



Feature Article

Patient falls in hospitals: An increasing problem

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ARTICLE INFO

Article history:

Received 24 June 2015

Received in revised form

8 July 2015

Accepted 13 July 2015

Available online 22 August 2015

Keywords:

Patient falls

Hospital safety committees

ABSTRACT

Despite six decades of worldwide efforts that include publishing virtually hundreds of related epidemiological-type studies, there has been an increase (estimated to be 46% per 1000 patient days from 1954–6 to 2006–10) in the number of patient falls in hospitals and other health care facilities. These still occur most frequently near the bedside or in the bathroom, among mentally confused or physically impaired patients, and often involve those with greater comorbidity. The reasons that hospitals during the past half century have demonstrated a significant increase in patient falls per discharge or per patient days are numerous, are not completely surprising, and are certainly interrelated: improved accident reporting systems; on the average older, more impaired, more acutely ill, and more heavily sedated patients; and, less time spent by nursing personnel at the bedside. Most safety committees are not as effective as they should be, since they have difficulty in implementing a long-term, aggressive, facility-wide prevention program. Within that context, it may be worthwhile to discuss the advantages of nursing leadership rather than a representative of the facility's management staff to chair these safety committees.

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Over the past six decades, patient falls have been the focus of literally hundreds of published studies, each one of them focusing on acute and other health care facilities becoming safer environments. This half century is generally considered historically to be an unusually productive period where western industrialized nations have experienced significant enhancements in the medical sciences; and, as a result of these advances, major modifications were needed and then implemented on how providers are to be reimbursed by third-party payers. Therefore, the question arises: In this “new environment,” why has the vast number of epidemiological studies of patient falls not led the way to significantly fewer discharges without a prior incident?

In the mid-1950s, there were just a few studies of patient falls in the literature.^{1–3} Since then numerous reports have been published around the world spanning Australia,⁴ Canada,⁵ Israel,⁶ Italy,⁷ Spain,⁸ Switzerland,⁹ Taiwan,¹⁰ and the United Kingdom (U.K.).^{11,12} If you review the references of just one American¹³ and one U.K.¹⁴ paper, it is easy to conclude that since the mid-1950s, virtually hundreds of such studies have been added to the literature. Certainly this suggests that patient falls is a topic that has generated considerable interest particularly among physicians and nurses, who want to assure the public that their health care

facilities offer a safe environment where they receive quality patient care.

Unfortunately, inpatient falls are relatively common, some of them considered avoidable, and only a few of them resulting in a serious injury and a prolonged hospital stay. It is in this context of assuring patients in various health care facilities of improved safety, that the purposes of this paper are to analyze: (a) whether during the last six decades their incidence per discharge or patient days has decreased or not?; (b) whether the pattern of patient accidents has significantly changed, and if so how?; and, (c) what still needs to be accomplished to make our health care facilities a safer environment? A proposed outcome of all these efforts should obviously be fewer patient falls as the employees of various health care facilities became better informed about their causation.

Some findings in the 1950s compared to today

To undertake an analysis of patient falls in the 1950s compared to more recently, some annual accident rates reported in the literature have been selected for review at the outset for study:

According to the incident reports (most often nurses filling out a special form by hand) at Mount Sinai Hospital (New York City) during the years 1954 through 1956, there were 2036 patient falls.¹ There were 70,048 admissions to the hospital during the three years included in this study, suggesting an accident rate of 28.5 incidents per 1000 patient admissions or 2.5 accidents per 1000 patient days. These rates compared favorably with Williams'

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findings (1947)² at the University of Illinois Hospital and are consistent with a survey of a group of British hospitals after World War II.³

Over the last several decades, there have been a significant number of studies (rarely providing average length of stay) focusing on the incidence of hospital patient falls and offer these findings:

- a. Reported were 18.4 patient accidents per 1000 admissions during a twenty-two month period (1981–82) in a study based in a U.S. 152-bed acute specialty hospital¹⁵;
- b. Reported were the rates of falls per 1000 admissions in the psychiatric, elder care, and rehabilitation departments in 1998 in a 2000 bed Israeli teaching hospital and they were significantly higher than in an earlier period (1978–81).¹⁶ Rates of 115, 91, and 85, respectively, per 1000 admissions were cited in 1998 compared with 34, 9, and 19, respectively, in the 1978–81 period. The percentage of reported falls in the young age group (under 50 years of age) was also significantly higher in the 1998 survey;
- c. Reported in fiscal year 2000 were 75.0 incidents per 1000 admissions, after randomly selecting one teaching, one large community, and two small community hospitals in five Canadian provinces⁵;
- d. Reported were 2.63 falls per 1000 patient days based on a study from 1997 to 2002 in an U.S. academic acute care hospital¹⁷;
- e. Reported were 7.5 falls per 1000 admissions in a 300-bed urban public hospital in Switzerland from 1999 to 2003.⁹ There were huge differences in rates per 1000 admissions by service: geriatrics 24.8; internal medicine 8.8; and, surgery 1.9;
- f. Reported were 3.1 falls per 1000 patient days during January 2001 through June 2002 at a large U.S. academic teaching hospital¹⁸;
- g. Reported were hospital patient accidents of 4.4 per 1000 patient days in 2002 in Taiwan¹⁰;
- h. Reported were findings from a study undertaken in the U.K. from September 2005 through August 2006 of almost 500 institutions (a mix of acute hospitals, community hospitals, and mental health units), the mean standardized rates of falls per 1000 patient days were 4.8 in acute hospitals, 2.1 in mental health units, and 8.4 in community hospitals¹¹; and, finally,
- i. Reported was a mean fall rate of 3.65 per 1000 patient days during a 54-month period (July 2006–December 2010) in a longitudinal study with a sample of 1524 hospitals participating in a National Database for Nursing Quality endeavor.¹⁹

