

Reducing Patient Falls Project

January 2001 – March 2002

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1. Acknowledgements

Reducing Patient Falls Steering Group

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Pilot wards

Pinderfields medical Rehabilitation Unit (PMRU), PGH
Ward 2, PGI
Ward 5, PGI
Neurological Rehabilitation Centre (NRC), PGH
G1/QV, Clayton
Q Ward, PGH
Ward 11, PGI

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Funding

Health & Safety Department, Pinderfields & Pontefract Hospitals NHS Trust
The Foundation of Nursing Studies

Product Trials

Westholme
Sensorcare
Wanderguard (UK) Ltd

2. Introduction

A multi-disciplinary steering group was set up in Spring 1999 to devise a strategy for reducing patient falls within this acute Trust following an acknowledgement from nursing staff and other professions through the Risk Management process that patient falls were a major cause for concern. The steering group were successful in advising the Health and Safety Department who recognised that reducing the number of patient falls was an area that needed intervention in order to benefit patient care. The Health & Safety Department therefore agreed to fund the secondment of a project manager two days per week for a nine-month period. The post was filled in January 2001 and the project manager was seconded to the Nursing Directorate from Occupational Therapy. The project manager's role involved co-ordinating the pilot of the assessment tool and subsequently implementing the fall prevention strategy trustwide.

There have been a number of highly successful innovations throughout the country related to reducing patient falls over the last few years. This project, however, emphasises the benefits of truly integrated working both within the hospital environment and throughout the health and social care interface. It aims to develop a holistic, seamless package of care that maintains the needs of the client as a central focus to service delivery and in turn prevents admission to hospital that benefits not only service users but those delivering quality services to vulnerable older people.

3. Definitions

Fall: **“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.

Anticipated physiological Fall: Fall that occurs with patients that are identified as at risk of falling.

Unanticipated physiological Fall: Attributed to physiological causes but are created by conditions that cannot be predicted before the first occurrence.

(Morse 1997)

4. Funding of Project

Staffing costs were met by the Health & Safety Department within the Trust. The Foundation for Nursing Studies provided £750 towards education/training materials. The Health & Safety department also agreed to provide an additional £750 in order for all resources to be provided. This has been spent so far in the following ways: -

Visual Cues:	£571.05
Resource Files:	£200.00
Education posters:	£ 11.75

Costs have been met internally for the patient information leaflets. Free information leaflets and posters have been provided by the Department of Trade & Industry (Slips, Trips and Falls campaign)

5. Aim and objectives of the project.

5.1 Aim of the project (first nine months)

To implement a Trust Wide falls reduction strategy in order to reduce the total number of falls occurring in hospital, and to reduce the RIDDOR¹ reportable falls by 20%.

5.2 Objectives

- ❖ To collate the evidence behind the Morse Falls Assessment Tool
- ❖ To calibrate the Morse Falls Assessment Tool for different units
- ❖ Pilot the assessment tool with seven agreed wards
- ❖ Analyse the pilot data
- ❖ Implement the use of the assessment tool on all wards with in-patients over the age of 16.
- ❖ Support/Educate staff during implementation process.
- ❖ Evaluate the impact of the project on fall rate/injury rate.

5.3 Aim of project (10-15 months)

To produce a consistent multi-disciplinary falls strategy for patients admitted to Pinderfields & Pontefract Hospitals NHS Trust following a fall, or for those patients that fall whilst in hospital.

5.4 Objectives

- Develop a multi-agency forum to collaborate on developing a care pathway
- Represent the Trust in the development of services in line with standard 6 of the NSF for older people
- Develop multi-agency strategies to reduce the number of people falling both at home and in hospital.
- Introduce evidence based outcome measures for occupational therapy and physiotherapy staff to improve communication between different

¹ Reporting of Injuries, Diseases and Dangerous Occurrences Regulations

disciplines and provide a seamless package of care throughout the patient/client journey.

5.5 Outcomes

- Nursing assessment for risk of falling within 48 hours of admission
- Care Plans in nursing documentation to reduce the risk of falling
- Development of strong evidence based approach to reducing patient falls throughout the Trust
- Multi-disciplinary guidelines for the management of those who have fallen or who are at risk of falling
- Production of OT and physio outcome measures to support the falls guidelines

6 Policy Overview

6.1 National Policy

Over the last ten years there have been major shifts in Government policy in focussing attention on the quality of services provided to all NHS patients. The New NHS Modern, Dependable (1997) laid the foundation for quality to become paramount in any health care provision. This was underpinned by the Health Act (1999) which placed a statutory duty of quality on all NHS organisations that provide direct patient care. Quality in the NHS (1998) provided a framework for how quality was to be implemented and evaluated with the emergence of NICE², CHI³, HiMP⁴ and clinical governance. The NHS Plan (2000) continued this approach by demanding that services are provided in an integrated and seamless way and reducing what has been termed the postcode lottery to patient care.

Specific policy has been created for the ageing population of the UK. The National Service Framework for Older People (2001) has expanded on the principles of the NHS Plan and developed eight standards of care to ensure that services for older people are provided appropriately, effectively and efficiently, using a person-centred approach whilst respecting an individual's dignity and privacy.

Standard six is purely dedicated to reducing falls in the elderly population. It encourages the development of a partnership approach between primary and secondary care and suggests a shift to proactive prevention rather than using a traditional reactive treatment led approach.

