Falls can result in death or injury. An acute hospital introduced pre-printed falls assessment care plans and supported nurse education to reduce fall rates.

Creating a protocol to reduce inpatient falls

In this article...

- Causes, prevalence and cost of inpatient falls
- Launching an evidence-based protocol across a trust
- Auditing the results and development of the falls service

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Causes, prevalence and cost of inpatient falls

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Abstract

Falls in hospital are a widespread and challenging problem. They cause harm and distress to patients, and are a source of anxiety for nurses and relatives.

This article describes how an acute trust in the North West of England improved its service through staff education and implementing a policy across the trust. The protocol included a falls risk assessment, bedrails risk/benefit assessment and preprinted falls risk assessment care plans.

Nurses’ knowledge and the quality and completeness of patient documentation improved and, over the three years, falls reduced by a statistically significant 17%.

Over a year, approximately 200,000 falls are reported in acute hospitals in England and Wales, with more than 36,000 reported in mental health units and 38,000 in community hospitals (National Patient Safety Agency, 2010). A significant number of these result in death or injury, including more than 800 hip fractures and more than 500 other fractures.

Inpatient falls cost an estimated £15m a year for immediate treatment alone (NPSA, 2010; 2007a). The costs of rehabilitation and social care are even greater, as up to 90% of older patients who fracture their neck of femur in an inpatient fall fail to recover their previous level of mobility or independence (Murray et al, 2007).

Falls can lead to a longer hospital stay, which can increase the risk of contracting nosocomial infections and the likelihood of admission to alternative care (Oliver et al, 2010). Patient falls account for around 40% of patient safety incidents reported to the NPSA (2007a) from England and Wales.

On average, 400,000 people are admitted to accident and emergency departments following a fall each year (National Institute for Health and Clinical Excellence, 2004). These people are vulnerable as inpatients because of their falls history.

Additionally, surgery can affect mobility or memory, and patients may need sedation, pain relief or medication that can increase falls risk, such as antihypertensives, hypnotics or diuretics. Delirium increases the risk of falling and is most likely to affect patients on medical wards although it can affect any inpatient (Oliver et al, 2004). Patients with dementia are more likely to require hospital stays and are already at increased risk of falls because their cognitive ability means they cannot always recognise risks (NSPA, 2007a).

Despite the evidence showing the scale of harm caused by inpatient falls, there is relatively little research evidence on preventing them. A recent overview described only seven randomised controlled trials, some of which were very small, and most of which focused on rehabilitation hospitals (Oliver et al, 2010). Many reports of local improvements in hospital falls prevention describe only a percentage reduction in falls, without calculating statistical significance (NHS Institute for Innovation and Improvement, 2010). This makes it difficult to assess whether the results are due to the intervention or chance. Because of this, experts in hospital falls prevention (Oliver et al, 2010) have urged hospitals to collect baseline measurements and compare falls rates as well as numbers of falls.

1. When introducing changes to falls prevention in hospital, it is important to take baseline measurements and compare falls rates as well as numbers of falls.

2. Falls prevention needs to focus on and address modifiable risk factors.

3. A pre-printed care plan can prompt staff to address modifiable risk factors.

4. Following a local change in documentation, supported by staff education, we significantly improved care planning and access to drinks and call bells for patients at risk of falls.

5. The new policy significantly reduced the falls rate of inpatients.

Having drinks within reach reduces falls.

Keywords: Fall prevention/Hospital/Education/Protocol

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baseline measurements when planning service improvements in falls, then assess the service improvement through analysis of falls rates per 1,000 occupied bed days and test this for statistical significance. We aimed to do this in our project.

Our local challenge
In our 800-bed acute trust, 1,906 falls were reported in the 12 months ending March 2007, including patients who were "found on the floor". Clearly, we needed to do something. We were keen to do something that evidence suggested was likely to work and, more importantly, to collect and analyse information on whether changes genuinely benefited patients.

