Comprehensive continuous quality improvement efforts result in 26% reduction in “all falls” and 40% reduction in “bed-related falls”

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BACKGROUND

One of the most common adverse events reported in hospitals is a patient fall.10 Unintentional patient falls are also the primary etiology of non-fatality related injuries in patients over 65, and the accidental death annual mortality rate attributed to fall-related injuries is approximately 41 per 100,000 patients.11

The economic impact of patient falls is substantial, with an average fall-related injury cost per patient of $24,962,12 estimated annual costs of $16 to $19 billion for injuries related to non-fatal falls, and approximately $70 million attributed to fall-related deaths each year.12,13

National initiatives such as Healthy People 2010,14 the Institute for Healthcare Improvement,15 and the Joint Commission16 have provided specific goals and guidance on preventing patient falls, preventing harm from falls, and reducing death from accidental falls.

Many falls are preventable using an evidence-based approach, with appropriate risk assessment,17,18 risk reduction strategies for fall prevention,19,20 and enhancing technology such as use of bed-exit alarms.19,20

Despite national initiatives and increasing awareness of the public health issue of patient falls, many acute care hospitals continue to face unique challenges in fall reduction due to the multiple risk factors for unintentional falls in high-risk patients.

Saddleback Memorial Medical Center is a 325-bed hospital with locations in Laguna Hills and San Clemente, which has been working over the past 30 years to enhance the health and well-being of South Orange County residents.

In the first quarter of 2009, a spike in falls was noted, with an average all-fall rate of 3.39 per 1000 patient days and average bed-related fall rate of 2.10 per 1000 patient days. Per the hospital’s existing quality improvement initiatives, all-fall rate of 3.39 per 1000 patient days and average bed-related fall rate of 2.10 per 1000 patient days.

In the month of October 2010, total and bed-related fall rates continued to drop. The average rate for total falls in October was 1.37. The average rate for bed-related falls in October was 0.55.

The results of this comprehensive QI initiative are presented in Figures 1-3.

Figure 1 is a longitudinal flow chart which illustrates “all fall” rates from Q1 2009 through Q3 2010 associated with timing of QI interventions.

Figure 2 demonstrates the decrease in average “all fall” rates and average “bed-related fall” rates by quarter from Q1 2009 through Q3 2010.

Figure 3 shows the results of staff competency audits at 30, 90, and 120 days.

From the time of the spike in “all falls” and “bed-related falls” in Q1 2009, the facility has achieved a relative reduction of 26% in “all falls” and a relative reduction of 40% in “bed-related falls”.

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METHODS

Quality improvement methods are shown by month in the longitudinal flowchart in Figure 1, and were implemented as follows:

1. Q1 2009: The fall prevention team, which meets monthly, consisting of nurses, nurse managers, educators, physical therapists, and pharmacists, met to discuss the increased fall rate. The team assessed high-risk medications, medical conditions, precipitating factors to falls, high-risk patients, and facility order sets.

2. Q2 2009: The fall prevention team recognized the need to update the hospital’s beds and initiated efforts to identify new beds. Analysis of time employees evaluated different features on potential beds for selection.

3. Q2 2009: New beds were selected by the facility. The fall prevention team implemented a post-fall template in the electronic health record in June 2009, which included analyses, interventions, and post-fall interventions if appropriate.

4. Q3 2009: Fall Risk Assessment and Management Procedure was modified to include the Johns Hopkins Fall Assessment.21

5. Q3 2009: Full prevention team reviewed the Fall Prevention Committee Charter and initiated process for managers to complete root-cause analysis on patient falls and share results in monthly fall meetings.


7. Q3 2009: Fall delirium tool was implemented electronically.

8. Q4 2009: Super-user training and bed-service training was conducted.

9. Q4 2009: Fall event training module was implemented.

10. Q4 2009: 1-Day “Lean Event” held to review: New bed roll out and implementations; use of bed features, including bed-exit alarms; appropriate bed cleaning; and ultimate goal of fall prevention using new bed technology.22

11. Q4 2009: Beds were delivered.

12. Q4 2009: 30-day audit for staff competency on use of new beds was completed.

13. Q4 2009: Fall event module went “live” electronically for use by nursing staff.

14. Q4 2009: 60-day audit for staff competency on use of new beds was completed.

15. Q4 2009: 120-day audit for staff competency on use of new beds was completed.

The comprehensive Continuous Quality Improvement (CQI) initiative was presented in the 14th annual conference of the National Conference on Patient Safety and Quality Improvement in the November 1, 2010.

RESULTS

The references cited in this paper are included in the complete version of this study.


REFERENCES
Figure 1. Longitudinal flowchart all-fall rates and interventions, Q1 2009 - Q3 2010

- First Quarter 2009 – QI Initiated
  - avg. rate bed-related falls = 2.10
  - Bed selection process initiated
  - Increase in falls noted – root-cause analysis
  - 1st Quarter 2010 – Fall Prevention Committee Charter reviewed; Hourly rounding initiated
  - A 1-day Toyota LEAN focus group was held on April 8, 2010; staff from the bedside and support focused on the problem of Fall Prevention utilizing technology of newly selected beds.
  - Beds were delivered and in servicing completed in May 2010.

- Second Quarter 2010 – Fall debriefing tool implemented electronically; Bed in-servicing
  - A 1-day Toyota LEAN focus group was held on April 8, 2010; staff from the bedside and support focused on the problem of Fall Prevention utilizing technology of newly selected beds.
  - Beds were delivered and in servicing completed in May 2010.

- Third Quarter 2010 – 30-day competency evaluations; Fall event module went live
  - 30-day staff competency evaluation completed and 30-day evaluation of cleaning completed July 8, 2010.
  - Fall event module went live in August 2010 to be actively used by Saddleback nursing staff.
  - Results of 90-day staff competency evaluations completed as of September 24, 2010.

Figure 2. Average patient fall rate (“all falls” and “bed-related falls”) Q1 2009 through Q3 2010

- **Critical Elements**
  - All elements were not tested at 20, 90, and 120 day time points a

**Clinical Implications**

- Lean principles and methods are effective when customized for clinical challenges
- A multidisciplinary team approach is useful to address complex clinical challenges because multiple viewpoints are essential for successful QI efforts
- Fall prevention policies and procedures should be updated regularly according to evidence-based best practice recommendations
- If beds are outdated, bed technology should be updated to ensure evidence-based prevention strategies such as bed-exit alarms can be utilized for high-risk patients
- Comprehensive and ongoing staff education is essential to ensure fall-prevention efforts are implemented on high-risk patients
- Staff competency audits are useful in identifying strengths and weaknesses of staff for ongoing educational efforts