give me confidence to do more 12 2
- Because they are comfortable 11 2
- Because the nurse / health care worker wants me to 12 2
- Because my family want me to 10 1
- Because I feel I ought to 12 1

Feedback from Hip Protector wearer (both types)
Please underline correct answer to each question

Replies from people wearing both (Total replies = 3)

1. How far do you normally walk?

- Indoors only 1
- Outdoors short distances with the help of another person 0
- Outdoors short distances alone 2
- Outdoors long distances with or without help 0

2/3. How many SAFEHIP (hard shell) and HIPSAVER (FLEXIBLE PAD) hip protectors do you have?

- 2 hard & 2 soft
- 2 hard & 2 soft
- 3 hard & 1 soft

4. How satisfied are you with the quality of your SAFEHIP (hard shell) hip protectors?

- Very satisfied 1
- Quite satisfied 1
- Not very satisfied 0
- Totally unsatisfied 0

5. How satisfied are you with the quality of your HIPSAVER (flexible pad) hip protectors?

- Very satisfied 1
- Quite satisfied 1
- Not very satisfied 0
- Totally unsatisfied 0

6. How often do you wear your SAFEHIP (hard shell) hip protectors?

- Every day 2
- sometimes 0
- occasionally 0
- outdoors only 1
- never 0

7. How often do you wear your HIPSAVER (flexible pad) hip protectors?

- Every day 2
- sometimes 1
- occasionally 0
- outdoors only 0
- never 0

8. How much longer do you see yourself wearing hip protectors?

- I have already stopped 0
- For a short while longer 0
- For the foreseeable future 0
- Forever 3

9. Please tell me why you wear hip protectors (Tick all that apply)

- Because they make me feel safer when I'm wearing them 2
- Because I feel safer when I do fall 2
- Because they give me confidence to do more 1
- Because they are comfortable 1
- Because my family want me to 1
- Because the nurse / health care worker wants me to 3
- Because I feel I ought to 2

10. If you prefer one type more than the other, could you tell me why?

See comments section at end of report

Summary

Only 2 out of the 29 people walked outdoors long distances. Most were satisfied with the quality of their H.P.s and wore them every day. Most thought they would continue to wear their H.P.s for the foreseeable future or forever. None of the reasons for wearing hip protectors were given particular importance over the others.

FALLS INFORMATION

NUMBER OF RECORDED FALLS IN PROJECT PARTICIPANTS		
	WEARING H.P.s	NOT WEARING H.P.s
IN AREAS INVOLVED IN ISSUING H.P.s	312	63
AT HOME	74	75
IN OTHER CARE HOMES	80	27
TOTAL NUMBER OF FALLS	466	165

NUMBER OF RECORDED FALLS IN COMPLIANT VERSUS NON COMPLIANT GROUPS		
GROUP	NUMBER OF CLIENTS	NUMBER OF FALLS
CONTROL	55	145
INTERMITTENT WEARERS	13	105
COMPLIANT WEARERS	128	422

RECURRENT FALLERS IN INTERVENTION GROUP

- A total of **28** people fell **367** times (max = 42 / min = 5 / average = 13.1)
Of these falls,
 - 319 falls were wearing hip protectors
 - 48 falls were without hip protectors
 - 2 hip # were sustained, 1 wearing and 1 not wearing

RECURRENT FALLERS IN CONTROL GROUP

- A total of **4** people fell **55** times (max = 15 / min = 12 / average = 13.7)
- No hip # were sustained

FRACTURE INFORMATION

- 216 PEOPLE WERE ISSUED WITH HIP PROTECTORS
- 150 WERE FEMALE
- 66 WERE MALE
- 12 FRACTURES OCCURRED DURING THE PROJECT TRIAL
- ALL FRACTURES OCCURRED IN FEMALE CLIENTS

Controls (i.e. people who decided not to wear their hip protectors)

- Mrs A – Number of falls = **1**
Injury sustained = **# hip** and shoulder
- Mrs B - Number of falls = **3**
Injury sustained = # shoulder
- Mrs C – Number of falls = **1**
Injury sustained = # shoulder
- Mrs D – Number of falls = **unknown**
Injury sustained = # ankle
- Mrs E – Number of falls = **4**
Injury sustained = # fingers

Intervention Group wearing hip protector at time of injury

- Mrs F – Number of falls = **2**
Injury sustained = # ankle (2nd fall)
- Mrs G – Number of falls = **17**
Injury sustained = **# hip** (17th fall)

(The # hip occurred when Mrs G was pushed over by another resident. I surmise that this caused her to fall with increased force.)