6.2 Local Policy

Pinderfields & Pontefract Hospitals NHS Trust business plan supports the national targets outlined in the NHS plan. They have pledged to reduce the number of RIDDOR reportable falls by 20% and have supported the work of

² National Institute for Clinical Excellence

³ Commission for Health Improvement

⁴ Health Improvement Programme

the project by funding the project manager as a secondment post for two days a week for a nine month period.

Developments within the Community trust and the emergence of two Primary Care Trusts have also focused attention on the needs of the older person. A project is taking place in the Eastern PCT⁵ to develop a single assessment tool for patients over the age of 65 requiring health and/or social care.

7. Statistics

The life expectancy over the last 20 years has increased significantly, with women now living on average to 80 years, and men to 75 years. People over the age of 65 account for 66% of all hospital admissions and for 40% of emergency admissions (NHS Plan, 2000). 20% of the population is now over the age of 60 and between 1995 and 2025 the number of people over the age of 80 is set to increase by almost half, with the number of people over 90 years doubling (National Service Framework for Older People, 2001).

Within the Wakefield District there are approximately 45,500 people over the age of 65. There were 1100 people admitted to Pinderfields and Pontefract Hospitals NHS Trust due to falls related incidents in 2000-2001. People over the age of 65 years are responsible for 40% of all emergency admissions⁷ and evidence suggests that patients over the age of 75 admitted to hospital after an accident (most often a fall) occupy a hospital bed for an average of 18 days⁸.

In May 2001, 33 patients were admitted to Pinderfields & Pontefract Hospitals NHS Trust suffering from a fractured neck of femur. This consequently reduced the potential number of elective admissions and resulted in continued waiting list issues for the Trust. Wakefield District presently has the lowest elective admission rate and the highest acute admission rate for people over the age of 65 years in the region.

In May 2001 Pinderfields & Pontefract Hospitals NHS Trust lost 1346 bed days due to delayed discharge within the Medical Clinical Service Unit. This figure would have been significantly reduced if there had been fewer in-patient falls and the demand for beds is likely to have been reduced if a preventative service had assessed the potential risk of falling in the home environment. At Pinderfields, where capacity for elective work is most needed, there was a 23% increase in acute surgical/orthopaedic admissions during May, 50% of these due to a fall related incident. This relates to 123 extra cases and is equivalent to 800 bed days lost from elective work which obviously then impacts on increasing waiting times and reduces the quality of care for patients awaiting elective surgery.

Pinderfields & Pontefract Hospitals NHS Trusts business plan supports the national targets outlined in the NHS plan⁶. Specific milestones that link in with the proposed project include: -

⁵ Primary Care Trust (Pontefract area)

- ◆ Ensure that emergency admissions for people over 75 years does not grow more than 25%
- ◆ Further development of a single assessment process for health and social care.
- ◆ Reduce the number of 12-month waiters to zero.

During the financial year 1999/2000, there was a total of 3049 patient falls within the Trust, relating to a fall rate of 9.69 per thousand bed days and a subsequent injury rate from falls of 22%. Of these 25 were RIDDOR reportable incidents. The following year 2000/2001 these figures reduced. There was a total of 2755 patient falls throughout the Trust in 2000/2001, which relates to a fall rate of 8.46 falls per thousand bed days. The injury rate dramatically reduced by 46% from the previous year to an injury rate of 12.85%.

The pilot project commenced in month 10 of the financial year 2000/2001. The pilot project may have a subtle influence on the fall rate and injury rate for the full year, particularly as the statistics were favourable during the pilot phase (see 9.1). However it would be difficult to draw any conclusions on why there was such a dramatic reduction in the injury rate in this financial year, as there are no available records to analyse trends over a number of years.

8. Literature Review

8.1 Falls in hospital

There has been an increase in the literature available regarding falls in the older person, particularly over the last 5 years. However, much of the work has focussed on falls in a community or residential setting as opposed to an acute hospital environment. It has been suggested that more research in this area is required in order to produce strong evidence that particular interventions are successful in a hospital setting (Evans et al, 1999).

Falls increase the length of hospital stay and not only have a physical impact on the patient, that of discomfort, injury, increased morbidity or even death (Cohen & Guin, 1991), but have an economic impact on the health care system (Wilson, 1998). Falls also result in psychological implications for the patient with a decrease in self-confidence and a fear of further falls. This contributes to a decrease in mobility and culminates in a significant reduction in quality of life (Mitchell & Jones, 1996).

Although only a small number of falls produce significant injury, the impact on the health care system can be massive (Ash, Macleod, Clark, 1998) resulting in increased stay, possible further surgery and a more reliant patient population.

Acute injury increases the risk of falls (Tinnetti et al, 1988). This may be due to problems related to hospital-acquired immobility causing symptoms such as reduced muscle strength, cardiovascular problems and poor postural control. Cognitive changes, due to medication, acute illness or bed rest may also increase falling in the hospital setting (Mahoney, 1998).

Rutledge (1998) surmises however that there is no single cause for the occurrence of a fall but suggests that most falls in hospital are generally predictable and often preventable.

8.2 Assessment tools

There are a number of assessment tools that have been developed to assess the risk of falling. The literature clearly agrees that assessment of risk should be performed on admission and frequent reassessment should occur throughout the hospital stay (Mayo 1994, Morse 1989, Chu et al 1999).

Research has highlighted a large number of risk factors associated with falling. Evans et al (2001) reviewed 18 articles and identified 27 risk factors that were included in the developed tools. However, no single risk factor was identified in every study though six risk factors were identified in at least 4 of the studies. Cognitive impairment was the most cited factor in all of the studies.

