



Quality Project Report

Who falls in an adult emergency department and why—A retrospective review

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ABSTRACT

Introduction: Falls are a significant source of healthcare related morbidity and mortality of patients in hospitals and residential healthcare settings. Commonly falls are thought of as an affliction of the elderly and the frail. The emergency department (ED) is a unique healthcare setting that sees patients in the acute and hyper acute stages of physical and mental illness and intoxication. Falls occur in this setting, however there is little knowledge about the factors that influence falls in the emergency department.

Methods: This study was conducted in a large inner city, tertiary ED. Data was collected from the electronic incident management system for the period of time 2011–2015 and additional information was extracted from the patient's medical record.

Results: During the study period a total of 190 fall incidents at a fall rate of 0.63 falls per 1000 presentations. 95.7% of these falls resulted in no or minimal harm to the patient. Patients who fell in the emergency department were younger than previously identified in other settings. The use of high-risk medications, recreational substances and alcohol was prevalent throughout the ED falls population. The most likely time for a patient to fall was during mobilisation, especially to the bathroom.

Conclusion: Falls occur in all healthcare settings, which include the ED. The cohort that falls in the ED is younger than in other settings and is more likely to have ingested recreational substances such as alcohol. A rethinking of falls risk specific to the emergency department needs to occur, along with further research into ED related falls.

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Introduction

Falls are a common occurrence in healthcare settings and are frequently associated with a predictable set of risk factors [1–6]. The most common of these predictive factors are the infirmity and frailty associated with older age [2,4–6]. Falls are a major contributor to the burden of healthcare associated errors, increasing costs associated with healthcare and increasing preventable morbidity and mortality. The emergency department (ED) is a unique clinical environment within the healthcare setting. Patients presenting to the ED are commonly in the acute and hyper acute stages of physical illness, mental illness and intoxication. Given the differences between the ED and inpatient populations it is a reasonable hypothesis to make that there may be differences in the populations that fall in these settings.

Who falls in the inpatient hospital setting?

A number of common factors have been identified in the population that falls in the inpatient setting. While rates of falls in this setting vary widely from 3.16 falls per 1000 patient days [6] to 7.00 falls per 1000 patient days [4] the demographics associated with inpatient falls are relatively consistent. Multiple studies have shown a close association between age [2,4–7] and sex [2,4,6–8]. Patients over the age of 70 years are the most commonly represented group with multiple studies showing that the mean age of patients that fell was over 70 years [2,4,5,7]. One study observed a mean age of less than 70 years when taking into consideration the entire age spectrum (including paediatrics that fell) however, the most represented group were still those patients over the age of 65 [3]. One study showed the highest number of falls in the 51–60 age group [6]. Males appear to be more likely to fall in the inpatient setting with four studies finding a disproportionate number of males falling compared to females [2,6–8]. The activity the patient was completing when they fell and the time of day they were attempting this activity seem to have association with falls. Patients were most commonly toileting [3,5,6] overnight [2,4,5] when they fell. A number of medication and non-medication based predictive

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patient factors have been identified in those patients that fall in the inpatient setting. Non-drug predictive factors included impaired mobility [4], impaired mental status [4,5], history of falls [4], specific disease processes such as cancer [2], altered elimination [4] and non-compliance with health care workers instructions [5]. A number of medications have been identified as Fall Risk Increasing Drugs (FRID's). These drugs have included anti-hypertensive and other cardiovascular drugs, psychotropic drugs (sedatives, antidepressants and neuroleptics) and other drugs such as analgesics [9–13].

Patients in the hospital setting that were most likely to fall have been described as older (above 70 years), male, with impaired mobility or cognition, taking a medication that affects their central nervous system and it is most likely to occur at night when the patient is attempting to go to the toilet. This set of factors forms the common picture of the patient that falls in healthcare setting, however taking this information and generalizing it to the ED may not represent emergency department population.

Who falls in the emergency department?

The patient that falls in the inpatient hospital setting has been well described. The population that falls in the ED setting has been less well described. Five studies have specifically looked at falls in the ED setting with three of these specifically looking at the validity of two falls assessment tools [14–16]. Falls in the ED have been similarly described in terms of ED, age, sex, and timing of the falls, medication and non-medication predicting factors.