- Mrs H – Number of falls = 1
Injury sustained = # hip

(This lady was diagnosed with Bony Metastases, which her orthopaedic registrar identified as the cause of her #)

- *Mrs I – Number of falls = 11
Injury sustained = # wrist (2nd fall)

Intervention Group not wearing hip protectors at time of injury

- *Mrs I – Number of falls = 11
Injury sustained = # hip (1st fall)

(This lady had removed her hip protectors to toilet herself. She also sustained a # wrist in a later fall whilst wearing her hip protectors)

- Mrs J – Number of falls = 1
Injury sustained = # clavicle

(This lady wears her hip protectors in the daytime and fell at night)

Intermittent wearer

- Mrs K – Number of falls = 1
Injury sustained = # hip

(I was unable to find out whether this lady was wearing her hip protectors when she fell)

2 people sustained hip fractures in falls without hip protectors

2 people sustained hip fractures in falls wearing hip protectors

1 other person sustained a hip fracture in a fall, it is unknown whether she was wearing her hip protectors at the time

DATA ANALYSIS

In this analysis I have excluded Mrs H whose fracture was caused by her bone tumour. If I exclude Mrs K, the intermittent wearer, from both groups:

A faller is 5.6 times less likely to fracture their hip in a fall if wearing hip protectors.

If I include Mrs K in the wearer group the figure is reduced to:

2.8 times less likely to fracture.

If I include her in the non wearer group the figure is increased to:

8.4 times less likely to fracture.

Ratio of falls to fracture in Compliant and Control groups

Control Group (refusers)

- Total number = 55
- Total number of falls = 145
- Total number of # hips = 1
- **Ratio of falls to fracture = 145/1**

Intermittent wearers

- Total number = 13
- Total number of falls = 105
- Total number of hip fractures = 1
- **Ratio of falls to fracture = 105/1**

Compliant group

- Total number = 128
- Total number of falls = 421
- Total number of # hips = 2
- This total excludes the client that fractured due to bony metastases, but includes the client that had removed her hip protectors when she fell and fractured.
- **Ratio of falls to fracture = 210/1**

Hip fracture frequency of residents in issuing Care Homes – Pre project vs project months

	PROJECT DURATION	NUMBER OF HIP # DURING PROJECT	NUMBER OF HIP # IN EQUIVALENT PREVIOUS MONTHS
HOME A	10 MONTHS	2	3
HOME B	10 MONTHS	0	0
HOME C	8 MONTHS	1	3
HOME D	8 MONTHS	2	2
HOME E	6 MONTHS	0	3

COMPLIANCY

- **A total of 216 people were issued with Hip protectors.**
- 5 of these were lost to follow up
- 15 people had no information available – Their hip protectors were issued towards the end of the final month of the project, or they died shortly after they were issued with their hip protectors

Compliance breakdown of 196 project participants

TYPE OF HIP PROTECTOR	COMPLIANT	NON COMPLIANT	
	FULLY COMPLIANT*	INTERMITTENT WEARER**	NON COMPLIANT
HIPSAVER(soft)	120	11	44
SAFEHIP(hard)	1	1	3
BOTH	7	1	8
TOTAL NUMBER	128	13	55

COMPLIANT

*DEFINITION FULLY COMPLIANT

- PROTOCOL 1 - Wearing 24hrs if clients get up at night without assistance
- PROTOCOL 2 - Wearing 12hrs (daytime only) if clients don't get up, or if they call for help before getting up at night
- Wearing as protocol unless all H.P.s were in the wash
- Wearing as protocol unless nursed in bed

