

Falls: A coordinated strategy

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Abstract

Falls are a common and serious health problem. Responses to the problem should address the individual, the individual's environment, the system of health or residential care used by the individual, and the local community. This article describes a response to the issue of falls in Ryde Hospital and its surrounding community. This response has multiple components which include patient and staff education and interventions with people who have fallen. These initiatives have been developed without additional resources and incorporated into existing systems of care provision.

Introduction

Falls are one of the leading causes of death and morbidity in the elderly population (King & Tinetti 1996). They can lead to loss of function, increased dependence and institutionalisation. Apart from the enormous personal cost to patients and their families, falls place a great financial burden upon the health care system (National Health and Medical Research Council 1994). Falls are caused by a complex combination of intrinsic, extrinsic and iatrogenic factors. Some of these factors will be remediable, leading to a potential prevention of falls, whereas others will not. Thus the important aim, when dealing with falls, is harm minimisation.

It may be possible to identify the patient at risk of falling based on age and disease-associated characteristics, acute illness and degree of mobility impairment (King & Tinetti 1996). Studies that have investigated falls risk have consistently demonstrated that previous falls are a risk for further falls (Sweeting 1994; Cwikel et al. 1998; Price et al. 1998). Environmental risk factors are also recognised as contributing to falls in

older people. Therefore modifying environmental conditions can complement and enhance the impact of other interventions (Connell 1996). The Cochrane Collaboration's systematic review of programs designed to reduce the incidence of falls in the elderly population suggested that interventions should consider the multiple problems facing at-risk patients (Gillespie et al. 1998).

An incidence of falls in the over-65 population in the order of 30% has consistently been described. This figure rises to 50% when an over-80 population is investigated (Campbell, Robertson & Gardner 1995). A similar incidence has also been described in the Northern Sydney area (March et al. 1996).

This article outlines a coordinated strategy that was developed to respond to the issue of falls and fall injury in Ryde Hospital and the Ryde/Hunters Hill area of Sydney.

Background

The identification of risk factors and the introduction of early intervention programs have been part of established clinical practice for some time and are continuously evaluated. The commitment of human and financial resources towards prevention and minimisation of falls in the elderly is therefore not new (Gillespie et al. 1998).

Ryde Hospital is located in an area that has a higher proportion of people aged 65 years and over in comparison to New South Wales as a whole (Brnabic et al. 1996). In this fiscally constrained health care environment, attempting to redirect scarce resources towards preventative strategies, while trying to meet the increasing demand arising predominantly from these elderly citizens, requires a paradigm shift.

In recognition of this fact, Ryde Hospital and Community Health Service determined that improvements in prevention strategies and the identification of workable interventions were required, and that a recently developed framework would be utilised to improve health outcomes in these patients.

In response to the Commonwealth and New South Wales Health Departments' policy focus on health outcomes, a health outcomes program commenced at Ryde as a quality initiative aimed at effecting organisational change (Healy et al. 1998). Ryde identified three areas which it considered most likely to have an impact on the local community. These priority areas were cardiac disease, falls and suicide prevention. A key objective of the program, its 'institutionalisation', has been achieved by:

- changing organisational policy so that business planning focuses on health outcomes, thus linking objectives to performance measurement
- skilling the workforce towards having a health outcomes focus
- linking health outcomes with continuous improvement
- increasing links between the organisation and the local Division of General Practice in the pursuit of common goals

- involving local community members, such as the Medicine Information Persons project
- aiming numerous *de novo* clinical initiatives, such as a new falls clinic, towards improving patient care.

The commencement of the falls initiatives was in response to a perceived need. These initiatives utilised the health outcomes framework, and included linking staff education to incident monitoring, running inpatient falls assessment programs and opening a falls clinic in the emergency department. The falls initiatives were also linked with the Ryde City Safe Communities Project, which is aimed at developing strategies to reduce injury in the community.

Local incidence of falls

In New South Wales in 1994–95, falls were responsible for 40% of injury deaths in 65-year-old males and for 58% of injury deaths in females of this age group. Northern Sydney area women over 65 years had high hospitalisation rates for falls compared to the New South Wales average (March et al. 1996).