Some studies have not only identified risk factors, but have provided predictive values through multivariate analysis. One tool, developed by Morse et al (1989) also has had definitive tests performed to ensure accuracy, reliability and sensitivity. The results show that the tool has excellent construct validity and sensitivity. It is this tool that has been chosen as being most likely to accurately identify patients at risk from falling at Pinderfields and Pontefract hospitals NHS Trust.

8.3 Fall prevention interventions

Once the risk factors have been identified and an appropriate tool chosen the evidence suggests it is necessary to consider how to deal with the problems that the assessment tool highlights.

A strong fall prevention strategy that encompasses a number of different interventions and targets multiple risk factors (Gillespie, 2000) is more likely to be successful. Evans & Hodgkinson (1999) conclude that no one single intervention has been demonstrated as being effective over another, but this may be due to lack of rigorous research rather than the interventions themselves. There are however some interventions that have been demonstrated to have no impact on reducing patient falls. Widder (1985) noted that there was no effect on fall numbers when using an ambuarm attached to the patient, and Mayo (1994) used bracelets to identify high-risk patients, but again this failed to reduce the number of falls.

Patient education strategies have consistently proved to be successful in the literature. These strategies include orientating the patient to the ward area, placing a call light within reach, instructing the patient on when/how to call for assistance and teaching patients how to transfer and to safely use assistive devices. Kilpack (1991) suggests placing posters in patients' rooms to encourage them to ask for assistance.

Innes & Turman (1983) suggested that high risk patients who appear to be confused/disorientated ought to be nursed in a highly visible area of the ward so that nurses can intervene if necessary.

Staff education has also been proved to be a valuable strategy. Rutledge (1998) concludes that educating staff leads to measurably heightened staff awareness, which in itself assists in preventing falls.

There are a number of strategies that can be implemented

- ◆ Having visual cues on the nursing documentation or on a patients door (Gillespie (2000) Cohen & Guin (1991), Kilpack (1991)),
- ◆ Having written protocols for standardised care plans (Cohen & Guin, 1991),
- ◆ Informing staff on falls statistics for their area (Wilson, 1998) and
- ◆ Providing formal education programs to increase staff awareness (Wilson 1998, McCollam 1995).

Good basic nursing care, including keeping the bed on low when not performing physical care, locking wheels into position on beds/lockers/wheelchairs and commodes and wiping up fluids all contribute to reducing the risk of falling and are just as important as having specific fall prevention strategies. It is also important to communicate between shifts and between professionals so that everyone knows that falls have occurred and what strategies are in place.

Ash et al (1998) suggests that some equipment that may be provided to protect patients may actually cause an increase in fall rate and conclude that there are no strategies as effective as increased vigilance by all concerned.

9.0 Description of Project

9.1 Pilot

A pilot project was established on 7 wards throughout February and March 2001 with the following aims: -

- Establish the ease of use of Morse falls risk assessment tool
- Identify the levels for low/medium/high risk of falling
- Establish the most appropriate way to implement the assessment tool into routine practice.
- Determine which strategies for reducing falls are appropriate for use within an acute care setting
- Determine the correct format for the care planning documentation.
- Establish the training needs of staff prior to implementation of the project Trustwide.

Seven wards were involved in the pilot project and were selected for their diversity of clinical settings and the ward sisters/charge nurses' interest in the project. Both Pinderfields and Pontefract hospital sites were equally represented.

Pilot wards were:

- Q ward, Pinderfields (acute elderly medicine)

- Pinderfields medical rehabilitation Unit, Pinderfields (rehabilitation of elderly)
- Neurological Rehabilitation Centre, Pinderfields (rehabilitation of under 65 years)
- G1, Clayton (Nurse led unit, elderly)
- Ward 2, PGI (orthopaedic surgery)
- Ward 5, PGI (general surgery)
- Ward 11, PGI (acute elderly medicine)

The project manager assessed all patients on the pilot wards using the new assessment tool in order to calibrate the wards individual fall score levels. Each ward then had information on their levels of risk in order to implement a care plan for high, medium or low risk patients.

A liaison nurse was chosen on each pilot ward to take responsibility for ensuring the documentation was completed and any statistical information was collated and passed to the project manager. The project manager visited the pilot wards regularly throughout the pilot period to ensure any issues were dealt with immediately and to offer training and support to staff. Training sessions were organised prior to the pilot to inform nursing staff of the background to the project and how to complete the documentation.

Trials of equipment were also available during this period. "Sensorcare" equipment, soft bed rails and a "wanderguard system" were provided by different companies for trials on different wards.

At the end of the pilot an evaluation took place which included an audit of documentation, a qualitative staff questionnaire and an analysis of fall rate statistics.

The documentation audit concluded that although most wards were routinely using the assessment tool, there were some differences in the way they were recording falls-reducing strategies. The recommendations from the audit were:

- Clear guidelines need to be produced so that wards are clear about what documentation is required.
- Evaluation of care plans in order to establish the most effective way of recording fall prevention strategies.
- Staff education sessions to be made available to ensure all staff have the opportunity to discuss any issues related to documentation.
- Discussion with allied health care professional about their role in falls prevention and how this information will be documented.

This led to a new care plan being drawn up with clear guidelines available to staff on how to use the new documentation.

Three wards completed the staff questionnaire and provided generally positive comments about the assessment tool, care planning documentation and process of implementation. Some suggestions were received about trialling new equipment and staff awareness sessions.

