Falls Rates Improved in Southeastern Pennsylvania: The Impact of a Regional Initiative to Standardize Falls Reporting

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ABSTRACT

The Pennsylvania Patient Safety Authority and the Health Care Improvement Foundation (HCIF) partnered in 2008 to establish a falls reporting initiative to assist hospitals in their falls prevention efforts. Following the development of standardized definitions for falls and falls with harm, the initiative provided participating hospitals with two full years of deidentified comparison reports to measure and benchmark progress with falls prevention. Most significantly, the reports revealed five uninterrupted quarters of steady decline in rates of falls with harm. The Authority and HCIF hypothesized that this decline was the result of effective interventions and approached those hospitals that showed steady improvement to learn more about their falls prevention programs. The assessment revealed that several regional hospitals had implemented effective and innovative strategies as a result of the benchmarking data to boost their existing falls prevention measures. To continue the improvement realized through this initiative, the Authority is moving forward with a statewide reporting initiative that includes a modification to the Authority's reporting system to track falls and to provide facility- and unit-level falls data from both the inpatient and outpatient settings. The Authority has also partnered with the Hospital and Healthsystem Association of Pennsylvania in the Hospital Engagement Network of the Centers for Medicare and Medicaid Services as part of the Partnership for Patients initiative and will attempt to reproduce the success that the data collection and reporting initiative achieved in the southeastern region of Pennsylvania. (Pa Patient Saf Advis 2012 Jun;9[2]:37-42.)

INTRODUCTION

Falls are the leading cause of injury-related deaths and nonfatal injuries among older adults in the United States.[1] They result in traumatic brain injuries and most of the fractures suffered by older adults. In 2010, there were nearly 36,000 patient falls reported to the Pennsylvania Patient Safety Authority.[2] Likewise in 2010, patient falls accounted for 16% of all reported events and 15% of all Serious Events, including 16 patient deaths statewide.[2] Because falls with injury represent the most frequently reported hospital-acquired condition and are one of the most frequently reported adverse patient events in Pennsylvania, they continue to represent a significant patient safety challenge for many hospitals.

In 2008, the Health Care Improvement Foundation (HCIF) and the Authority partnered to provide 29 southeastern Pennsylvania hospitals—representing teaching and community-based acute care hospitals, behavioral health hospitals, and rehabilitation hospitals—with comparison reports that measured and benchmarked rates for falls and falls with harm. The main goal of the reporting initiative was to confront the problem of falls by providing reliable data. To do that, the Authority and HCIF prospectively worked with the participating hospitals to develop standardized definitions that would enable consistency in the data set. The data from participating hospitals was gathered using event reports submitted through the Pennsylvania Patient Safety Reporting System (PA-PSRS), and patient-days data was gathered from submissions to the Delaware Valley Healthcare Council (DVHC) of the Hospital and Healthsystem Association of Pennsylvania (HAP). Eight quarters of data were collected from October 2008 through September 2010, and rates of falls and falls with harm were calculated and distributed to each of the participating hospitals.

THE REPORTING INITIATIVE

Definitions

Beginning October 1, 2008, the 29 hospitals committed to reporting falls and falls with harm using standardized definitions to reduce variability in falls reporting (adverse or near-miss events) in the southeastern Pennsylvania region. These definitions were developed by a falls prevention task force under the leadership of the Partnership for Patient Care* and were developed to be consistent with the definitions used by the American Nurses Association's National Database of Nursing Quality Indicators in order to eliminate duplicate data collection and to enable comparisons against national benchmark data on falls. The standardized definitions were as follows:

— A *fall* was defined as "any unplanned descent to the floor (or any other horizontal surface such as a chair or table) with or without injury to the patient." The definition included "assisted falls," in which a caregiver saw a patient about to fall and intervened, lowering them to a bed or floor, and "therapeutic falls," in which a patient fell during a physical therapy session with a caregiver present specifically to catch the patient in case of a fall. The definition excluded "failures to rise," in which a patient attempted but failed to rise from a sitting or reclining position.

* The Partnership for Patient Care is a collaboration among HCIF, the hospitals in southeastern Pennsylvania, Independence Blue Cross, and ECRI Institute to accelerate the effective adoption of evidence-based clinical practices by pooling the resources, knowledge, and efforts of hospitals and other key stakeholders.

— A *fall with harm* was defined as "any fall that required more than first aid care." This definition included falls that resulted in a laceration requiring Steri-Strips, skin glue, sutures, or splinting; a more serious injury; or death. The definition excluded falls that required no intervention or only first aid care, such as limb elevation, cold compresses, or bandages.

