



Evidence-based Management of Patients' Risk for Falls in the Inpatient Setting

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BACKGROUND

Patient falls and falls related injuries are major concerns of health care administrators world-wide. Falls can also result in prolonged hospitalization, morbidity and mortality from complications like fractures, tissue trauma or disability, as well as increased health care costs.

Fall risk assessment remains as an important component of risk management as it provides a measure of risk status to guide interventions. Indeed, identification of patients at high risk of falling would theoretically allow nurses to target interventions to those most likely to benefit from them and hence result in more efficient use of resources available.

Managing patients' risk of falling has been and is a high priority for nurses in Singapore General Hospital (SGH). Prior to 2012, nurses in SGH used the Morse Fall Risk assessment tool to evaluate the risk of falling for all patients upon admission, as well as upon changes in condition(s). Patients were then classified into two groups, i.e. at risk or not at risk. However, this approach did not allow nurses to allocate resources to those most at risk.

This paper described a multi-pronged strategy to address assessment of fall risk and to better manage fall risk among inpatients in SGH.

METHODS

A multi-pronged approach was adopted.

1. A comprehensive literature review was conducted to identify the diagnostic accuracy of different risk assessment tools.
2. A study was also undertaken to ascertain the
 - Risk profiles (scoring) of patients in both medical and surgical wards using the Morse Fall Risk assessment scale.
 - Inter-rater reliability of the Morse Fall Risk assessment tool; and to compare the results with another fall risk assessment tool used in other inpatient settings (STRATIFY; The St Thomas Risk Assessment Tool in Falling elderly inpatients)
3. Analysis of risk profiles of patients who suffered from serious injuries due to a fall.
4. Identification of optimal cut-off points to stratify fall risk into low, moderate and high.
5. Identification of specific fall prevention interventions according to level of risk.

Guiding Principles in Fall Risk Management

- Fall prevention needs to be balanced with other priorities such as early rehabilitation, maintenance of physical function and patients' need for autonomy
- Risk cannot be eliminated. The nursing goal is to minimize the risk and the prevention of injury
- Risk fluctuates and hence frequent re-assessments and tailored interventions are necessary

RESULTS

The Morse Fall Risk Assessment tool was well-researched on and has the highest predictive validity as compared to other tools such as the Bobath Memorial Hospital Fall Risk Assessment Scale and John Hopkins Fall Risk Assessment Tool (1). The diagnostic accuracy of other tools such as STRATIFY was also limited (2).

Results from our study also demonstrated excellent inter-rater reliability with a Kappa value of 0.95 for Morse Scale and 0.87 for STRATIFY.

Managerial decision: The Morse Fall Risk Assessment Tool remains the most appropriate tool for our setting

Key decision point : What are the optimal cut off scores?

Setting the cut-off score too low will result in many false negatives. However, setting the risk too high will result in prevention strategies not being implemented for many patients who are at risk

Patients' Risk Profile Data from Medical and Surgical Wards

Risk Level	Cut off Score	% of patients
Low	≤25	11.7-19.1
Medium	30-50	59.4-60.5
High	≥55	21.5-27.8

Risk profile of 13 patients whom suffered from serious injuries were also analysed. With the same cut-off scores, 92% of these patients would be at moderate to high risk.

Patients' Risk Profile Data (Patients who suffered from serious injuries after a fall event)

Risk Level	Cut off Score	(n) % of patients	
		Upon Admission	Just prior to fall event
Medium	30-50	(6)46%	(6)46%
High	≥55	(6)46%	(6)46%

Based on patients' risk profile data using the Morse Scale, we realised that **21.5-27.8%** of our patients will be at **high risk** for falls using a cut-off score of **≥55**; **59.4-60.5%** will be at **medium risk** with a score range of **30-50** and **11.7-19.1%** will be at **low risk** with a cut off score of **≤ 25**. Such cut-off scores would also rightly classify the large majority of patients at risk of injury to be of moderate to high risk.

Preventive strategies for each risk level were then devised for the revised risk stratification. They were based on staff's understanding of local patients' needs and recommendations from the following sources:

- *Preventing Falls in Hospitals: A Toolkit for Improving Quality of Care.* AHRQ Publication No. 13-0015-EF, January 2013.
- *Guidebook for preventing falls and harm from falls in older people: Australian hospitals.* Australian Commission on Safety and Quality in Healthcare 2009.



OUTCOME

With risk stratification and corresponding prevention strategies, we achieved lower fall rates than other Academic Medical Centres and Magnet-Accredited Hospitals.

Mean Acuity adjusted fall rate per 1000 patient days in year 2012:

0.53(SGH); 3.46 (Academic Medical Centres); 3.25 (Magnet Facility)
(Reference: National Database of Nursing Quality Indicators)

References

- (1) Lim KS, Lim JA, Choi YK, Kim YJ, Park MH, Kim HY, Song MS (2011) A comparative study on the validity of fall risk assessment scales in Korean hospitals. *Asian Nursing Research*, 5 (10) pg. 29-37.
- (2) Billington J, Fahy T, Galvin R (2012) Diagnostic accuracy of the STRATIFY clinical prediction rule for falls: a systematic review and meta-analysis. *BMC Family Practice*, 13, 76. Available at: <http://www.biomedcentral.com/1471-2296/13/76#sec7>