An evaluation meeting was also held for the pilot wards although this was poorly attended. This enabled pilot wards to feedback positive and negative

aspects of the process as well as their thoughts on the documentation. An action plan resulted from this meeting and enabled the project manager to focus on some fundamental issues before implementing the project trust-wide. Issues included: -

- Adjust assessment tool layout
- Alter care planning documentation
- Develop guidelines for use of documentation
- Develop training package for ward
- Publicise widely before implementing Trust wide

A comparison of baseline data and pilot ward statistics presented very impressive initial results, although it is acknowledged a six-week interval is too short a time-span to determine long lasting results. In the pilot period there were 79 falls on the seven wards, compared with 189 for the same period the previous year. This relates to a 58% reduction in falls during the pilot compared with the previous year. During the pilot there were 5 recurrent fallers on these wards who were responsible for 13 falls. This is an average fall rate per faller of 2.6 compared with 4.82 the previous year.

9.2 Assessment Tool

The Morse Risk Assessment Tool was chosen as the most appropriate tool available as it had undergone rigorous statistical testing for reliability and validity. Janice Morse is a Canadian research nurse who developed the tool over a ten-year period following detailed background research into risk factors associated with falling. It is also one of the few assessment tools available that is designed for use in an acute care environment. (See 8.2)

The Morse tool has six risk factors that are assessed. These are:

- History of falls
- Secondary diagnosis
- Mobility Aids
- Attachment to equipment
- Gait
- Mental Status

Each category is weighted and scored individually. Once each category has been assessed the scores are totalled and it is this score that provides the individual level of risk for each patient between 0 and 125.

In the pilot each ward had their individual levels of risk calibrated for them so each unit had slightly different scores for low, medium and high risk of falling. Following the pilot phase the project manager felt that this would be too difficult to administer long term on all wards, as there are a number of wards that have different specialities at the same time. If each speciality had different levels of risk then the nursing staff would have more difficulty using the assessment tool and this is more likely to lead to failure of the project.

It was therefore decided to calibrate the levels of risk throughout the hospital. This has therefore reduced the specificity of the tool but has enabled the tool to be used across the Trust in a more simplified fashion. It has not reduced

the validity of the tool as the higher the score, the more at risk the patient is of falling.

9.3 Interventions to reduce the risk of falling

There are many strategies for reducing patient falls documented in the literature (see 12.3). The ones that have been highlighted within the care plans are ones that can be simply administered and have some evidence to back up their effectiveness. Each level of risk has additional strategies to implement and it can be seen that those that are suggested for those at low risk of falling are simply good basic nursing care that would be implemented for any patient.

Strategies within the care plan:

- Documentation of risk assessment score
- Communication to other relevant health professionals
- Ensure bed on lowest setting except when giving care
- Ensure patient has necessary items within reach
- Check patients footwear
- Assess environment for safety hazards
- Ensure regular toileting and assist where necessary
- Refer to appropriate agencies if further assessments required
- Assess for bed rails
- Educate patient/carer in safe practices
- Position in easily observable area
- Consider one-to-one nursing
- Consider using sensor alarm
- Communicate with the team regarding patient management

9.3.1 Bed rails

There are recently ratified guidelines available within the Trust on the use of bed rails (side rails) and all wards and departments have copies of these. It is imperative that patients have a thorough assessment of need prior to the use of bed rails and that all risks and benefits are considered prior to use. Indiscriminate use of bed rails has been shown to increase the risk of falling (Si et al, 1999) and there have been three MDA⁶ safety warnings regarding the use of bed rails (HN9711, SN1999 (36), HN2000 (10), HN2001 (35)). Patients and carers should be informed partners in their care and will be provided with information detailing the reasons bed rails are to be used.

9.3.2 Visual Cues

Communicating the level of risk to all health care professionals and other personnel on the wards is vitally important so that all staff can implement appropriate strategies to reduce the risks of falling. A traffic light system of visual cues has been introduced throughout the Trust to identify patient's level of risk.

⁶ Medical Devices Agency

Red	= High Risk
Yellow	= Medium risk
Green	= Low risk

The symbols are 8cm square, with a 6cm coloured circle on a white background and are designed to be placed within the patients bed space near their name board. The symbol is visual enough to be noticed by staff but not too large to be intrusive.

As the symbols are disclosing information about the patient then informed consent needs to be provided by the patient for them to be placed on view. There is a consent box within the care plan that must be signed and dated before the visual cues can be used for any patient.

9.3.3 Bucket Chairs

There are a few bucket type chairs available throughout the Trust that have been used to prevent patients mobilising or transferring out of the chair without assistance. This type of approach may be required for a small number of patients but should only be used following full multidisciplinary assessment, consideration of all other fall prevention strategies and in consultation with the patient and family. This approach would be considered a restraint if the patient is restricted from mobilising when they wish to and therefore the nursing staff need to be fully aware of their duty of care if they use these chairs to prevent a patient mobilising.

9.3.4 Sensor Alarms

Sensor alarms are commercially available and are pressure-sensitive pads that can be placed in a bed or a chair. If a patient rises from the pad an alarm is sounded that alerts both the patient and staff. The alarm reminds the patient that they require help to mobilise and often encourages them to wait for assistance. It also informs the ward staff that the patient is mobilising and can then go to their aid before an incident occurs.

The bed pressure alarms have been successfully trialled on the Pinderfields site and there are two bed alarms on the Pontefract site. However there are justifications for having more of these alarms available throughout the Trust (see 12.1)

9.3.5 Hip Protectors

Hip fracture in older people is usually the result of a simple fall. Due to other medical problems associated with ageing, hip fracture usually results in increased morbidity and mortality. The majority of falls resulting in hip fracture occur in females with an average age of 80 years (Parker, Pryor (1993)) and are due to the inability to put the arms out to prevent the fall and weaker bone strength (Cummings, Nevitt (1989))

Strategies to reduce hip fracture include preventing bone fragility, increase muscle strength around the hip, avoidance of falls and methods to attenuate the impact on the hip during a fall. In this age group however, little can be done to influence the prevalence of osteoporosis. Intervention strategies are

already in place within the acute Trust to assess the risk of falling on admission and to put in place strategies to reduce the risk.