Although there is significant fluctuation among the above findings, one should conclude that over the last half century that hospitals and other health care facilities have generally experienced an increase in the number of patient falls per 1000 admissions or days. If you compare the 1954–56 Mount Sinai Hospital data¹ to a broad-based study a half century later,¹⁹ it is estimated that there has been a 46% increase in patient falls per 1000 patient days.

The probable reasons are voluminous and are discussed later.

High-risk factors related to patient falls

There are several repeating themes, whether it was in the 1950s or most often replicated recently, that either delineate key factors or describe specific-types of patients who most frequently experience falls. In fact, there has been minimal changes over the last half century in the profile of the patient who frequently has an incident. It is critical to study these somewhat distinct variables, all of them needing to be considered when developing a sound patient safety program for any health care facility:

- a. A few key variables in studying patient accidents. The Mount Sinai Hospital study¹ using mid-1950 data found that twice as many falls occurred among males as females. But more critical is the incident rate among patients admitted to a ward (a Florence Nightingale-type accommodation of six or more patients in one room) was 34.9 per 1000 admissions as compared to a rate of 28.6 for semi-private (usually a two-bedded room), 10.4 for private (a single occupant), and 5.7 for obstetrical patients. Noteworthy, the very young and the old had the most accidents even when adjusted for days of patient exposure. Fortunately, 90% or more of hospital falls resulted in “no detectable” or a “slight injury,” and less than 5% resulted in a serious trauma.
- b. Time of day for most falls. Is night time, when less personnel is around, the period of more frequent patient falls? Contrary to general opinion, more accidents occurred at Mount Sinai Hospital during the day shift than at any other time.¹ Most bedside falls, a result of patients getting out of or returning to bed, however, happened at night. This may be explained by the fact that more patients are in bed at night, fewer personnel are on the floors, and darkness may be a psychological cause during these hours.
- c. Cognitive factors. An Australian study⁴ in large Melbourne teaching hospital reported that the Diagnosis Related Group (DRG) with the highest proportion of falls (24%) was “dementia and other disturbances of cerebral function;” and, these patients had a significantly longer average length of stay and a higher cost per discharge. These findings replicate the earlier Mount Sinai Hospital study¹ where patients with neurologic, psychiatric, and orthopedic diagnoses on admission were involved in significantly more incidents than expected.
- d. Patients who have one fall are prone to experience another soon thereafter. There is reasonably solid evidence^{1,9,11,15} that if a patient has one fall there is more than a reasonable chance they will soon thereafter have another. During the three-year study at Mount Sinai Hospital,¹ roughly ten percent (9.7%) of the patients having an accident accounted for 23.3% of all the falls included in the study. Approximately half of the repeated falls occurred within five days of the first incident.

These findings were repeated in a 152-bed acute hospital study during 1981–2,¹⁵ where patients that had fallen once had a subsequent fall rate of 91.7 per 1000 admissions compared to an overall rate of 18.7 for first falls. Half of all these falls occurred in or in route to a private bathroom that was part of the patient room. The trend toward private rooms with baths and greater emphasis on patient ambulation may have simultaneously increased exposure to accidents to, in, and back from a bathroom. What needs some further study is whether the current trend of patients maintaining function and physical activity is a major factor in these repeated accidents?

- e. Location of patient accidents. In the Mount Sinai Hospital study,¹ the most falls occurred at the bedside (61.0%); in the bathroom (11.5%); in the hallway (11.1%); and, in the outpatient department (3.1%). It is estimated that 65% of all patient falls occurred in the patients' rooms or in wards within a 10 foot radius of the patient's bed. These early findings of where falls arise most frequently were replicated in a number of more recent studies.^{9,15,16}
- f. Most falls result in minor injury. In a study⁹ conducted in a 300-bed urban, public hospital in Switzerland from 1999 to 2003, two-thirds of the patients who fell sustained no injury. In 30.1% and 5.1%, respectively, minor and major injuries were observed. Not surprisingly, there was a twofold increase in the proportion of patients in the geriatric department who experienced major injuries compared to the department of internal medicine. The

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