A multifactorial approach to falls prevention

In this article...

- The impact of falls on patients and the NHS
- Why multifactorial intervention is more successful than single intervention at preventing patient falls
- Implementing a multifactorial falls prevention programme

Keywords: Patient falls/Multifactorial/collaborative/prevention

This article has been double-blind peer reviewed

Implementing a range of interventions can help cut patient falls and improve safety.

Falls can have serious consequences for patients, including staying in hospital, for longer, being physically harmed, losing confidence and having less independence. Multifactorial falls prevention programmes are more effective than single interventions. Interventions that can be incorporated into a multifactorial falls prevention programme include safety walk-rounds, medication reviews and environmental changes.

A multi-disciplinary team approach accelerates improvement as it allows several interventions to be tested at the same time.

Trusts should undertake clinical research to understand more about patient risk factors for serious harm from falls. This can help identify unique characteristics that indicate when a patient is at a higher risk of serious injury should a fall occur.

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Patient falls are the most commonly reported safety incidents in hospitals, causing injury in some 30% of cases. Using a range of interventions to reduce falls has proven more effective than using just one. This article describes how a multifactorial falls prevention programme helped to significantly reduce the number of patient falls at Stockport Foundation Trust.

Tackling patient falls is a constant challenge for healthcare organisations (Box 1). Every year, acute hospitals across England and Wales report around 352,000 patient falls (Patient Safety First, 2009). This costs the NHS some £13m a year; an average of £292,000 for an 800-bed acute hospital. The National Patient Safety Agency (2007) says falls account for two-fifths of all patient safety incidents in hospitals. The causes are multifactorial and complex but key factors in hospital patients appear to be:
- Walking unsteadily;
- Confusion;
- Incontinence or the need to use the toilet frequently;
- Previous falls;
- Taking sedatives or sleeping tablets (NPSA, 2007).

Falls can lead to longer stays in hospital, physical harm, loss of confidence and reduced independence. Many older people are particularly vulnerable to falling because of reduced mobility and/or complex medical conditions.

1. More falls are reported to the National Patient Safety Agency than any other type of patient safety incident.
2. Patient falls account for two-fifths of all patient safety incidents in hospitals.
3. 1,000 patients a year sustain a fracture as a result of falls in hospitals in England and Wales.
4. In an average 800-bed acute hospital trust there will be around 24 falls every week and over 1,260 falls every year.
5. Most falls are reported as causing no or low harm, but some result in significant injury and death.

Source: NPSA (2007)

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Background

Patient falls account for the highest number of reported incidents at Stockport Foundation Trust. Almost 20% of falls in 2009-10 resulted in some harm, compared with a national rate of 30% (Healey et al, 2008) so the trust introduced a multifactorial falls prevention programme in November 2009.

Various studies on reducing the number of falls have shown that a single intervention is less effective than multifactorial intervention (Oliver et al, 2010; Fonda et al, 2006). Oliver et al (2010) analysed systematic reviews, recent research and clinical evidence, and concluded that the most appropriate approach to falls prevention in the hospital environment includes multifactorial interventions with multi-professional input. There is evidence that delirium avoidance programmes, fewer sedative and hypnotic medications, in-depth patient education and sustained exercise programmes may reduce falls as single interventions but there is no convincing evidence that hip protectors, movement alarms or LoLo beds reduce falls or injury in the hospital setting.

The trust’s multifactorial programme included changes to the physical environment, medication reviews, leadership walk-rounds and falls risk assessments. We also introduced low profiling beds, alarms and extra staff training. The trust had already achieved positive results in reducing the number of repeated fallers – this decreased from 21% in 2006 to 20% in 2009-10 – and was keen to build on this success. There was strong support for further improvement from the board of directors and health professionals on the wards.

Falls prevention programme

The trust’s multifactorial falls prevention programme included new equipment, such as low profiling beds and sensor alarms; ward-based training; and a four-ward collaborative improvement project.

Sensor alarms

The trust reviewed various bed/chair sensor alarms, before conducting a trial on three wards (two medical and one surgical). Staff completed evaluations; the results and feedback were positive. Ten bed alarms and five chair alarms were bought and distributed to four medical wards; again, usage and feedback was positive.

In summer 2010, the trust purchased 43 bed and 17 chair alarms for all high-risk wards. The alarms alert staff when a patient is about to get up, providing an early warning system for those at risk of falling. The alarms are connected to the ward nurse call system, allowing remote monitoring, and can be heard while nurses are working elsewhere on the ward. To support implementation, we produced a standard operating procedure for using the alarms and a flowchart to help nurses to ensure the right patient receives the right alarm. The trust’s risk department and the company supplying the alarms provided training in using them; this was well received by staff.