One approach to reduce the impact of falls is the use of hip protectors. Various types of hip protector have been developed. Most consist of plastic shields, which are kept in place by pockets within specifically designed underwear.

The evidence suggests that hip protectors do appear to reduce the risk of hip fracture within a selected population at high risk of sustaining hip fracture (Parker et al, 2000). It is therefore important to select appropriate individuals that would benefit from the intervention in order to avoid wasting valuable resources.

A business case has been prepared for the Medical CSU in order for them to supply potentially 25 people with hip protectors if they meet inclusion criteria.

9.4 Care Planning Documentation

The care plans have been adjusted several times throughout the project in order to produce documentation that provides relevant information without being too onerous on the nursing staff. Three care plans were originally felt to be appropriate so that each level of risk can be clearly identified though this has now been revised and the three levels of risk have been amalgamated into one care plan. All strategies to reduce the risk of falling are clearly identified within the care plan and the named nurse can then individualise the care plan for each patient by writing additional comments in free text.

Keeping up to date documentation is vitally important for communication between nursing staff and other professionals. It provides information on the safety of the patient, their fall history and what strategies are successful or unsuccessful for reducing an individual's risk of falling. Without this documentation the patient is at greater risk as the awareness of staff is reduced to individual risk factors.

9.5 Environmental assessment

A comprehensive environmental risk assessment tool has been developed as part of the project. This assessment should be completed annually by the ward sister/charge nurse and provides a detailed account of any extrinsic factors that may influence fall rates in a particular ward area. A summary sheet is completed following the assessment which can then be used to determine where ward resources should be focussed or where additional funding needs to be sought from external sources.

9.6 Implementation across Trust

A Gantt chart was drawn up following the pilot evaluation to roll out the project to other wards throughout the Trust. Only wards that admitted patients over the age of 16 for a period of more than 48 hours are using the tool as it is these wards that are experiencing problems with falls.

A publicity campaign was launched throughout the Trust and the Project manager used as many opportunities as possible to publicise the project:

- Article in Pinpoint (Trust newsletter)
- Article in Team Brief (Trust information channel)
- Poster presentation in main corridor of PGH
- Presentation to Ward sisters/charge nurses meeting (Medical CSU)
- Presentation to ward sisters/ charge nurses meeting (Surgical CSU)
- Presentation to Professional Forum (Ward sisters meeting)
- Presentation to Risk Management group
- Presentation to Physiotherapy Department
- Presentation to Occupational Therapy Department

All ward sisters/charge nurses were contacted by the Project Manager and asked to nominate a member of staff to take on the role of liaison nurse. The liaison nurse could then be responsible for ensuring that the assessment tool and care planning documentation was implemented into the routine nursing duties. The project manager offered to attend ward meetings and arrange teaching sessions for any staff at their convenience.

A resource pack was produced for all wards with relevant information, up to date assessment forms and care planning documentation, background evidence and references. This was hand delivered to all wards by the project manager so that there was opportunity to ask further questions and arrange any teaching sessions.

Guidelines for reducing patient falls have been written and sent through the Shared Leadership ratification process. Following ratification they have been sent to all wards and departments so that correct procedures can be followed from assessment, planning care, implementing care and evaluation. The guidelines also consider the processes to follow should a fall occur.

9.7 Staff Education/Support

Evidence suggests that staff education is one of the most important factors in the success of a falls reduction programme. The Project manager has provided a number of ward staff education sessions but not all wards have felt it necessary. Time has been spent with individual liaison nurses and ward sisters/charge nurses to ensure that they are passing on the correct information and are encouraging staff to complete the assessment forms.

A videotape is available for staff to borrow, which shows the correct way to assess patients using the Morse scale.

Posters have been produced for all wards to highlight the importance of completing the falls assessment and to maintain the awareness of staff once the initial interest of the project has abated.

9.8 Guidelines for the collaborative management of those who have fallen

Janet Simpson, in consultation with members of AGILE & OCTEP drew up a set of guidelines in 1996 for Occupational Therapists and Physiotherapists working with vulnerable older people who have fallen.

In 1998, a national audit was undertaken to review whether the guidelines were being adhered to.

The audit concluded that there was good compliance with the following:

- ◆ Assessment of transfers
- ◆ Functional mobility
- ◆ Assessment of & intervention for gait retraining
- ◆ Provision of aids/appliances

There was however poor compliance with the following: -

- ◆ Assessment and management of strategies whilst on the floor
- ◆ Fear and confidence
- ◆ Assessment of home hazards.

The standard of Documentation was a factor in providing clear information during the audit.

The project manager has been involved with informing these professional groups about the guidelines and has developed an outcome measures pack that describes the evidence-based assessments that can be undertaken to achieve the suggested guidelines.

A physiotherapy lead, Sarah Winfield will continue this aspect of the project and will co-ordinate the development of falls groups with patients undertaking rehabilitation.