NON COMPLIANT

**DEFINITION INTERMITTENT WEARER

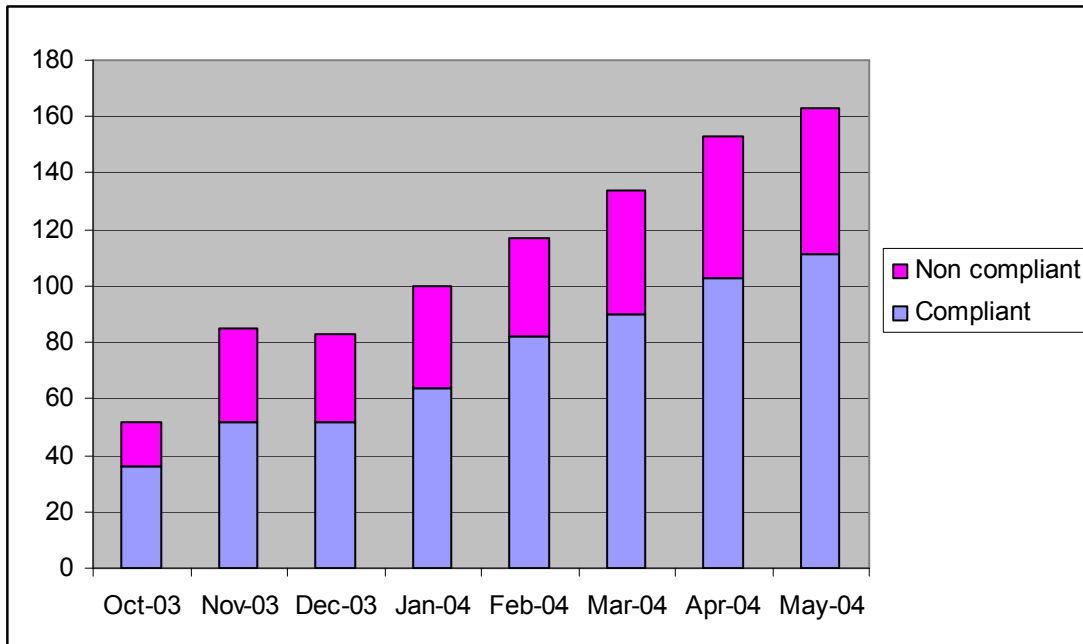
- Any variation on above, excluding those who recorded no days wearing H.P.s on the monthly returns
- This varied enormously: from records showing 1 night refusing to wear H.P.s, to clients choosing to wear only when they are outdoors

Monthly compliancy figures

MONTH	OCT 03	NOV 03	DEC 03	JAN 04	FEB 04	MAR 04	APR 04	MAY 04
NUMBER	52	85	83	100	117	134	153	163
COMPLIANT	36(69%)	52(61%)	52(63%)	64(64%)	82(70%)	90(67%)	103(67%)	111(68%)
NON COMPLIANT	16(31%)	33(39%)	31(37%)	36(36%)	35(30%)	44(33%)	50(33%)	52(32%)