We began by exploring why patients fall. There are more than 400 risk factors for falls and many classifications (NICE, 2004). The most significant risk factors for hospital patients are unsteady walking, being confused and agitated, having already had a fall, being incontinent or having frequency of micturition, and taking centrally sedating, antihypertensive or diuretic medications (Oliver et al, 2004).

Various protocols intended to identify and act on modifiable risk factors (known as "multifactorial assessment and intervention") have achieved an 18-30% reduction in falls (Oliver et al, 2010) in hospital-based studies. The studies where falls were reduced often included detecting and treating conditions such as delirium, cardiovascular illness, urinary incontinence, osteoporosis and eye-sight problems.

Reducing risk
The purpose of risk assessment or screening tools is to identify patients at risk of falling and to prompt interventions to address modifiable risk factors.

The literature suggests that there needs to be a shift away from falls scores to directly identifying and addressing modifiable causes of falls. Ultimately, tools cannot predict all inpatient falls, and there is no gold standard for risk assessment.

Interventions can be prompted by the use of pre-printed care planning sheets, which can be nurse led and involve the multidisciplinary team. In a cluster randomised controlled trial, this approach achieved significant reductions in falls rates of around 31% (Healey et al, 2004). To address the need to focus the minds of staff on patients most likely to fall and to ensure that modifiable risk factors were identified and acted on, we introduced an initial risk assessment that had to be undertaken on every adult admitted. If a patient scored medium or high risk, staff completed the pre-printed falls risk assessment care plan (see Box 1) and ensured risk factors were acted on.

An important aspect of falls prevention in hospital is the use of bedrails. A risk-versus-benefit assessment of bedrails should be part of a multifactorial assessment in hospitals (Oliver et al, 2010; NPSA, 2007b). Because of this, we introduced a bedrail risk assessment tool.

A focus on falls prevention needs to be balanced with patients' rights to make their own decisions about the risks they take and their rehabilitation needs. Achieving zero falls in hospitals is not realistic, but there are many interventions that can reduce the risk of falls while allowing patients the freedom to mobilise during their stay (NPSA, 2007a). Because of this, our initiative aimed to take all reasonable steps to ensure patients' safety and independence, while respecting the rights of those with the mental capacity to make their own decisions about their care.

Baselines and improvement
Our baselines were taken August 2006, as follows:

- We reviewed 40 randomly selected patients' case notes (taken from eight medical and elderly care wards) for falls risk assessment and care planning, mobility status, and referral to the allied health professional(s).
- We directly observed 40 randomly selected patients (taken from eight medical and elderly care wards) to check the position of their mobility aids, drinks and call bells and to see if the area was uncluttered.
- We interviewed 24 staff (two nurses and one unregistered staff member on each of eight medical and elderly care wards).

This data collection exercise was repeated in August 2007 after 25 training sessions had taken place. The baseline audit was repeated in 2009. Reports of falls, including of patients “found on floor”, were taken from the trust’s incident reporting system for the years before, and during and after the introduction of the initiative.

Launching the policy
In October 2007, the trust policy for falls prevention and management was completed; it was officially launched in August 2008 with drop-in training sessions provided by senior nursing management and me, to show the trust's support for it. Newsletters, posters and emails were circulated throughout the trust.

In September 2008, we audited staff knowledge to assess the uptake of the new policy. The documentation was later incorporated into a comprehensive advanced quality tool that was introduced throughout the trust.

Results
We achieved marked improvements in key aspects of patient documentation and in the proportion of patients who had their call bell, a drink and walking aids (if used) within reach. These improvements for each sample of 40 patients are shown in Fig 1.

Statistical analysis indicated that the improvements were statistically significant for patients with a falls care plan, for patients with their call bell within reach and for patients with a drink within reach.

We found similar improvements from questioning staff: awareness of the risk assessment tool increased from 62% in the "before" period to 92% one month after, and 100% at 13 months after (even though these staff had not received formal training in using the tool in the previous 12 months). Those who showed a good knowledge of falls prevention approaches rose from 87% in the "before" period, to 100% one month after, and 100% at 13 months after.

