

Patient Safety Tip of the Week

November 4, 2014

Progress on Fall Prevention

Identification of patients at risk for falls and fall-related injuries is important not only for hospital inpatients but also for patients in multiple other settings, including long-term care and community-based settings. For inpatients we look at a list of risk factors for falls to identify which patients should have fall precautions instituted. But in our August 4, 2009 Patient Safety Tip of the Week “[Faulty Fall Risk Assessments?](#)” we cautioned that simply labeling a patient as low-, moderate-, or high-risk for falls often fails to match them to specific interventions needed to prevent falls for that individual patient.

Many of the risk factors for falls are not modifiable. Therefore, a focus on potentially modifiable risk factors is needed. Wouldn't it be great if we had a tool that easily identified such patients at risk and identified some specifically modifiable risk factors? Well, researchers in Boston have come up with such a system that stratifies risk for hospital admissions for fall-related injury based upon data readily available from the electronic medical record ([Castro 2014](#)). Moreover, since the tool weighs heavily the adverse effect burden of medications, it points to modification of a patient's medication regimen as a potential intervention to reduce the risk of fall-related injuries.

Castro and colleagues looked at patients aged 40 and older who were admitted to 2 academic hospitals (that also serve as community hospitals) for reasons other than fall-related injuries. They collected variables readily available in the EMR at discharge, including the reconciled medication list, and looked for subsequent emergency department visits or hospital admissions over the next two years. After derivation of the risk stratification tool at one hospital they validated it at the second hospital. The unique feature of their tool is their way of estimating the burden of medications on the fall risk. Not only is the number of medications important but they also used the frequencies of adverse effects (from the literature) of medications, taking into account that drugs may have more than one risk factor for falls (eg. sedation, dizziness, gait instability, etc.). They make the tool available online at <http://clearer.mghcedd.org/>.

The authors suggest that using the tool to identify the highest risk group could lead to fall prevention interventions being applied in the most resource-effective manner. And, since the medication adverse effect burden is one of the most modifiable factors, re-examination and modification of a patient's medications is a logical intervention.

We like the concept here and expect that further evaluation of the tool in multiple populations and settings will lead to more widespread adoption of the tool.

There has also been a renewed interest in identification of fall risk for patients presenting to the emergency department. Over a decade ago the PROFET study ([Close 1999](#)) showed that for community-dwelling patients aged 65 years and older who presented to an emergency department with a fall a detailed medical and occupational-therapy assessment with referral to relevant services resulted in a marked reduction of falls and recurrent falls. A new systematic review looked at risk stratification tools for geriatric patients presenting to the ED with falls ([Carpenter 2014](#)). The authors noted a paucity of validated screening tools for identifying fall risk in ED patients. An Australian study on patients 70 years and older presenting to the ED with a fall or a history of 2+ falls in the past year showed that a simple 2-question screening tool predicted subsequent falls as well as that used in the PROFET study ([Tiedemann 2013](#)). The 2 screening items were: (1) 2+ falls in the past year and (2) taking 6+ medications. On the other hand, Carpenter et al. ([Carpenter 2009](#)) looked at fall risk in elderly patients presenting to the ED with conditions other than falls. They identified 4 risk factors independently associated with future falls: non-healing foot ulcers, self-reported depression, falls in the preceding year, and inability to cut one's own toenails (a measure of self-sufficiency or functional ability). The risk of falling was directly related to the number of these risk factors present. But in the meta-analysis by Carpenter et al. ([Carpenter 2014](#)) neither tool accurately identified increased fall risk, though the Carpenter tool accurately identified those geriatric patients at low risk for falls.

It would be most interesting to see how well the tool developed by Castro above might perform on ED patients. The same variables present on inpatient discharges should be available for ED patients and if good medication reconciliation is done of the ED patients one might expect the Castro tool to work well.

While in theory we should be most successful by implementing risk reduction strategies in those patients we identify as being at highest risk for falls, sometimes risk reduction strategies applied across the board may also be successful. A recent study from New Zealand has demonstrated that relatively low-cost home modifications and repairs can lead to a substantial reduction in the rate of injuries related to falls ([Keall 2014](#)). They randomly assigned households for home modifications to be done immediately or delayed for 3 years. They found a 26% reduction in the rate of injuries caused by falls at home per year in the group receiving the home modifications compared to those waiting for them. Injuries specific to the home-modification program were cut 39% per year exposed. The modifications were all considered to be relatively low cost and consisted of handrails for outside steps and internal stairs, bathroom grab rails, outside lighting, edging for outside steps and slip-resistant surfacing for outside areas such as decks and porches.

Particularly as we embark more on population-based management, fall reduction strategies need to be considered not just during inpatient hospitalizations but each time the patient interacts with the healthcare system.

Some of our prior columns related to falls:

- April 16, 2007 “[Falls With Injury](#)”
- July 17, 2007 “[Falls in Patients on Coumadin or Heparin or Other Anticoagulants](#)”
- January 1, 2008 “[Fall Prevention](#)”
- October 7, 2008 “[Lessons from Falls....from Rehab Medicine](#)”
- November 18, 2008 “[Ticket to Ride: Checklist, Form, or Decision Scorecard?](#)”
- August 4, 2009 “[Faulty Fall Risk Assessments?](#)”
- September 22, 2009 “[Psychotropic Drugs and Falls in the SNF](#)”
- December 22, 2009 “[Falls on Toileting Activities](#)”
- January 2010 “[Falls in the Radiology Suite](#)”
- June 2010 “[Seeing Clearly a Common Sense Intervention](#)”
- May 29, 2012 “[Falls, Fractures, and Fatalities](#)”
- June 5, 2012 “[Minor Head Trauma in the Anticoagulated Patient](#)”.
- January 15, 2013 “[Falls on Inpatient Psychiatry](#)”
- March 2013 “[Sedative/Hypnotics and Falls](#)”
- December 3, 2013 “[Reducing Harm from Falls on Inpatient Psychiatry](#)”
- June 2014 “[New Glasses and Fall Risk](#)”
- July 8, 2014 “[Update: Minor Head Trauma in the Anticoagulated Patient](#)”
- August 2014 “[Cataract Surgery and Falls](#)”

References:

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Clearer: Estimate adverse effect burden of a list of medications
<http://clearer.mghcedd.org/>

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