Falls become more common with increasing age, with the majority (70%) occurring through stumbling or tripping on a level surface in the home. Residential institutions are the second most common site of falls, followed by public areas (March et al. 1996). Most falls do not come to medical attention, however 1–2% will result in a fracture of the femur, which has significant physical, financial and psychological implications for both the patient and their health care facility (King & Tinetti 1996).

Utilising data obtained from the New South Wales Inpatient Statistic Collection 1994–95, an analysis was undertaken between the rates of admission of falls patients in the Ryde/Hunters Hill area and the Northern Sydney area, with the rates of admission of falls patients in New South Wales hospitals as a whole (Figures 1 and 2). Crude rates of admission due to falls have been calculated by dividing the total number of cases by the total number of individuals in that population age group in the specified time period. Crude rates represent the actual experience of the population, are easy to calculate and are therefore widely used for comparison. Crude rates may be misleading because of differences in the underlying age structure of the population. Age-specific direct standardisation rates have been calculated separately for males and females to clarify the population impact of falls. This allows comparison of Ryde/Hunters Hill (RHH) residents and Northern Sydney area (NSA) residents, standardised to the New South Wales population.

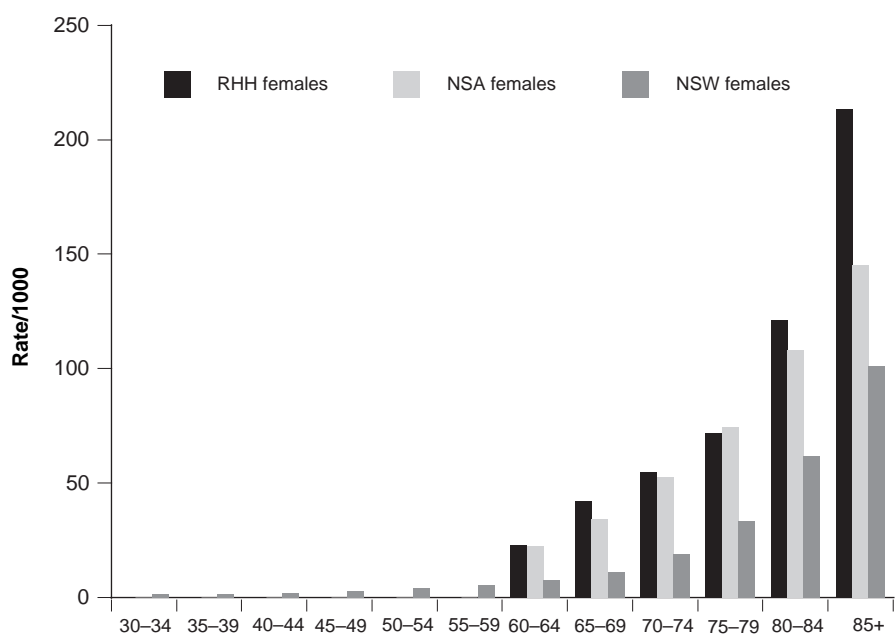