Comparison Reports

Deidentified quarterly comparison reports were developed and distributed to the 29* participating hospitals from the fourth quarter of 2008 through the third quarter of 2010. Of the 29 hospitals, 25 were included in the distributed data and received quarterly comparison reports of both falls and falls with harm. Three of the hospitals subsequently did not agree to the definition of falls with harm, and one hospital did not report any falls events. Although not included in the data, the three hospitals that did not agree to the definition of falls with harm were provided with falls data along with calculated hospital-specific falls rates to allow for comparison with the 25 hospitals included in the data and with the overall mean rate. The one hospital that did not report any events throughout the reporting initiative did not receive any reports.

Falls Survey

For a better understanding of the falls prevention programs implemented by the hospitals engaged in the reporting initiative, a survey was distributed in February 2011. The survey was completed by 13 patient safety officers or leaders of falls task forces. Responses to the survey suggested that the most common causes of falls within the hospitals included the following:

— Patients fail to call for assistance
— Bed alarm not set
— High-risk medications
— Poor communication between staff
— Inadequate patient and family involvement or education
— Inadequate staffing
— Inadequate patient assessment
— Call bell out of reach
— Delayed response to call bell
— Inadequate footwear

Results

For those hospitals that fully participated in the reporting initiative, falls rates were used to track and monitor progress. Falls rates were calculated using falls events reported through PA-PSRS that met the definition of falls (i.e., those without harm) or falls with harm and the number of patient-days as reported by DVHC. Rates for falls were reported per 1,000 patient-days, and rates for falls with harm were reported per 100,000 patient-days. (See "Method of Calculation for Rates of Falls and Falls with Harm.")

Checks for data validity were performed and included searching event report narratives for references to fractures, sutures, or Steri-Strips to ensure that the events were appropriately categorized as falls with harm using the criteria outlined by the standardized definitions. In most quarters, at least one reported event originally designated as a fall met the definition for a fall with harm and the data was adjusted accordingly.

Event report narratives were an important component in determining the severity of patient falls. Narratives that described circumstances of the events, such as patient location and activity at the time of the fall or patient risk factors (e.g., medications), provided insight into the possible causes of patient harm. However, incomplete narratives, such as "patient found on floor," "patient threw himself out of bed because he was mad," and "patient found on floor having rolled out of bed; hip pain," provided less opportunity for complete event analysis.

During the total reporting period, the participating hospitals reported 14,571 falls events to the Authority. By the aforementioned definitions, falls comprised 14,192 (97.4%) of these events—including near misses—and falls with harm comprised 379 (2.6%) of these events. The most common injuries were lacerations, fractures, and head traumas. Four events resulted in patient death; however, one death was not directly related to the fall. In the remaining three events, the patients died as a result of the fall. One patient, status post hip fracture, died as a result of a fall, another sustained an intracranial bleed, and the third developed a pulmonary embolism secondary to a complex fracture from a fall.

Mean rates of falls and falls with harm were calculated and distributed quarterly to allow participating hospitals the ability to compare their rates and progress with that of the other participating hospitals over the eight-quarter reporting period.

METHOD OF CALCULATION FOR RATES OF FALLS AND FALLS WITH HARM

$$\text{Rate of Falls} = \frac{\text{Number of patient falls} \times 1{,}000}{\text{Number of patient days}}$$

$$\text{Rate of Falls with Harm} = \frac{\text{Number of patient falls} \times 100{,}000}{\text{Number of patient days}}$$

* During the reporting initiative, two hospitals within the same health system reported falls events jointly. As a result, these two hospitals were represented as one for the duration of the program. Falls rates were calculated based on patient-days from both facilities.

Figures 1 (rates of falls) and 2 (rates of falls with harm) illustrate the falls rates for the 25 participating hospitals during the total reporting period. Figure 1 shows that there was a gradual increase in the falls rates after the third quarter of 2009, which may be indicative of the commitment to reporting falls events to the Authority. Of note in Figure 2, there were five uninterrupted quarters of steady decline in rates of falls with harm from the first quarter of 2009 (12.5 per 100,000 patient-days) through the first quarter of 2010 (7.5 per 100,000 patient-days).