The project's average compliancy rate was 66%

Table to show monthly compliancy figures

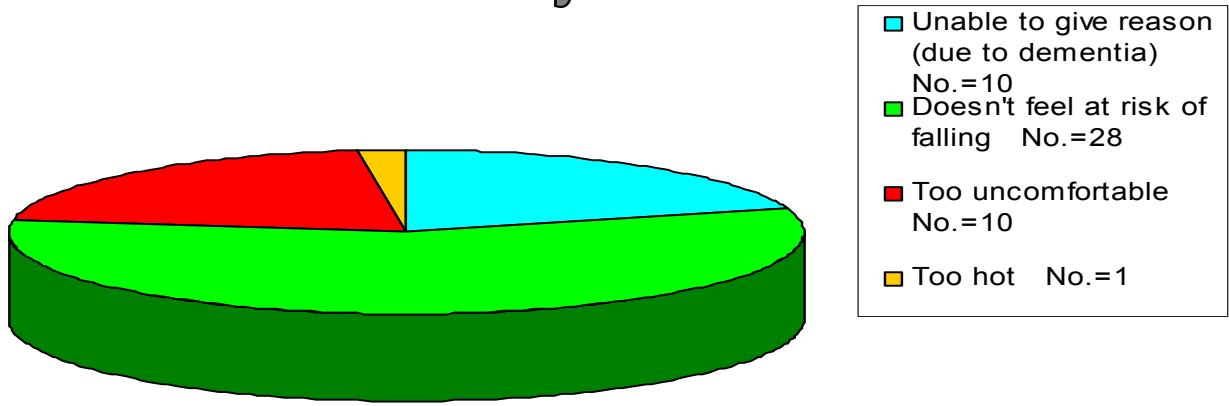


Monthly non compliant breakdown

MONTH	OCT 03	NOV 03	DEC 03	JAN 04
PATIENT CHOICE	10 (62.5%)	27 (82%)	28 (90%)	31 (86%)
STAFF/ COMMUNICATION	4 (25%)	3 (9%)	2 (6.5%)	3 (8%)
BOTH	2 (12.5%)	3 (9%)	1 (3.5%)	2 (6%)

MONTH	FEB 04	MAR 04	APR 04	MAY 04
PATIENT CHOICE	35 (100%)	43 (98%)	43 (86%)	50 (96%)
STAFF/ COMMUNICATION	0	1 (2%)	7 (14%)	1 (2%)
BOTH	0	0	0	1 (2%)

Chart to show client's reasons for refusing to wear Hip Protectors in May 04



- **Of the 28 people who did not feel at risk of falling**
 - 10 people did not fall
 - 18 people fell
 - 12 of the 18 people fell after refusing to wear their hip protectors
- Therefore, almost half of this group fell even though they thought they were not at risk.

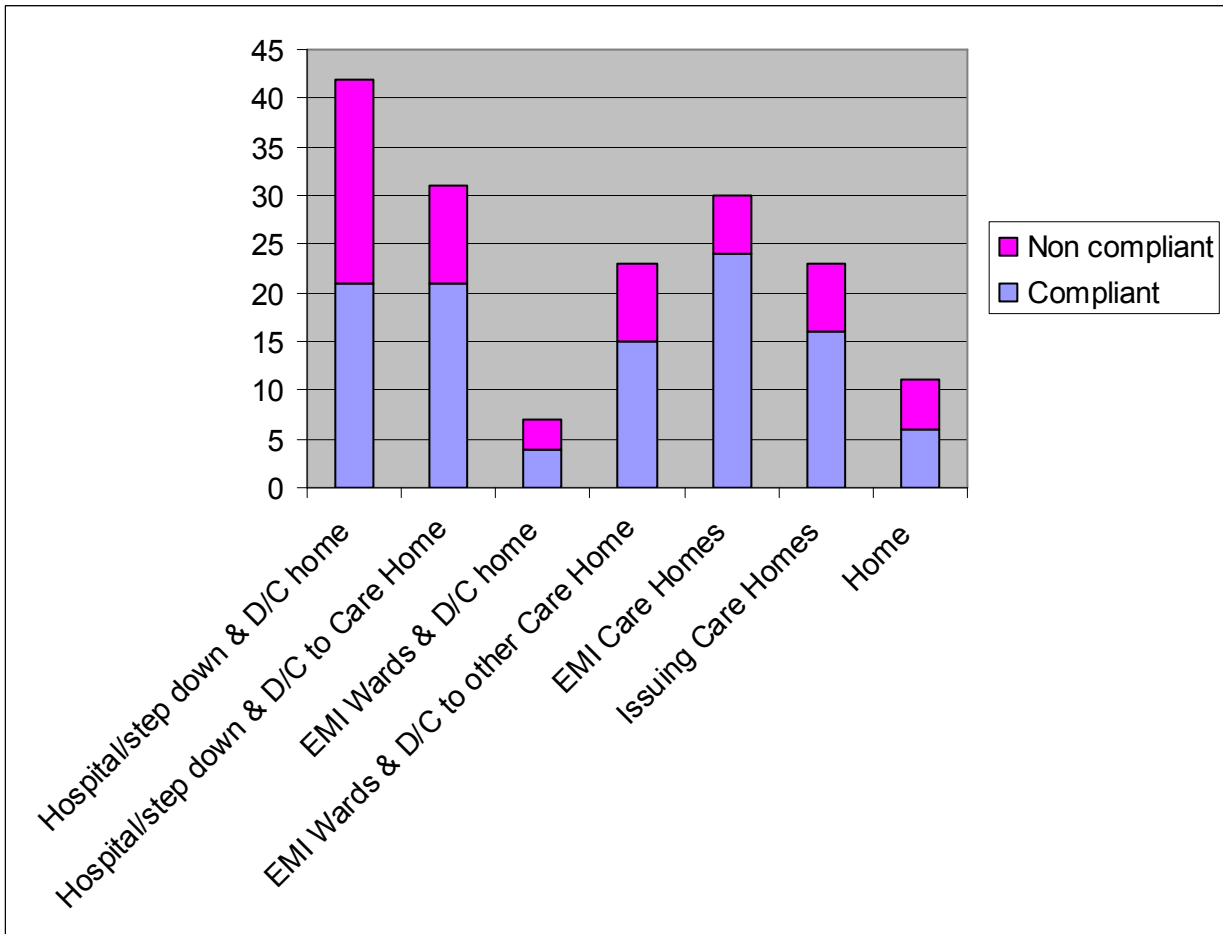
Compliance / Non Compliance – Type of Hip Protector