Figure 1: Female inpatient separations 1994–95 ICD-9 codes E880–E888 Falls

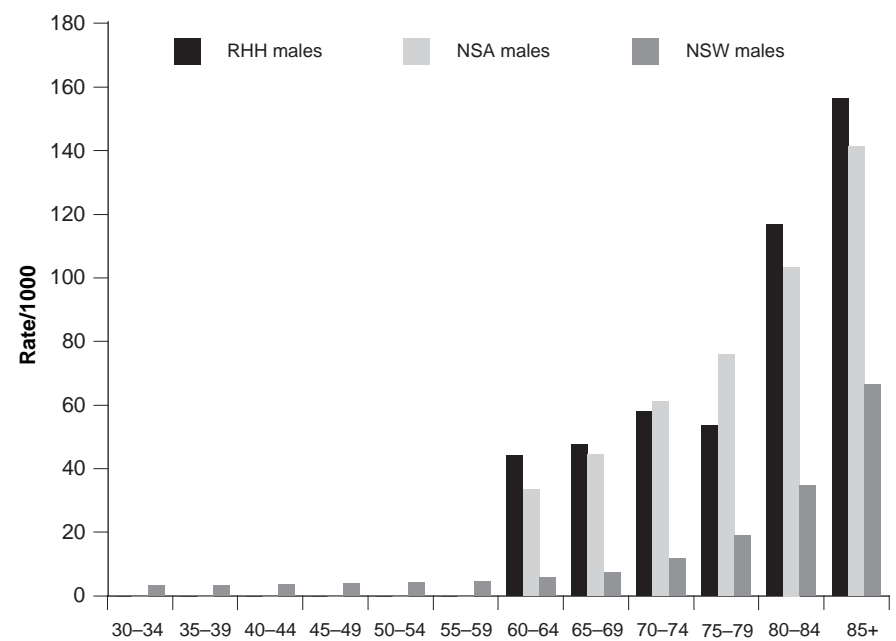


Figure 2: Male inpatient separations 1994–95 ICD-9 codes E880–E888 Falls

The above graphs indicate that both male and female separations for falls were significantly higher in Ryde/Hunters Hill as compared to the Northern Sydney area as a whole, and reinforce that falls are a significant health issue for the local area.

Falls initiatives

Recently, a number of falls initiatives have been implemented within the hospital. These initiatives now operate under the umbrella of the Inpatient Falls Prevention Committee, which was established in its current form in 1998 (Figure 3). The major areas overseen by this committee are:

- staff education for the prevention of falls and other ward initiatives
- falls prevention education sessions for inpatients, and
- the establishment of a falls clinic.

These initiatives are implemented in conjunction with the aforementioned Ryde City Safe Communities Project to provide a holistic approach to falls management.

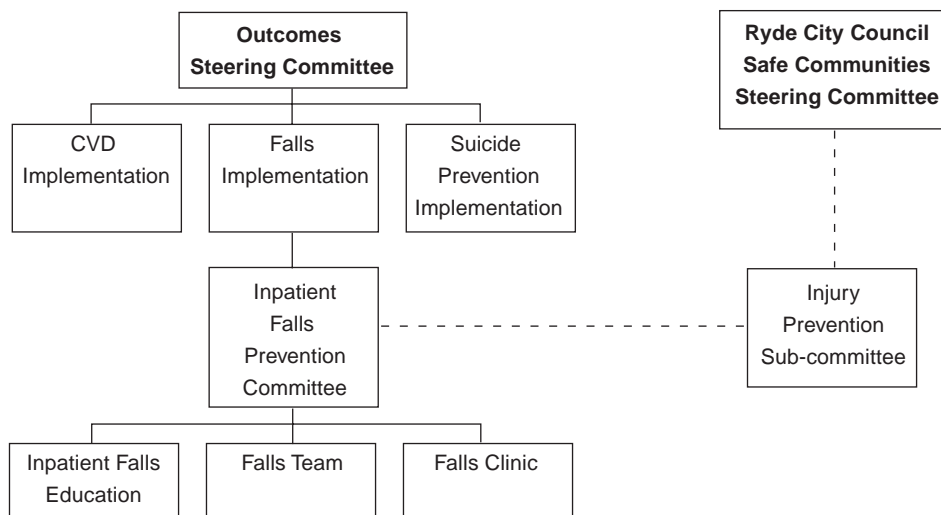


Figure 3: Ryde Hospital Framework

It is well recognised in the literature that elderly patients often suffer falls during hospitalisation. As a result, the patient may suffer from fractures, anxiety or a fear of falling. This may result in an increased length of stay, a higher level of dependence and therefore a greater risk of unplanned readmission to hospital or discharge to a residential care facility (Sweeting 1994; Oliver et al. 1997; Rawsky 1998).