10. Evaluation

10.1 Statistics

In the four months to end July 2001, 43% of all incidents are falls related and a total of 882 falls were reported. This related to a fall rate of 8.09 per thousand bed days. Although this shows a slight reduction in the rate of falls, there has been an increase in the injury rate compared to the previous 12 months to 32%. Fortunately these injuries are mainly minor abrasions and/or bruising. In the 4 months there have been 3 RIDDOR incidents related to falls. This is compared to 24 in 1999/2000 and 27 in 2000/2001.

In 2000, there were 27 falls related incidents reported, resulting in 18 fractured neck of femurs requiring orthopaedic surgery. In 2001, this had reduced to 15 RIDDOR incidents, with 4 resulting in fractured neck of femurs.

This relates to a 44% reduction in falls related RIDDOR incidents, with a 77% reduction in fractured neck of femurs.

Further evaluative data needs to be collated on a regular basis so that the effectiveness of the project can be demonstrated. All wards are completing a falls logbook so that they can keep their own statistics on the number and

causes of falls. A new reporting system is being piloted throughout the Trust and this should enable relevant statistics to be available on a more regular basis as a way of informing staff of how their ward is performing in comparison to previous months or years.

10.2 Documentation Audit

An audit team has been organised as part of the Nursing charter audit programme already running throughout the Trust. The team comprises of E & F grade nurses and will be continued on an annual basis. This audit will influence the sustainability of the project and is an effective tool that has been shown in other areas of nursing practice in encouraging nurses to embed strategies routinely into practice.

10.3 Qualitative evaluation

All resource packs included an evaluative questionnaire asking for feedback from nursing staff. No questionnaires have been received at the time of writing this report.

There have been some positive verbal comments received from staff regarding the ward resource packs and although there is additional paperwork to complete most comments have positively acknowledged that falls are a major problem and that a systematic approach is required to solving this particular issue.

There have also been some comments received from patients who have trialled the traffic light system. They feel assured that nursing staff are assessing their risk of falling and that it is being communicated to other staff via the traffic light system. Staff have also commented that patients are using this system as a motivational tool and want to decrease their level of risk so that their 'sign' can change colour.

11. Recommendations for further development

There have been a number of developments throughout the country over the last year in the area of falls prevention. The publication of the National Service framework for older people has emphasised the need for Trusts to develop strategies to rehabilitate patients at risk of falling and to consider a whole systems approach to the problem.

A number of hospitals have already developed care pathways and one such pathway is described in the National Service Framework for older people. Wakefield & Pontefract Districts Local Implementation Team for the National Service Framework has set up a falls task group which will be responsible for continuing the development of a collaborative, multi-agency approach to reducing falls both in hospital and in the community.

12. Recommendations for future resource allocation

12.1 Sensor Alarms

The pilot project, literature review and equipment trial has highlighted a number of resource implications for the Trust that would have an impact on reducing patient falls. Staff awareness has been improved and strategies that can be implemented with little or no cost are being used at present. However it would be appropriate for there to be more equipment available for nursing staff to use for those patients assessed as being at high risk of falling.

Bed sensor alarms and chair sensor alarms have proved to be a valuable resource on those wards that have trialled them. There are presently two bed sensor alarms available on the Pontefract site but none at the Pinderfields site.

It is therefore recommended that the Trust purchase more bed alarms for use on the Pinderfields site and purchase some chair sensor alarms for use on both sites.

12.2 Hip Protectors

Parker et al (2000) conducted a review of the evidence regarding hip protectors and concluded that the incidence of hip fractures is reduced when hip protectors are worn by those vulnerable to fracture if a fall occurs. They are however a costly item and each patient would require two or three pairs for hygiene purposes.

Within this Trust there have been 19 fractures in 1999-2000 and 18 fractures in 2000-2001 that have occurred as a result of in-patients falling. These have obviously resulted in increased in-patient stays (Ash et al, 1998) state an average of 12 days extra following a fall), increase demand for orthopaedic surgery lists and some litigation claims against the hospital.

A rigorous assessment of need would be required if a patient is thought to benefit from hip protectors to ensure that resource allocation is appropriate. However if an appropriate assessment is carried out and they are provided for relevant individuals the cost could be justified in prevention of hip fracture and improving the safety of patients.

The figures below indicate that the financial advantages of providing hip protectors far outweigh the disadvantages. There is also advantages in respect of allowing patients at risk of hip fracture more freedom to mobilise without risk of serious injury and reduces the ethical dilemma of restraint if the patient is at risk of injury during mobilisation. It is therefore recommended that the Trust consider supplying hip protectors for those patients at risk of fracture and at high risk of falling.

The medical CSU are undertaking a trial of hip protectors with a small budget for the financial year 2002/03.

12.3 Cost of equipment

Sensor care mattress:	£479.00	}	
Chair sensor pad:	£ 400.00	}	Sensor alarm
Nurse call Link	£ 36.75	}	
Hip protectors	£ 42.00 per pair		(£126 per patient)

12.4 Cost of falls

Hip replacement surgery

10 bed days at £204 per day = £2040

Costs of hip replacement: £420 for a Flanged Hip,
£160 for a Charnley Ogee Cup,
£2,113 for a complete set. (All prices plus VAT.)

13. Conclusion

The project has successfully implemented an evidence based risk assessment tool and associated interventions to reduce the risk of falling for patients over the age of 16 admitted to Pinderfields and Pontefract Hospitals NHS Trust.

Nursing staff have had the opportunity to access training sessions and all wards have been provided with a ward resource pack that details information on the background to the project and the evidence base behind the assessment and interventions used.

Documentation is now available to assist nursing staff in maintaining clear and accurate records regarding the level of risk and strategies in place to reduce individual patients risk of falling. A standardised approach is available throughout the Trust, which encourages continuity of care wherever a patient may be placed.