However, event reporting patterns for five hospitals were inconsistent during the reporting initiative. Figure 3 shows the mean rates for falls and falls with harm for the 20 hospitals that consistently reported falls and falls-with-harm events. In these hospitals, falls rates remained rather consistent, with an overall mean rate of 3.92 falls per 1,000 patient-days; the data for falls with harm shows that there were three uninterrupted quarters of decline from the third quarter of 2009 (14 per 1,000 patient-days) through the first quarter of 2010 (6 per 100,000 patient-days).

Further analysis of the collected data identified probable risk factors contributing to falls events and patient harm, including the following:

Harm from falls occurred in older patient age groups. The Authority's findings were consistent with those reported by the Centers for Disease Control and Prevention affirming that falls are the leading cause of injury-related death and nonfatal injuries among older adults,[1] as well as consistent with the expectation that harm from falls more commonly occurs in older patient age groups. The findings also emphasized the age ranges at which patients were most vulnerable to harm. See Figure 4, available exclusively with this article online at http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2012/Jun;9(2)/Pages/home.aspx.

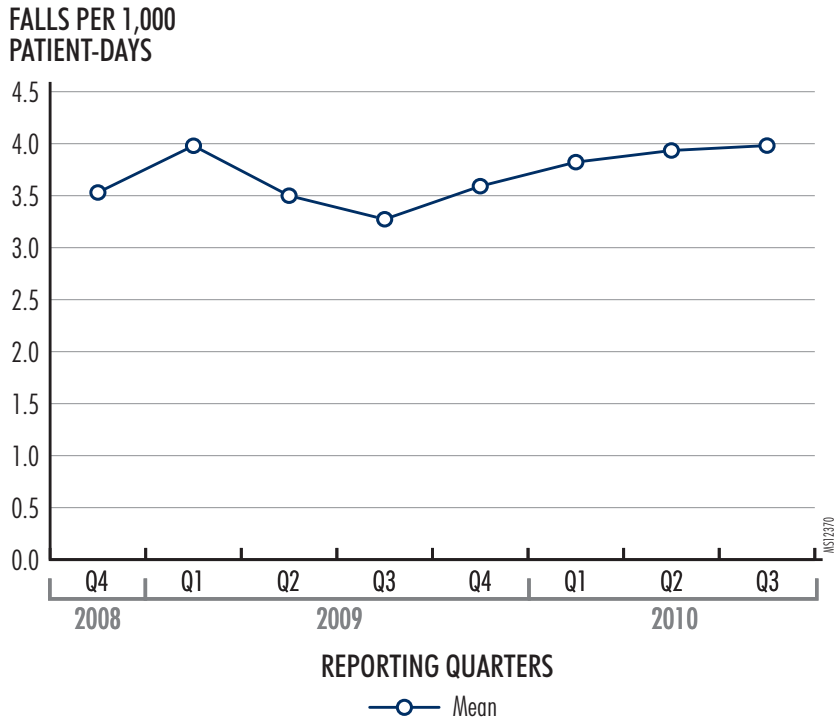
When combining age groups 0 to 24 and 25 to 44, 1% (n = 24) of the reports described a harmful event as compared with nonharmful events; however, there was a two-fold increase by percentage to 2% (n = 100) in the falls associated with harm for ages 45 to 65 and almost another two-fold percentage increase to 4% (n = 255) in patient harm for ages 66 or older.

Falls were common in certain patient care areas. Although patient falls occurred throughout various areas of each hospital, fall events (with and without harm) were mainly reported from the following units: medical/surgical (31%), intermediate (e.g., medical/surgical, cardiac, telemetry) (20%), critical care (including the emergency department) (11%), behavioral health (10%), and rehabilitation (9%). Injuries sustained from falls at the unit level were reported as follows: behavioral health units (3.5%), intermediate units (2.8%), general medical/surgical units (2.6%), and specialty units (e.g., orthopedics, oncology) (2.6%).

Patient harm was linked to several event types. Of the patients who sustained injuries from falls, 37% were found on the floor, 20% were ambulating, 16% were toileting, and 9% were sitting. In the remaining 18% of events, patients fell from lying in bed, transferring, being assisted, or falling from a stretcher or examination table, usually in the radiology department. (For additional information on falls in radiology, see the March 2011 *Advisory* article "Falls in Radiology: Establishing a Unit-Specific Prevention Program" at http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2011/mar8(1)/Pages/12.aspx.)