	OCT 03			NOV 03			DEC 03			JAN 04		
	NUMBER	C	NC	NUMBER	C	NC	NUMBER	C	NC	NUMBER	C	NC
HARD	8	62.5%	37.5%	13	46%	54%	11	27%	73%	10	54.5%	45.5%
SOFT	44	70.5%	29.5%	71	63%	37%	68	69%	31%	83	62%	38%
BOTH	0	0	0	1	100%	0	4	50%	50%	7	100%	0

MONTH	FEB 04			MAR 04			APR 04			MAY 04		
	NUMBER	C	NC	NUMBER	C	NC	NUMBER	C	NC	NUMBER	C	NC
HARD	8	44%	56%	8	50%	50%	9	67%	33%	9	55.5%	44.5%
SOFT	96	72%	28%	114	70%	30%	131	67%	33%	143	68.5%	31.5%
BOTH	13	71%	29%	12	54%	46%	13	69%	31%	11	73%	27%

Compliance / Non Compliance on completion of project

Comparison between issuing areas



- The compliancy rate in EMI Care Homes was 80%
- The compliancy rate for issuing Care Homes was 69.5%
- The compliancy rate for other Care Homes was almost as high, at 68%
- The compliancy rate for people in their own homes was around 50%, regardless of where they were when their Hip Protectors were issued.

CONFIDENCE SCORES OF WEARERS AND NON WEARERS

The wearer or their carer, using a 10 point Visual Analogue Scale scored participant's anxiety about falling and injuring themselves.

The first score was taken before they were issued with their hip protectors, subsequent scores were recorded monthly.

In this comparison I have taken final scores, with a minimum time lapse of 2 months.

Average score for residents in issuing Care Homes

Compliant

- First score = 8.3 Final score = 6.8 Score reduction = 1.5

Non compliant

- First score = 7.6 Final score = 6.8 Score reduction = 0.8

Average score for people discharged to their own home

Compliant

- First score = 6.5 Final score = 4.1 Score reduction = 2.4

Non compliant

- First score = 5.4 Final score = 4 Score reduction = 1.4

Average score for people discharged to other Care Homes

Compliant

- First score = 6.2 Final score = 3.9 Score reduction = 2.3

Non compliant

- First score = 4.5 Final score = 3.7 Score reduction = 0.8
-

People who were compliant, initially rated themselves, or were rated by their carers, almost 2 points higher than non compliants. The compliant group showed a much greater reduction in scores so that the final score in both groups are comparable. As there were more falls per client, in the compliant group than the non-compliant group their fear was well founded, and the intervention of Hip Protectors justified.

PRODUCT QUALITY

WINHEALTH

There was an initial problem with the waistband of the WINHEALTH Slimfit product. The sewing method used to attach the waistband was not sufficiently strong to stand up to frequent washing and I had to return several pairs for exchange. This problem was noted by the company and a new method of attaching the waistband was used.

Many of the clients were incontinent and all their H.P.s were washed daily. These pairs began to come apart at the seams after 4 months

One pair was returned with a burst pad. This was obvious as the pad filled with water in the wash.