To see if the initiative had reduced falls, we compared our falls rate per 1,000 bed days to the number of falls per 1,000 days and the number of patients per bed day. The data showed a significant reduction in the number of falls per 1,000 bed days.


### BOX 1. RISK ASSESSMENT CARE PLAN

- History of falling
- Number of medications
- Walking ability
- Mental alertness
- Incontinence
- Dizziness on sitting/standing
- Visual difficulties
- Hearing loss
- Alcohol intake
- Mobility transfers ability
- Balance
- Environment

### TABLE 1. CHANGES IN FALLS RATES

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of falls</th>
<th>Falls rate (per 1,000 bed days)</th>
<th>95% confidence intervals on falls rate</th>
<th>Reduction in falls rate compared with baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 06-March 07</td>
<td>1,906</td>
<td>7.84</td>
<td>7.57-8.08</td>
<td>N/A</td>
</tr>
<tr>
<td>April 07-March 08</td>
<td>1,632</td>
<td>7.04</td>
<td>6.75-7.32</td>
<td>10.2%</td>
</tr>
<tr>
<td>April 08-March 09</td>
<td>1,370</td>
<td>6.50</td>
<td>6.20-6.80</td>
<td>17.1%</td>
</tr>
</tbody>
</table>
occupied bed days for whole years before, during and after the intervention. This is the most appropriate method of assessing the impact of falls prevention interventions as it overcomes seasonal variation in falls rates and adjusts for changes in hospital activity (Oliver et al, 2010). Our findings are shown in Table 1 and Fig 2.

The results showed a statistically significant reduction in falls rate between year one and year two, and between year one and year three. Falls per year reduced by more than 500 between year one and year three.

Problems encountered
The main issues encountered in the project concerned the delivery of the training sessions. All session times were agreed by each ward manager to ensure optimum attendance, but staff from the wards did not have protected education time. Although ward leads did plan to release staff for the sessions, in reality this proved to be difficult. The other issue was the lack of suitable rooms in which to provide education sessions and the diversity in the number of staff attending.

Continued developments
In summer 2009, Dr Mahmood Adil from the NHS Institute for Innovation and Improvement agreed to undertake a detailed assessment of the current situation, with an emphasis on reviewing the harm resulting from falls.

I worked as an integral member of the team on the diagnostic and intervention phases, which included the development of an e-integrated system; it also included changes to environmental issues such as bedrails, slipper exchanges and medication effects, with a greater emphasis on preventive measures. This work continued with the development of a checklist. The project intervention resulted in an 18% reduction in falls in hospital, and by 50% overall, giving estimated savings of £120,000. This concluded with the production of a Stepwise guide by the NHS Institute for Innovation and Improvement.

Next steps
Although this project was based in a hospital, initiatives to prevent falls in the community need to be linked if we are to achieve seamless care. For example, if a patient has received assessment and treatment in secondary care, this can reduce the risk of future falls at home.

Standard six of the National Service Framework for Older Adults (Department of Health, 2001) and recommendations by NICE (2004) aim to reduce falls by improving the diagnosis, care and treatment of those who have fallen, by providing rehabilitation, long-term support, and preventing and treating osteoporosis. Following multifactorial interventions, these patients will be less vulnerable to falls when admitted to hospital; this is because, without interventions, patients who have fallen once are at a higher risk of falling again (Oliver et al, 2010; NPSA, 2007a; NICE, 2004; DH, 2001).

In April 2010, I took up a post at the community healthcare trust as an extended scope practitioner and became the clinical lead of the fall prevention service. The service takes a multidisciplinary team approach; this ensures that each patient referred to the falls clinic receives evidence-based assessments by our occupational therapist, physiotherapist and nurse. The medical assessment includes medical history, examination, diagnosis, investigations, referral (including medicine review) and osteoporosis assessment in line with NICE guidance (2011a; 2011b; 2004). The service also provides evidence-based targeted falls prevention programmes to improve patients’ strength and postural stability and to provide coping strategies to address fear of falling.

References