Risk assessments and falls precautions influence patient harm events. The falls survey distributed to the participating hospitals revealed that the most commonly used assessment tools were the Hendrich

Figure 1. Mean Falls Rates of 25 Participating Southeastern Pennsylvania Hospitals from the Fourth Quarter of 2008 through the Third Quarter of 2010



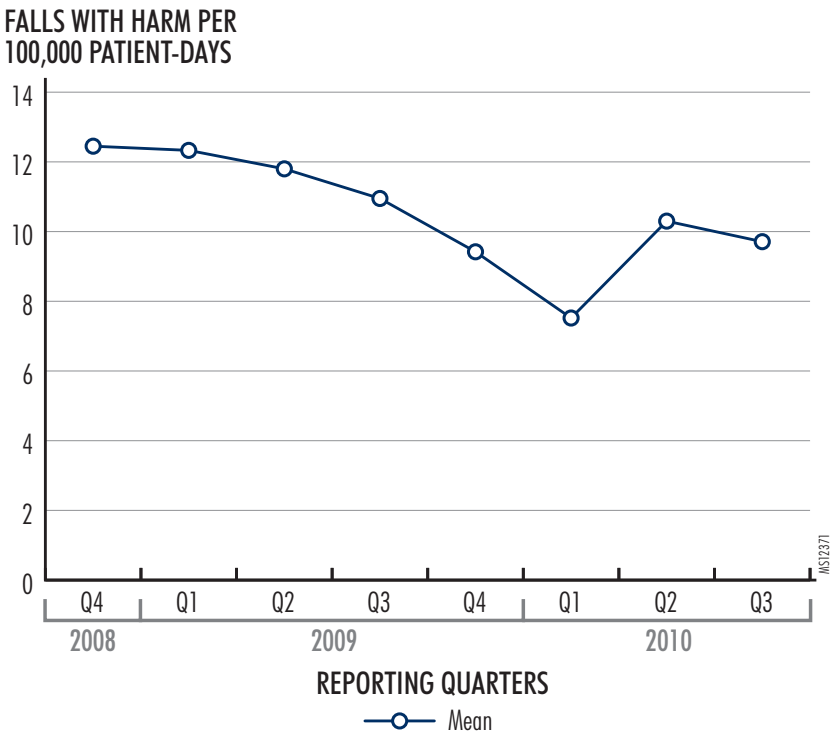
Fall Risk Model, Morse Fall Scale, and facility-developed tools. During the reporting period, about 81% of patients who fell (with or without harm) had a falls risk assessment performed. However, 4% of patients who were injured from a fall were not assessed for potential risk factors, and the falls risk assessment was unknown or not given for 15% of these patients.

The data also suggests that falls precautions were implemented before about three-fourths of all falls events. Twelve percent of patients who were injured did not have precautions in place, and implementation of falls precautions were unknown or not given for 13% of the patients who were injured. The Table illustrates, by quarter, the relationship between the performance of a falls risk assessment and the implementation of falls precautions. Most patients who did not have an injury (71%) had both a risk assessment and implemented precautions in place, and of the patients who had an injury, 14% had neither an assessment performed nor precautions implemented.

Risk assessments were performed in older age groups. Although age should not be a determining factor as to whether a falls risk assessment is performed, the data demonstrated that risk assessments were performed more commonly on elderly patients than on younger patients. In the 0-to-24 age group, 67% of those who fell with no injury had been assessed and only about 40% of patients who sustained an injury had an assessment performed. These results may indicate that risk assessment protocols may be needed to identify children and young adults who are at risk for harmful falls. See Figure 5, available exclusively with this article online at http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2012/Jun;9(2)/Pages/home.aspx.

Medications contributed to patient falls. Medication-induced falls accounted for 3% of the reported falls. The most common medications to contribute to patient falls included benzodiazepines, opiates, antipsychotics, and cardiac medications. About 2% of patients sustained an injury as a result of a medication-induced fall within each of these medication categories. Eighty-one percent of patients who fell without an injury had been assessed for a potential medication-induced fall, and 10% had not been assessed. Similarly, 81% of those who fell and sustained an injury had been assessed for a potential medication-induced fall, and 5% had not been assessed. This data suggests that there is opportunity for better compliance with assessing falls risk, particularly when the aforementioned medications are administered. (For additional information on the role of medications in fall prevention, see the March 2008 *Advisory* article "Medication Assessment: One Determinant of Falls Risk" at http://patientsafetyauthority.org/ADVISORIES/AdvisoryLibrary/2008/Mar5(1)/Pages/16.aspx.)