Research identifying risk factors for falls in hospital has shown that some risk factors are easily assessable and can be used to predict a large percentage of falls. Risk factors may be specific to particular hospital units depending on the casemix of patients and institutional characteristics such as clinical and nursing practice (Oliver et al. 1997). Studies in institutions demonstrate that risk-identification of patients, staff education, enhanced awareness of environmental hazards and proactive falls prevention were seen to have been effective in reducing falls (Sweeting 1994; King & Tinetti 1996; Rawsky 1998). One multifactorial risk factor modification program reduced the number of recurrent falls in a nursing home setting (Ray et al. 1997).

The Inpatient Falls Prevention Committee commenced in March 1998 and, utilising the hospital's falls data and a literature review, implemented a number of strategies to reduce the incidence of falls.

Staff educational sessions

Educational sessions are provided to nursing, allied health and medical staff. The sessions are interactive, utilising case studies. Staff identify patient risk factors for falls and look at realistic solutions that are able to be implemented in the wards. The case studies illustrate a composite of medical conditions and falls risk factors that are common to the hospital. Staff are encouraged to consider factors (both intrinsic and extrinsic) that could potentially cause a fall. A handout is also provided, detailing risk factors and possible simple solutions that could be incorporated into the ward environment. Equipment and manual handling issues, safe working procedures, falls data reviews and staff education are ongoing.

Fifty-five staff have completed a post-session evaluation to determine how useful they have found the sessions and whether further information will be required over time. 93% of clinical staff have found the information useful and 98% indicated that they would attend future sessions. As most are experienced ward staff, with an already considerable body of knowledge, these results, coupled with the general enthusiasm shown during the sessions, appear to demonstrate that the aim of staff gaining heightened awareness has been achieved.

Falls team

A further recommendation arising from this committee was the establishment of a multidisciplinary falls team, with the aim of reviewing every patient who falls during hospitalisation. Each patient is reviewed to identify risk factors and to assist with

prevention of further falls. The team is made up of medical, physiotherapy and occupational therapy staff who operate in conjunction with the ward medical and nursing staff responsible for the patient. It is hoped the input of this team will also maintain the level of staff awareness of falls risks in their own wards. This has been implemented as a pilot project in two general medical wards, and in the rehabilitation assessment unit.

Inpatient falls prevention education

Falls prevention education for inpatients was identified as important for reducing the risk of falls in those patients who had previously fallen at home, or who had been identified as at-risk in hospital. The ultimate aim is to reduce further hospital admissions for the same condition by providing an appropriate educational program for both these patients and their carers. Falls prevention education is based on two programs developed in New South Wales, the North Coast Stay on Your Feet program and the Falls Prevention Project of the Central Sydney Area Health Service (Garner & Vaughan 1991; Sweeting 1994; Beurden et al. 1998).

Using a multidisciplinary team approach, an education session has been presented to inpatients since 1996 in the rehabilitation assessment unit. The present team consists of an occupational therapist, a physiotherapist and a community volunteer from the Medicine Information Persons Project. The volunteer provides peer education on the safe use of medication as part of a community development initiative. Each education session lasts for an hour and consists of an interactive discussion about risk factors for falls (both intrinsic and extrinsic) and how these might be alleviated in domestic and community situations. Patients are encouraged to think of factors that may have caused their own falls and to look for solutions they can implement in their own environment. Written information is also provided for ongoing self-education. Participant evaluation is through a pre- and post-group questionnaire and a telephone follow-up once the patient has returned home. The session has recently been expanded to the Orthopaedic Department.

Recent evaluation of the pre- and post-test data for 53 patients showed that over 70% improved their knowledge of falls risks. When contacted at home about a month after discharge, 91% felt that the session had been useful for identifying risks at home. Over 50% had implemented further changes in their home environment, in addition to the suggestions made on their initial home visit with the occupational therapist, to reduce their risk of falling.

Falls clinic

There are few reports of falls clinics in the literature (Wolf-Klein, Pascaru & Pi-Huai 1988; Hill 1994) however the Emergency Department staff at Ryde articulated the need for such a clinic, as it was recognised that the effect of a fall was always given a higher

priority than its cause. This has been described elsewhere (Kiel 1993). It was felt that patients presenting to the emergency department with a fall would be at high risk of further falls, and would be ideally suited to being investigated in a structured, multidisciplinary fashion. As there is a lack of hard evidence for the benefit of a multidisciplinary falls clinic, it was felt the clinic should be structured according to the resources and specialist knowledge available.