ROBINSONS

The only problem encountered in the hard H.P.s was a seam failure around the hip protector pad allowing the pad to fall out of the garment.

CLIENT'S COMMENTS

HIPSAVER (soft)

Positive comments

"They're really comfortable"

"I'm not frightened of walking out now"

"The soft ones seem to fit better"

"A.... has had 6 falls over 2 days. I'm sure hip protectors have prevented serious injury"

"They are uncomfortable, but I fell the other day and they protected me"

"They make me feel safer in bad weather"

"I have found the hip protectors give me more confidence to walk and do things for myself"

"Soft are more comfortable and you forget you are wearing them, especially in bed"

"They wash easily"

Negative comments

"They're not comfortable"

"They crease up when I sit down"

"They are in the way when I sit down"

"They're too hot in the summer"

"They don't fit under my trousers"

"I am unable to put them on owing to injury to left hand and weakness right hand owing to stroke"

"The fly needs to be bigger"

"I don't like them"

SAFEHIP (hard)

Positive comments

"The hard shell fit better and I feel safer with them"

Negative comments

"I don't wear them because they feel uncomfortable"

"Difficult to use when on double dose diuretics – wears me out pulling up and down"

"Can't get to toilet on time"

"He thinks he's got a ball in his pocket"

"He thinks it's his wallet"

CONCLUSION

As WINHEALTH'S Hipsaver, Slimfit, Hip Protectors were so obviously favoured by the staff and accepted by the clients, it would be prudent to continue with these.

Compliance was highest in Care Homes, especially EMI Care homes, so I recommend that future Hip Protector issuing should be targeted at this group of clients.

Bushey Fields Psychiatric Hospital have found the Hip protectors so beneficial that they are putting together a bid for funding to continue Hip Protector provision for their patients.

The compliance of many people in their own homes reduced with time. I presume this is because they were mostly identified as "at risk" whilst in an acute hospital setting, and as the clients recovered, they no longer felt at risk of falling.

As confirmation of this, no hip fractures occurred in people in their own home, yet this group had the poorest compliance.

Unless clients are particularly keen, and/or at high risk of osteoporosis and falls, I recommend that people in their own homes, who fit the criteria for Hip protectors, be offered 1 or 2 pairs for outdoor use only. This will help to reduce their fear of injury in a fall outdoors and encourage them to widen their horizons and venture out of the house once more. Outdoor falls have been shown to be more frequent and more injurious than falls indoors, so the intervention will be targeted most cost effectively.

Generally, the risk of fallers fracturing is lower indoors than outdoors because floorboards and carpet can provide as great a degree of protection as Hip Protectors themselves.

Women who have plenty of padding around their hips are also at less risk of fracture than thin women, partly due to the shock absorbing capability of this tissue and partly due to the production of oestrogen in fatty tissue, which helps to prevent osteoporosis.

These women may not have benefited from wearing Hip Protectors as they already had a certain level of natural protection.

In this project, Hip Protector provision relied solely on the client meeting set risk levels for falls and osteoporosis. They were screened using FRASE or STRATIFY falls risk assessment and BLACKS FRACTURE INDEX osteoporosis risk assessment.

It appears that the men identified did not have as high a risk of fracture as the ladies. This must have been due to the osteoporosis risk assessment used, which was only validated for white women. In the absence of a comparable risk assessment for men there was no alternative but to use BLACKS, but a validated Osteoporosis risk assessment for men is long overdue.

A willingness to wear should never be underestimated in the fight for better compliance, but a more refined screening process will reduce the unnecessary waste of hip protectors in cupboards rather than on hips!

THE FUTURE PLAN

Following the successful conclusion of the project there was an obvious need for continued availability of hip protectors.

My contract has been extended for 3 months to enable me to integrate hip protector screening into the falls advisors role.

Residential Homes that were not previously involved in the project, but had shown an interest, will be trained in assessing their residents for hip protectors.

The falls advisors will deliver the garments when requested.

Falls advisors will also offer hip protectors to their clients in the community if they feel it is appropriate.

Bushey Fields Psychiatric Hospital will be supplied by the falls team until they have secured their own funding.