Figure 2. Mean Falls-with-Harm Rates of 25 Participating Southeastern Pennsylvania Hospitals from the Fourth Quarter of 2008 through the Third Quarter of 2010

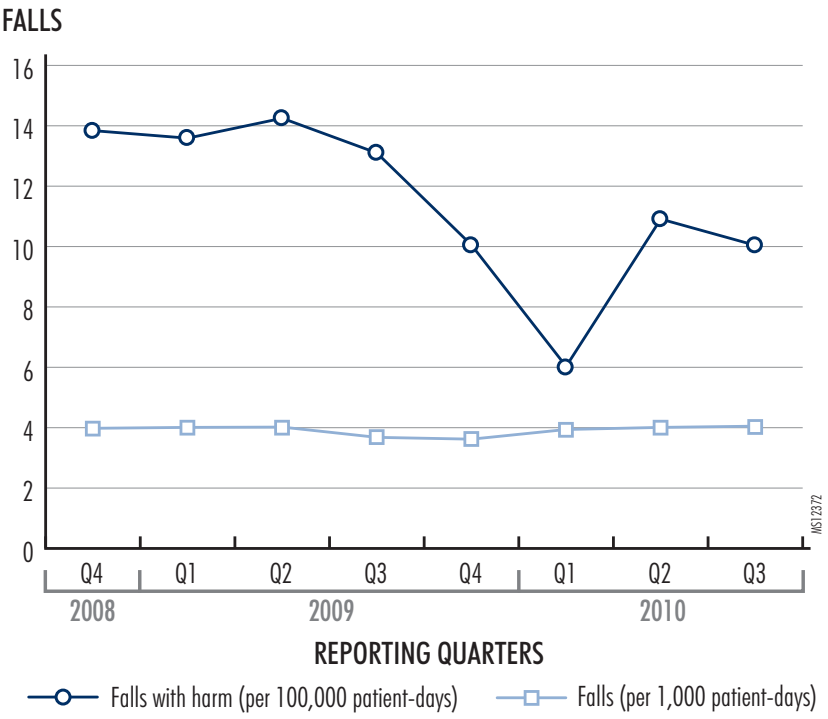


THE SEARCH FOR INNOVATIVE SOLUTIONS

Despite hospitals' ongoing efforts, falls continue to occur and pose a difficult challenge. With the accumulation of evidence on both the frequency and severity of falls, the recognized risk to patient safety, and the impending financial impact to hospitals for certain hospital-acquired conditions, there is an urgency to reduce the occurrence of this patient event.[3,4]

Following data review, it became clear that some hospitals were seeing significant improvements in reported rates of falls with harm. Although the overall mean rate of falls continued to rise in the latter four quarters of the 25-hospital data set and was rather consistent in the 20-hospital data set, there was a substantial reduction in the rates of falls with harm in both scenarios presented. To explore the validity of this finding, visits were made

Figure 3. Mean Falls and Falls-with-Harm Rates of Participating Southeastern Pennsylvania Hospitals that Consistently Reported Events from the Fourth Quarter of 2008 through the Third Quarter of 2010



by a designated patient safety liaison from the Authority to assess falls reporting and falls prevention programs in each of the hospitals where data suggested an improvement in the rate of injurious falls.

During the on-site hospital visits, it was evident that there were core elements common to nearly all of the assessed falls prevention programs. These "bundled" elements typically included the following:

- Establishment of a multidisciplinary team focused on falls
- Review and analysis of falls data
- Performance of falls risk assessment on admission and reassessment at prescribed intervals
- Use of visual cues to communicate falls risk
- Use of bed-exit alarms
- Implementation of one-to-one observation or sitters
- Enforcement of patient rounding
- Promotion of patient education

From the on-site assessments, it also became apparent that hospitals with better-than-average performances were incorporating additional strategies and innovations that allowed for sustainment of their overall programs. In an effort to spread the ideas and improvements found in the better-performing hospitals, the Authority and HCIF sponsored a full-day conference in June 2011. Although this capstone conference concluded the reporting initiative, its goal was to accelerate improvement across the entire southeastern Pennsylvania region by sharing the ideas and improvements that led to fewer falls with harm in some hospitals.

