

Health and Social Care Technology Award for the Midlands and East



REFINE team

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Summary

Falls are common among hospital elderly in-patients. The majority of falls occur at the patient's bedside, unwitnessed and even when falls risks are identified, there is a reluctance or inability for patients to call for assistance. Forty per cent of these patients sustain an injury with up to 5% a fracture, although the majority suffer from the psychological trauma of the fall. These, in turn lead to impaired rehabilitation, co-morbidity, increased length of hospital stay and higher rates of discharge to institutional care. The cost of fall is high, not only for the individual patient and the hospital, but also in terms of anxiety and / or guilt among staff, carer complaints and the potential of litigation. One potential solution may be to use a monitoring system that alerts nearby staff that a person is attempting to leave their bed or bedside chair, that could enable staff in ordinary ward settings to respond quickly enough to avert a fall. We have conducted a project using bedside chair and bed pressure sensors, incorporating a paging alert mode to alert the ward auxiliary nursing staff on our orthogeriatric rehabilitation ward. The major impact has been a significant reduction in bedside falls and reduction in hospital length of stay. The technology was well received by patients and the nursing staff in particular the auxiliary nurses with respect to improvement in job satisfaction and patient care, who often feel unrecognised within the team. Additionally family members highly commended the work and felt reassured that measures were being undertaken to reduce the risk of falls in their relative, concerned that they had already fallen, having presented to the hospital with their hip fracture.

Aims and Objectives

The main aims of the project were to reduce the rate of in-patient bedside falls and hospital length of stay. Objectives: 1. Evaluate the effect of bedside chair and bed pressure sensors using a paging mode facility carried by the ward auxiliary nurses to reduce bedside falls in elderly hospital in-patients. 2. Evaluate the effects of the technology on hospital length of stay. 3. Investigate the user friendliness of the technology on staff and the attitudes towards patients and their respective carers /family.

Who were our stakeholders?

The work was a collaborative project undertaken by the QMC, University Hospital NHS Trust and Sensor Care Ltd. Sensor Care Ltd kindly loaned 18 units free of charge and the QMC University Hospital undertook the evaluation. The project was undertaken as part of a Clinical Governance Risk Management project, supervised and conducted by Dr Opinder Sahota as lead clinician for falls and osteoporosis and consultant responsible for the care of the patients and Mr Tony Till, ward manager. Data was collected through the hospital Clinical Governance audit clerk and analysis and project written up by Dr Sahota, statistical advice from Dr Grainge (medical statistician). Key contribution was from the auxiliary ward nursing staff who agreed and accepted very readily the pagers as part of their normal working practice.

What were our timescales?

Bedside chair and bed pressure sensors incorporating a paging mode facility (SensorCare Ltd) were evaluated over 12 month period on the orthogeriatric rehabilitation ward from Jan-Dec 2003. This is an 18-bedded unit taking elderly female patients post acute hip fracture, in a major teaching hospital setting. Nine units were linked to one pager of which 2 pagers (18 units) were carried by two nominated auxiliary nurses at all times. As the patients tried to leave the bed or bedside chair, the pressure sensor would activate and send a signal to the pager. This would flash up on the pager with the respective number of that bed and the nurse would be able to attend the patients as necessary. The rate of bedside 'fallers', 'falls' and length of stay were recorded and compared to the previous year, 2002. Means (standard deviations) were calculated where appropriate and logistic regression analysis used. Usability and patients/relative feedback was collected by a number of small focus groups conducted by Dr Sahota (ward consultant) and Mr Till (ward manager).

What were our challenges?

Inpatient falls are a major problem across all UK hospitals. Risk tools to identify patients have been developed however interventions to reduce these falls are poor. In 2001, we undertook a pilot project using a checklist intervention based around areas of good practice. This encompassed a 10 point checklist, undertaken 3 times a day ensuring good nursing practice interventions for example, ensuring the nurse call bell was within easy reach for the patient, the patients bedside area was free of equipment clutter etc. However, an eight month before and after project showed no significant reduction in bedside falls. The main problem identified was that most of the falls on the ward occurred at the patient's bedside during transfers or whilst getting up to go to the toilet. In the majority of cases these falls were unwitnessed. Where patients had been advised to call for assistance, they were often reluctant to do so, with "not wanting to bother the nurses" or unable to do so because of cognitive impairment. Continually observing patients at their bedside was suggested as one method that may reduce falls, and a potential option was to use a monitoring system that alerts nearby staff that a person is attempting to leave their bed or chair that could enable staff in ordinary ward settings to respond quickly enough to avert. Initially we approached a local electronics firm to adapt a pre-existing sensor. They requested £1500. The Health and Safety Board, QMC agreed to fund £500 but the Clinical Governance Board, QMC, although recognised the work as worthy was unable to offer any support. We then approached Sensorcare Ltd offering them evaluation of their equipment in an NHS setting in return for a free loan of the equipment. Having established the link with Sensorcare Ltd, we then approached the Trust's NSF Steering Group for Older People for support with data collection. This was declined due to insufficient resources. Data collection, analysis and writing up was therefore undertaken by members of the group in their own time. a fall, with limited support from the Trust Clinical Governance unit.

What were the benefits?

The mean percentage of in-patient bedside 'fallers' in 2002 was 14.9%. In 2003 this was reduced to 8.2%[OR 0.55(95%CI 0.32, 0.94)], adjusted for age. This represents a significant 45% reduction in bedside fallers. Comparing mean number of 'falls' mean (SD) in 2002 was 0.14(0.38) and in 2003 0.09(0.33) [p=0.032], representing a 36% reduction in falls. Mean difference in length of stay between 'fallers' and 'non fallers' was 3.6 days (95% CI 2.1, 9.2 [p=0.048]). The technology was well received as reported by the focus groups but in particular the auxiliary nurses reported a level of job satisfaction with respect patient care, who explained that they often felt unrecognised within the team, but now felt that they were making a real difference to patient care. Additionally relatives highly commended the work and felt reassured that measures were being undertaken to reduce the risk of falls on the ward.

What are we most proud of?

There was a 45% reduction in bedside in-patient fallers using bedside sensors. This led to a reduction in extended length of stay suggesting that sensors do not impair on going rehabilitation. The technology was found to be robust and well received by staff, patients and relatives.