ACKNOWLEDGEMENTS

ROSPA

dti

Liz Long, Health Improvement Co-ordinator, Dudley MBC

Angela Amphlett, Falls Prevention Co-ordinator, Dudley MBC

Ian Cartwright, Russells Hall Hospital Audit Department

Amblecote House Residential Home, Stourbridge

Ashbourne Care Centre, Dudley

Bushey Fields Psychiatric Hospital, Dudley

Corbett Rehabilitation Hospital, Stourbridge

Russells Hall Hospital, Dudley

Hollybush House Nursing Home, Stourbridge

Lapal House Residential Home, Halesowen

Nethercrest Nursing home, Netherton

Netherton Green Nursing Home, Netherton

New Swinford Hall, Rehabilitation Home, Stourbridge

Russell Court Care Home, Dudley

Russells Hall Hospital, Dudley

Shenstone Elderly people's Home, Halesowen

Woodview House Nursing Home, Halesowen

FALL RISK ASSESSMENT SCALE FOR THE ELDERLY						
Name	Unit No			Consultant		
DATE OF ASSESSMENT						
<u>SEX</u>						
MALE	1	1	1	1	1	1
FEMALE	2	2	2	2	2	2
<u>AGE</u>						
60-70	1	1	1	1	1	1
71-80	2	2	2	2	2	2
81+	3	3	3	3	3	3
<u>GAIT</u>						
STEADY	0	0	0	0	0	0
HESITANT	1	1	1	1	1	1
POOR TRANSFER	3	3	3	3	3	3
UNSTEADY	3	3	3	3	3	3
<u>SENSORY DEFICITS</u>						
SIGHT	2	2	2	2	2	2
HEARING	1	1	1	1	1	1
BALANCE	2	2	2	2	2	2
<u>FALL HISTORY</u>						
NONE	0	0	0	0	0	0
AT HOME	2	2	2	2	2	2
IN WARD	1	1	1	1	1	1
BOTH	3	3	3	3	3	3
<u>MEDICATION</u>						
HYPNOTICS	1	1	1	1	1	1
TRANQUILLIZERS	1	1	1	1	1	1
HYPOTENSIVES	1	1	1	1	1	1
<u>MEDICAL HISTORY</u>						
DIABETES	1	1	1	1	1	1
ORGANIC BRAIN DISEASE / CONFUSION	1	1	1	1	1	1
FITS	1	1	1	1	1	1
<u>MOBILITY</u>						
FULL	1	1	1	1	1	1
USES AID	2	2	2	2	2	2
RESTRICTED	3	3	3	3	3	3
BEDBOUND	1	1	1	1	1	1
<u>TOTAL RISK SCORE</u>						
<u>Assessing Nurse</u>						
SCORE OF : 3-8 = LOW RISK, 9-12 = MEDIUM RISK, 13+ = HIGH RISK						
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**Assessment for the provision of hip protectors
for Dudley residents.**

**Name &
Address**

N.B. Circle correct answers.

Falls Risk		Yes	No
1	Agitation / confusion	1	0
2	Frequent toileting / urgency	1	0
3	Visual impairment	1	0
4	Recent fall	1	0
5	Independent transfer	1	0
6	Independent mobility	1	0

Score 4 or more – assess osteoporosis risk

Signature:

Date:

'STRATIFY' Original Falls Risk Assessment Tool

Resident's Name

Date of Birth

Date of Assessment

Assessor's Signature

Choose **one** of the following options which best describes the resident's level of capability when transferring from a bed to chair

Answer	Score
Unable	0
Needs major help	1
Needs minor help	2
Independent	3

Choose **one** of the following options which best describes the resident's level of mobility

Answer	Score
Immobile	0
Independent with the aid of a wheelchair	1
Uses walking aid	2
Walks with the aid of one person	2
Independent	3