Low profiling beds

We also trialled various low profiling beds, the most successful of which are now rented when required, for example for patients who are at high risk of falling, repeated fallers or those who are likely to fall out of bed. A standard operating procedure was developed to help nursing staff ensure patients get the appropriate bed; the supplier and the risk department again provided training. The risk department monitors appropriateness of low profiling bed use to ensure costs are controlled and balanced against patient safety.

Training

A specialised falls management and prevention training programme for nursing staff from students to ward manager was developed in 2008. This supplements falls education provided at induction as well as mandatory training and takes place on the wards to minimise the impact on staffing levels. Topics covered include the correct use of the falls risk assessment tool and care plan, use of equipment, and feedback on specific incidents. Training has also been developed for physiotherapists, occupational therapists and medical staff.

Reducing patient falls collaborative

In 2009, the trust expanded on the programme by launching a collaborative improvement scheme. Teams from various disciplines, including physiotherapy, occupational therapy, nursing and medicine, worked together towards common goals, sharing experiences and testing new ideas. In October of that year, four wards (three medical and one surgical) began a 12-month “reducing patient falls collaborative”. A driver diagram describing the different areas of testing that could help reduce falls was used to direct practice developments (Fig 1). It was important this represented the best available evidence, and that each team had the opportunity to test and adapt each initiative to their area.

Source: Stockport Foundation Trust
At the first project meeting, teams from each ward reviewed the driver diagram, discussed challenges and successes in preventing falls, and agreed which improvements they wanted to test first. The groups were then introduced to PDSA (Plan, Do, Study, Act) cycles, which allow frontline staff to test changes quickly and with low risk, before feeding back to the larger group. This gave staff ownership in designing solutions.

An improvement goal of reducing harm from patient falls was agreed and activity planned to achieve it. Throughout the 12-month project, a support team met with the wards regularly to provide guidance and mentorship on gathering results, and coach staff on taking the next steps and overcoming obstacles.

**Project results**

Between November 2009 and May 2010 the four collaborative wards achieved a 33% cut in patient falls (Fig 2). Most changes came from dramatic improvements on one ward, where the number of falls fell from 25 to three. There was an increase in falls on this ward in April 2010 but this was due to reconfiguring the ward to include acute patients, and changes in staffing.

All four wards showed some reduction in falls, but falls reported trust-wide did not decline significantly during the project period. As such, the trust developed an action plan to spread successful changes from the four pilot wards and share best practice across the trust.

**Changes to practice**

The collaborative resulted in a number of changes to practice at the trust, including safety walk-rounds, medication reviews and environmental changes.

**Safety walk-rounds**

Leadership support is vital so the senior nursing team and trust executive directors do safety walk-rounds every month to check in with teams, address barriers and provide support where necessary. The number of falls and any resulting harm are reported to the trust board every month.

**Medication review**

A consultant geriatrician developed and tested an enhanced medication review on the collaborative wards, while pharmacy staff compiled a list of medications that could increase the risk of falls. The list was added to the trust’s existing medication review process to help reduce unnecessary administration of medications. This was well received by pharmacy and ward staff and resulted in many unnecessary medications being stopped.

**Footwear**

Not all tested changes were included in the programme. For example, one ward provided socks with rubber treads for patients to wear at night to protect those who may wake up and forget to put on slippers. Physiotherapists tested patients’ gait when wearing either slippers or the socks and, while the socks had no adverse effect, they were found to roll during the night leaving the sole of the foot unprotected; they were therefore abandoned. We are now working with Age UK (Stockport) on a “Slipper Project” – this will include full footwear assessment and provide footwear for use both in hospital and at home.

**Environment**

The collaborative initiated a number of changes to the physical environment. Falls risk assessment information and data were standardised for patient information boards, and ward staff met with estates to plan small renovations they thought would reduce the likelihood of, and harm from, falls. For example, the location of toilet roll holders was a concern as patients had to bend awkwardly to reach them.

**Conclusion**

The collaborative confirmed that falls reduction needs a multifactorial approach; introducing state-of-the-art equipment and improving staff training is not enough. However, when combined with medication reviews, leadership engagement, improvements in staff information and changes in the physical environment, they can make a difference.

A collaborative project between the trust and community commenced in April 2011 as part of the Safety Express Project – Reducing Harm. We are looking at further areas of work to complement the initial changes, such as addressing patients’ eyesight, lying and standing blood pressure, and continence. The trust also plans to undertake clinical research to understand more about the factors that put patients at risk of serious harm from falls and identify unique patient characteristics that indicate a higher risk of serious injury should a fall occur.

**References**


**Quick Fact**

£15m The amount patient falls cost the NHS every year