Fall rates in the ED varied widely as they did for the general hospital population from 2.89 falls per 1000 visits to 0.031 falls per 1000 visits [15,16]. The age of patients that fall in the ED would appear to be younger than the general population. Two studies have identified the mean age of patients falling in the ED as 50 years [15] and 50.3 years [16] with only one study identifying the majority of patients falling being over 65 years [17], however this study was conducted 26 years ago and may no longer represent the modern ED environment. Studies have showed that males are once again more likely to fall than females. Larger percentages of males were seen in the ED with reports of 67% [15] and 66% [16] males. Similarly to the general hospital population less falls seem to occur in the morning (between 0600 and 1200) [15] but 40% were likely to occur in the first 3 h and 25% in the first hour of care [14].

Predicting factors were once again broken down into medication and non-medication factors. Non-medication factors were almost entirely associated with alcohol intoxication [14–17] and altered mental state [14]. Medication factors included previously identified FRID's such as sedating drugs [15] but added illicit drug use [16]. The association between other FRIDs such as antihypertensives and benzodiazepines has not been studied.

There is limited evidence to describe who falls in the ED. The evidence that exists would suggest that the population that falls in the ED is younger, more likely affected by alcohol or other illicit substances and is more likely to fall in the first few hours after arrival in the ED however further study into this is required.

Methods

Aim and research questions

It has been previously identified that the cohort of patients who fall in the ED may be different to those that fall in the healthcare environments. The aim of this study was to assess who falls in one large tertiary ED over a period of five years. This would include identifying the factors associated with those patients that fall and comparing these with previously published work on falls in health-

care environment. This leads to the research questions: Who falls in the ED? And what factors are associated with falls in the ED?

Study design, setting and sample

This study is a retrospective, observational study initially conceived within a quality paradigm using quantitative data. This study was conducted in a large inner city, tertiary ED that sees approximately 60000 adult (16 years and over) presentations per year. For the period of time studied the department saw a total of 293,000 presentations. All patient related incidents are reported through an electronic incident reporting system that is accessible to all staff. Staff are strongly encouraged to report all patient incidents (including falls) into this system. All reported incidents are reviewed and investigated as appropriate by the line manager of the area in which they occurred. Data was collected from this system for the period of time 2011–2015 and additional information was extracted from the patient's medical record. Data was excluded from reported falls which did not occur within the ED. An ethical exemption was granted by the hospital ethics committee for the conduct of this study.

Data collection procedure

Falls were identified through the electronic clinical incident system. The patient demographic details, fall type, location and outcome of the fall were all extracted electronically from this system. Patient arrival times, medications ingested, current prescribed medication and risk factors for falling were extracted from the patient medical records. Data was collected electronically and entered into an Excel© (Microsoft Corporation) spreadsheet. Data was coded and then exported into SPSS v21 (IBM corporation) for analysis.

Data analysis

Descriptive statistics were presented for all of the collected variables. Means and standard deviations are presented for all continuous variables; frequencies are shown for categorical variables. Rate of falls per 1000 presentations are presented over time and time to fall is also presented.

Results

During the period of January 2011–December 2015 a total of 190 fall incidents were reported in the ED. Six were excluded as they occurred at the patient's residence. This equates to a fall rate of 0.63 falls per 1000 presentations. The yearly breakdown and yearly falls rate are summarised below (Table 1).

The majority of patients that fell in the ED were toileting (33.2%). Other functions that patients were completing when they fell were; resting (12%), standing (5.4%), walking (4.9%) and dressing (3.8%). Patients were most frequently going from sitting to standing when they fell with (48.9%). The fall was witnessed 45.9% of the time. Falls were most likely to occur in a treatment cubicle (acute, short stay or resuscitation) 75.1% or in the bathroom 10.3% of the time.

No harm was sustained in 63.6% of all falls recorded. Minimal harm, (defined as no long term physical effect to patient, first aid provided, short term pain or distress) was sustained in 32.1% of the recorded incidents¹⁸. Temporary harm (defined as a full recovery is expected over a period of time, this includes physical and psychological harm with additional procedure required, increased LOS, increased observations) was recorded in 4.3% of the time [18]. A soft tissue injury occurred to 16.8% of the population who fell, a laceration 17.9% of the time and other injuries such as chipped teeth, fractures and head injuries occurred less than 3% of the time.

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