Statistical evaluation at the present time does not indicate a major improvement in the fall rate or injury rate but the implementation programme has only been completed in the last two months. The pilot statistics show a dramatic improvement in the figures and this can be explained possibly by staff enthusiasm for the project and the interest displayed in being a pilot ward. It is expected that the statistics will continue to improve, particularly over the next quarter.

Further developments are required to produce a whole systems approach to falls services and the NSF for older people may well provide the vehicle for this work. The NSF taskgroup will be developing an action plan to outline the requirements of the district in order to meet the milestones within the NSF.

Therapists are undertaking more comprehensive standardised assessments and are developing a more co-ordinated approach across the District. This will improve patient care and will lead to falls groups being developed with appropriate clients in hospital and community settings.

14. References

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15.1 Assessment Tool

PINDERFIELDS AND PONTEFRACT HOSPITALS NHS TRUST
PATIENT FALLS RISK ASSESSMENT TOOL

Patients Name:..... Unit Number.....Ward.....Named nurse.....

CATEGORY		SCORE	Date	Date	Date	Date
1. History of falling <i>Score as 25 if the patient has fallen during the present hospital admission or if there was an immediate history of physiological falls, such as from seizures or an impaired gait prior to admission.</i> <i>If the patient has not fallen score 0</i>	YES NO	25 0				
2. Secondary Diagnosis <i>If more than one medical diagnosis is listed in the patients notes.</i>	YES NO	15 0				
3. Mobility Aids assist	None/bed rest/nurse Crutches/stick/walker Furniture	0 15 30				
4. Attachment to equipment <u>If the patient is attached to IV, monitoring equipment or has a catheter stand if not score</u>	YES NO	20 0				
5. Gait Normal	Weak Impaired	0 10 20				
6. Mental Status ability	Orientated to own Overestimates/ forgets limitations	0 15				
		TOTAL SCORE				

Adapted from Morse Fall Scale (1989)

DATE/TIME SIGNATURE FULL TITLE				
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15.2 Care Plan PINDERFIELDS AND PONTEFRACT HOSPITALS NHS TRUST

Patient Care Management Plan

Patient is at risk of falling

NEED: To maintain the safety of the patient, and maintain a safe environment.

	Name	Unit No.	Ward	Named Nurse
	If the patient has fallen prior to admission, document the circumstances surrounding the fall, if known, in the care plan.			
	If the patient has fallen whilst in hospital, document the circumstances surrounding the fall and action taken to prevent recurrence in the care plan.			
	Document patient risk assessment score in care plan			
	Inform patient about Traffic light symbol. Request consent for use.			
	If informed consent provided, place appropriate symbol on bed/locker			
	Communicate risk assessment score to other members of the multidisciplinary team.			
	Keep bed on lowest setting except when giving nursing care			
	Ensure patient has all necessary items within reach			
	Provide patient with leaflet regarding falls prevention.			
	Check patients footwear and advise patient/carer on appropriate footwear if necessary. Document any action in care plan			
	Assess patients environment for safety hazards and remove clutter or wipe up spillages			
	Assist with regular toileting			
	Refer to Occupational Therapy if assessment of function required. Document referral in care plan			
	Refer to physiotherapy if assessment of mobility required. Document referral in care plan			
	Frequently re-orientate confused patients to location of facilities			
	Assess patient regarding the use of side rails, with consideration of Trust Policy. If side rails are used, document in care plan			
	Educate patients/carers in safe practices, where appropriate			
	Position patient in easily observable are, if possible			
	Consider one to one nursing, if possible. Review on a shift by shift basis.			
	Discuss patients management with multidisciplinary team. Document outcome in care plan.			
	Consider using sensor alarm, if available. If sensor alarms used, document in care plan.			

Patient has been informed about the "traffic light" symbol. Does patient understand about the traffic light symbols YES/NO Does the patient consent to traffic light symbol YES/NO/NA If the patient does not understand, is carer aware YES/NO/NA	Sign: PRINT: Title: Date:
Date	
Fall Score	
Level of risk	

Reassessment strategy: Low: Weekly Medium: Every four days High: Alternate Days

Or at named nurses discretion. If different please document reasons for altering reassessment strategy

Date and Time	Relevant Information related to patient needs	Signature and full title

15.3**Outcome Measures for elderly people who have fallen**

Domain Name	Outcome Measure	Description	Reference
Mental Status	Abbreviated mental test	Staff completed 10 item test of memory and orientation	Hodkinson H (1972) Evaluation of a mental test score for the assessment of mental impairment in the elderly. Age & Ageing. 1: 233-238
ADL/Mobility/Independence	Barthel Index	Staff completed 10-item activity of daily living assessment. Devised for use with older people	Mahoney FI, Barthel DW (1965) Functional evaluation: the Barthel Index. Maryland State Medical Journal. 14: 61-65
	Elderly Mobility Scale	Staff completed ordinal scale	Smith R (1994) Validation and reliability of the elderly mobility scale. Physiotherapy. 80:744-747 Proser L, Conby A(1997) Further validation of EMS for measurement of mobility of hospitalised elderly people. Clinical rehabilitation. 11:4, 338-343
	Rivermead Mobility Index	Staff completed 14 item questionnaire measuring mobility disability after head injury and stroke	Collen FM, Wade DT, Robb GF, Bradshaw CM (1991) Rivermead Mobility Index: a further development of the Rivermead Motor Assessment. International Disability Studies. 13:50-54 Forlander DA, Bohannon RW (1999) Rivermead Mobility Index: a brief review of research to date. Clinical Rehabilitation. 13:97-100
	Timed sit to stand	Staff scored, patient completed timed test of moving from sitting to standing	Carr JH, Shepherd RB, Nordholm L, Lynne D (1985) Investigation of a new motor assessment scale for stroke patients. Physical Therapy. 65:2, 175-80