The clinic is designed as an open access clinic for the Emergency Department resident medical officers, and referral of any older patient who has had a fall is encouraged. In the clinic, a geriatrician, occupational therapist, physiotherapist and registered nurse assess each patient. In addition tilt-testing and (in the absence of contraindications) carotid sinus massage is performed. The multidisciplinary team then discuss their findings, inform the patient's general practitioner of a management plan and, where necessary, refer on to an appropriate service, which may include community occupational therapy, exercise and balance classes, optometry or cardiology services.

At the time of publication, 36 patients have been assessed in the clinic, with an average age of 79.3 years. Of these fallers, 69.4% have described recurrent falls. Table 1 outlines some of the principal problems described.

Table 1: Principal problems described; Falls Clinic, Ryde Hospital

Problem	Frequency
Orthostatic hypotension	44%
Cardioinhibitory carotid sinus syndrome	14%
Presence of at least one potential culprit medication	78%
Presence of two or more medications	47%
Presence of urinary problems	44%
Presence of intrinsic problems of gait, strength or balance	50%

Some form of potential attributable diagnosis for falling was described in 89% of patients attending the clinic.

As can be seen from the list of problems in Table 1, these patients are ideally suited for review by a multidisciplinary team. Cardiovascular diagnoses such as orthostatic hypotension and carotid sinus hypersensitivity are common, potentially remediable and, if not looked for, will be missed (McIntosh, Da Costa & Kenny 1993). At the same time, review of medication and assessment of gait and balance is mandatory in any falls assessment. Urinary incontinence is also associated with falls risk (Tinetti et al. 1995).

Conclusion

The results of the falls initiative at Ryde Hospital and in the Ryde/Hunters Hill area support the contention that taking an outcomes approach can result in tangible achievements. Developing and implementing strategies to meet local needs requires that processes be put into place that are supportable. At the earliest stage, recognition of the lack of dedicated resources available to support this program was not in itself seen as a deterrent to any of the principles involved.

It is our contention that the willingness of existing staff to reallocate priorities and existing resources is representative of the importance placed on establishing a robust preventative framework for managing a previously unmet need in this organisation. Awareness of the importance of establishing such a framework, and the change in culture that has resulted, has meant that the program has acted as a catalyst for other initiatives. The additive nature of the program has enhanced existing networking within the organisation and the local community. It is important that community groups such as the Medicine Information Project and the local Division of General Practice have seen the benefit of being involved in the broader context.

The development of a framework for this initiative has supported the risk management strategy of the organisation. Education of staff and patients is a first step, and is by no means unique, however the falls team and the clinic provide a more holistic approach to this problem. The early evaluation of the program has given reason for us to believe that the critical factors of participation and knowledge gain have been substantially improved. Unit managers are more aware of prevention as a critical risk management strategy. All managers are required to include outcomes as a key factor when preparing their business plans.

So, would we recommend that we do this in any other way? The answer is probably no; however success does depend upon the initiative and support of staff who are already stretched. Staff have to be reminded of the need to ensure that their expertise is transportable to others. The early development of the educational component of the program gives strength to its perpetuation. If there are any gaps in the program they would be, firstly, in the area of ongoing community follow-up to the education program. We hope to introduce a one or two-month review in patients' homes (a 'wellness' visit). Secondly, formal evaluation is desirable, in which we could review each patient's functional status over time. We already have well established links with general practice, with increasing referral to the clinic, however, there is much more to do in this area, with particular reference to general practitioners' support of our preventative strategies. We are currently looking at adding a home care telecommunication support component to this program, but this is still in the melting pot.

It must be stressed that some results, particularly from the falls clinic, can only be described as a pilot study. What has been successfully demonstrated is the feasibility of organising multidisciplinary approaches to investigate patients who fall. The next stage

would be to organise further assessments of the outcomes of the initiative. Randomised controlled trials to investigate the efficacy of some of the components of the initiative should also be conducted.

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