Total the transfer and mobility score and answer the next question

1. Is the combined transfer and mobility score **3 or 4**?

Answer	Score
YES	1
NO	0

2. Has the resident had any falls in the last 3 months?

Answer	Score
YES	1
NO	0

3. Is the resident visually impaired to the extent that everyday function is affected?

Answer	Score
YES	1
NO	0

4. Is the resident agitated?

Answer	Score
YES	1
NO	0

5. Do you think the resident is in need of especially frequent toileting?

Answer	Score
YES	1
NO	0

Total of questions 1 – 5	
--------------------------	--

0 = low risk 1 = moderate risk 2 or above = high risk



Osteoporosis assessment for the provision of hip protectors for Dudley residents

To be used on all patients who have scored **HIGH** for falls risk

13+ on FRASE falls risk assessment
 10+ on NETHERCREST falls risk assessment
 4+ on STRATIFY falls risk assessment

**Name &
Address**

N.B. Circle correct answer.

<u>Osteoporosis risk</u>		yes	No/ don't know
1	Aged 65-69 70-74 75-79 80-84 85+	1 2 3 4 5	0
2	History of fracture since aged 50 years	1	0
3	Maternal history of hip fracture	1	0
4	Weighs 9 stones or less	1	0
5	Smoker	1	0
6	Usually needs to use arms to get out of a chair	2	0

Score 4 or more – offer hip protectors

Staff signature, ward and date:

DAILY RECORD OF HIP PROTECTOR USE

PLEASE COMPLETE MARKING WHEN THE PATIENT **IS** WEARING HIP PROTECTOR

Patient name:

Forename:

Surname:

Patient Date of Birth:

D D M M Y Y Y Y

Hip protector type:

Hard Soft

Month:

DAY 1	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="text"/> <input type="text"/>
DAY 2	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="text"/> <input type="text"/>
DAY 3	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="text"/> <input type="text"/>
DAY 4	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="text"/> <input type="text"/>
DAY 5	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="text"/> <input type="text"/>
DAY 6	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="text"/> <input type="text"/>
DAY 7	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="text"/> <input type="text"/>
DAY 8	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="text"/> <input type="text"/>
DAY 9	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="text"/> <input type="text"/>
DAY 10	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="text"/> <input type="text"/>
DAY 11	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="text"/> <input type="text"/>
DAY 12	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="text"/> <input type="text"/>
DAY 13	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="text"/> <input type="text"/>
DAY 14	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="text"/> <input type="text"/>

DAY 15	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="checkbox"/> <input type="checkbox"/>
DAY 16	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="checkbox"/> <input type="checkbox"/>
DAY 17	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="checkbox"/> <input type="checkbox"/>
DAY 18	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="checkbox"/> <input type="checkbox"/>
DAY 19	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="checkbox"/> <input type="checkbox"/>
DAY 20	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="checkbox"/> <input type="checkbox"/>
DAY 21	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="checkbox"/> <input type="checkbox"/>
DAY 22	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="checkbox"/> <input type="checkbox"/>
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DAY 24	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="checkbox"/> <input type="checkbox"/>
DAY 25	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="checkbox"/> <input type="checkbox"/>
DAY 26	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="checkbox"/> <input type="checkbox"/>
DAY 27	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="checkbox"/> <input type="checkbox"/>
DAY 28	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="checkbox"/> <input type="checkbox"/>
DAY 29	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="checkbox"/> <input type="checkbox"/>
DAY 30	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="checkbox"/> <input type="checkbox"/>
DAY 31	DAY <input type="checkbox"/>	NIGHT <input type="checkbox"/>	REASON FOR NOT WEARING HIP PROTECTOR <input type="checkbox"/> <input type="checkbox"/>

REASONS FOR NOT WEARING HIP PROTECTORS

- 01** Patient refuses - and is unable to give reason.
 - 02** Patient refuses - doesn't feel he /she is at risk of falling.
 - 03** Patient feels they are too uncomfortable.
 - 04** Patient feels they are too hot.
 - 05** Non available - all soiled / in the wash.
 - 06** Non available - newly assessed patient, but no stock in patients size.
 - 07** Not needed - patient currently being nursed in bed.
 - 08** Nurse carer not aware that patient wears hip protectors.
 - 09** Patient transferred to another home / area without his / her hip protectors.
 - 10** Patient transferred to another home / area and new staff unaware that patient wears hip protectors.
 - 11** Hip protector is not worn at night as the patient does not get out of bed
 - 12** Other, please specify
-