Domain Name	Outcome Measure	Description	Reference
Balance	180° turn	Staff-rated, patient completed test of patients ability to turn through 180 degrees. Devised for use with older population	Lipsitz LA, Jonsson PV, Kelley MM, Koestner JS (1991) Causes and correlates of recurrent falls in ambulatory frail elderly. Journal of Gerontology. 46:4, M114-122 Nevitt MC (1989) Risk factors for recurrent nonsyncopal falls. Journal of the American Medical Association. 261:18, 2663-2668
	Activity-specific Balance Confidence Scale	Patient Completed 16-item measure of confidence in perceived need for walking aid and personal assistance to ambulate indoors/outdoors. Devised for use with older people in rehabilitation and prevention of falls	Powell L, Myers A (1995) The Activities specific Balance confidence (ABC) Scale . Journal of Gerontology. 50A: M28-34
	Berg Balance Scale	Staff completed 14-item assessment scale of ability to maintain balance. Devised for use with older people.	Berg K, Wood-Dauphinee S, Williams JI, Gayton D (1989) Measuring balance in the elderly: preliminary development of an instrument. Physiotherapy Canada. 41:6 304-311
	Fast Evaluation of Mobility, Balance and Fear (FEMBAF)	Staff completed screening tool. Devised for use with older people	Di Fabio RP, Seay R (1997) Use of the Fast Evaluation of Mobility, Balance and Fear in elderly community dwellers: validity and reliability. Physical Therapy. 77:9, 904-917
	Functional Reach	Staff completed measure for detecting dynamic balance impairment and for change in performance over time. Devised for use with older people	Duncan PW, Weiner DK, Chandler J, Studenski S (1990) Functional Reach: a new clinical measure of balance. Journal of Gerontology. 45: 6, M192-197

Domain Name	Outcome Measure	Description	Reference
	Performance Orientated Assessment of Mobility (POAM)	Staff completed 13-item measure of balance and gait. Devised for use with older people	Tinetti ME (1986) Performance oriented assessment of mobility problems in elderly patients. Journal of American Geriatrics Society. 34: 2, 119-126
	Timed Unsupported Steady Standing	Staff scored, patient completed measure of a patients ability to stand steadily whilst unsupported	Simpson J, Worsfold C (1996) A simple test of balance for frail old people. Proceedings of the Society for Research in Rehabilitation. Royal Hospital for Neurodisability 11.1.96. Reproduced in Clinical Rehabilitation. 10.4, 354
	Timed Up and Go	Staff rated, Patient completed functional test of balance in moving from sitting to standing. Devised for use with older people	Mathias S, Nayak USL, Issacs B (1986) Balance in Elderly patients: The Get Up and Go Test. Archives of Physical medicine and Rehabilitation. 67:387-389
Walking	Dynamic Gait Index	Staff rated, patient completed eight-item evaluation of patient's ability to modify their gait in response to changing task demands. Devised for use with older people	Shumway-Cook A, Woollacott M (1995). Motor control – theory and applications. Williams & Wilkins, Baltimore
	Modified Gait Abnormality Rating Scale (GARS-M)	Staff rated, patient completed seven-item evaluation of gait. Devised for use with community dwelling frail older adults	Vanswearingham JM, Paschal KA, Bonino P, Yang JF (1996) The modified gait abnormality rating scale for recognising the risk of recurrent falls in community dwelling elderly adults. Physical Therapy. 76: 9, 994-1002
	Timed Walk	Staff completed measurement of gait. Devised for people at any age.	Cooper KH (1968) A means of assessing maximal oxygen intake. Correlation between field and treadmill tests. Journal of the American Medical association. 203: 3, 201-4

Domain Name	Outcome Measure	Description	Reference
Confidence	CONFbal	A patient completed 10-question measure of how confident a patient feels about maintaining their balance during everyday activities. Designed for use with older people	Simpson JM, Worsfold C, Hawke J (1998) Balance confidence in elderly people: the CONFbal Scale. <i>Age & Ageing</i> . 27, Suppl 2, 57, abstract (123)
	Falls Efficacy Scale	Staff-completed 10-item scale related to confidence in accomplishing activities without falling. Devised for use with older people	Tinetti ME, Richman D, Powell L (1990) Falls efficacy as a measure of falling. <i>Journal of Gerontology</i> . 50A: M28-34
Hazard/Risk Screening	Home Falls and Accident Screening Tool (home Fast)	Staff completed 25 item screening tool of safety at home. Devised for use with older population in rural & urban settings.	Mackenzie L, Byles J, Higginbotham N (2000) Designing the Home Falls and Accidents Screening Tool (HOME FAST): selecting the items. <i>British Journal of Occupational Therapy</i> . 63:6, 260-269
	Westmead Home Safety Assessment	Staff completed assessment tool for identifying fall hazards in the home. Devised for use with older people	Clemson L (1997) Home fall hazards and the WESTMEAD home safety Assessment. West Brunswick, Australia: Coordinates Publications cited in Clemson L, Fitzgerald MH, Heard R (1999) Content validity of an assessment tool to identify home fall hazards: The Westmead Home Safety Assessment. <i>British Journal of Occupational Therapy</i> . 62: 4, 171-179