The Authority enlisted six hospitals whose innovative strategies reflected new ideas and creative approaches to the long-standing problem of falls. These hospitals responded to the data distributed on falls and falls with harm and initiated interventions that went beyond the core set of interventions typically employed. The conference proved to be a forum for collaborative learning where ideas were exchanged freely and lessons shared and taken away. The Institute for Safe Medication Practices also participated and provided insight about the role of medications in falls risk. Some of the innovations shared with patient safety and risk management leaders from across the region included the following:

- Use a falls risk assessment tool with factors specific to patient population.
- Conduct postfall huddles and investigate causes.
- Incorporate medications into the risk assessment tool.
- Include "fall risk" in the handoff communication tool.
- Conduct daily hospitalwide safety calls to raise awareness of recent fall activity.
- Implement "purposeful" rounding to proactively reduce risk-prone patient behavior.
- Use low-rise beds.
- Employ supervision status tags that communicate patient fall risks.
- Develop staff awareness campaigns.
- Audit and monitor implemented interventions.
- Establish a patient safety assistant role in place of one-to-one observation to reduce costs.

CONCLUSION

Falls prevention in southeastern Pennsylvania, and nationwide, continues to be a work in progress. Undoubtedly, tremendous efforts have been made to reduce patient fall risks. The overriding observation from each hospital assessment during the reporting initiative was that hospitals demonstrated an extraordinary level of commitment, passion, energy, and creativity in addressing patient falls. Based on

Table. Occurrence of Patient Falls Compared with Performed Falls Assessments and Implemented Falls Precautions, by Quarter (2008Q4 to 2010Q3)

			FALL ASSESSMENT COMPLETED?					FALL PRECAUTIONS IN PLACE?				
QUARTER (Q)	HARM LEVEL	MEAN RATE*	Yes	No	Unknown	Null	Total	Yes	No	Unknown	Null	Total
2008Q4	Incident	3.53	80%	11%	4%	5%	100%	79%	12%	3%	7%	100%
	Serious	12.45	78%	6%	10%	6%	100%	68%	14%	8%	10%	100%
2009Q1	Incident	4.09	81%	10%	4%	6%	100%	78%	12%	3%	7%	100%
	Serious	12.41	82%	7%	7%	4%	100%	75%	13%	5%	7%	100%
2009Q2	Incident	3.6	79%	10%	4%	7%	100%	76%	12%	4%	9%	100%
	Serious	12.14	82%	5%	5%	7%	100%	79%	5%	5%	11%	100%
2009Q3	Incident	3.38	81%	10%	4%	5%	100%	78%	12%	4%	6%	100%
	Serious	11.26	77%	8%	4%	10%	100%	69%	17%	4%	10%	100%
2009Q4	Incident	3.7	82%	8%	4%	6%	100%	78%	10%	3%	8%	100%
	Serious	9.68	86%	0%	7%	7%	100%	81%	7%	2%	9%	100%
2010Q1	Incident	3.9	80%	9%	4%	7%	100%	76%	12%	3%	9%	100%
	Serious	7.73	77%	0%	6%	17%	100%	77%	6%	9%	9%	100%
2010Q2	Incident	4.05	81%	9%	4%	5%	100%	77%	13%	4%	6%	100%
	Serious	10.57	87%	2%	2%	9%	100%	74%	17%	4%	4%	100%
2010Q3	Incident	4.11	81%	9%	4%	6%	100%	76%	13%	4%	7%	100%
	Serious	10.02	80%	4%	4%	11%	100%	70%	13%	4%	13%	100%
Total	Incident	3.85	81%	10%	4%	6%	100%	77%	12%	3%	7%	100%
	Serious	10.89	81%	4%	6%	8%	100%	74%	12%	5%	9%	100%

* Mean rate of falls = (number of patient falls x 1,000)/(number of patient days); mean rate of falls with harm = (number of patient falls x 100,000)/(number of patient days)

the success of the reporting initiative, there is evidence to suggest that focused and creative approaches in response to comparative data can have a significant impact on falls prevention, although questions remain as to the long-term sustainability of the improvements brought about from those innovations.

Because of this success, the Authority has moved forward with a statewide reporting initiative—and a modification to PA-PSRS—to standardize definitions for falls reporting in order to track data and to provide facility-level and unit-level falls data from both the inpatient and outpatient settings. The Authority has also partnered with HAP in a Hospital Engagement Network to leverage collaborative learning and sharing to reproduce the success that the data collection and reporting initiative achieved in the southeastern region.

NOTES

1. Centers for Disease Control and Prevention. Falls among older adults: an overview [online]. [cited 2011 Sep 21]. Available from Internet: http://www.cdc.gov/HomeandrecreationalSafety/Falls/adultfalls.html.
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