

Patient Safety Tip of the Week

March 14, 2017

More on Falls on Inpatient Psychiatry

It's been somewhat surprising to us that one of our most frequently accessed columns was our January 15, 2013 Patient Safety Tip of the Week "[Falls on Inpatient Psychiatry](#)". Then again, maybe it should not be so surprising since there has been so little written in the literature about this topic.

Some studies have reported higher fall rates on behavioral health units compared to med/surg units and others have reported lower rates, but several studies have shown that falls on behavioral health units may be more likely to lead to injury. The VHA National Falls Data Collection Project demonstrated that overall fall rates were lower on behavioral health units but percentages of falls with injury were higher on those units ([Stalhandske 2008](#)). The Pennsylvania Patient Safety Authority "snapshot" that we highlighted in our prior column compared falls in behavioral health hospitals to those in other hospitals for the year 2009 ([PPSA 2010](#)). Falls accounted for 21.7% of submitted reports in behavioral health hospitals compared to 15.4% in non-behavioral hospitals. A greater percentage of medications related to falls were reported by behavioral health hospitals than other hospitals (70.3% versus 57.6%). Moreover, patient harm was more likely in falls in behavioral health hospitals (9.6% compared to 3.7% in non-behavioral health hospitals).

Most of the work on prevention of falls has focused on healthcare venues other than inpatient psychiatry. And most of the tools developed to assess fall risk were also developed for patient populations other than inpatient psychiatric populations. In our January 15, 2013 Patient Safety Tip of the Week "[Falls on Inpatient Psychiatry](#)" we described the work of Edmonson and colleagues ([Edmonson 2011](#)) who developed their own fall risk assessment tool for psychiatric inpatients. They identified 9 categories of fall risk factors from the literature, then determined how frequent those occurred in records of psychiatric inpatients who fell, resulting in a weighted tool for predicting falls in this population. They then administered this tool, the [Edmonson Psychiatric Fall Risk Assessment Tool \(EPFRAT\)](#), and a more traditional fall risk assessment tool (the Morse Fall Scale) simultaneously to an inpatient psychiatric population and found the EPFRAT had a higher sensitivity in predicting falls and comparable specificity.

In 2016, Abraham looked at the applicability of several fall risk assessment tools to psychiatry inpatient services ([Abraham 2016](#)). Tools included were:

- Hendrich II Fall Risk Model

- Morse Fall Scale
- Schmid Fall Risk Model
- Saint Thomas Risk Assessment Tool for Falling Elderly Inpatients
- Edmonson Psychiatric Fall Risk Assessment Tool
- Wilson Sims Fall Risk Assessment Tool
- Proprietary or Homegrown Fall Risk Assessment Tools

Abraham concluded that no perfect instrument exists but that the best fall risk assessment tools for psychiatric adult and geriatric patients based on his research are the Wilson Sims and the Edmonson scales. He further pointed out that the major difference between these two is inclusion of nurse's judgment in the Wilson Sims scale. We concur with his opinion that the clinical judgment of an experienced professional is often as good as the results from a fall prediction tool.

A more recent study ([Bugajski 2017](#)) compared its homegrown tool, the Baptist Health High-Risk Falls Assessment (BHHRFA), to published results of the EPFRAT and the Wilson Sims Fall Risk Assessment Tool (WSFRAT). The BHHRFA was developed as a tool to assess fall risk across clinical settings in the Baptist Health system (Kentucky) because of perceived deficiencies in some of the existing fall risk prediction or assessment tools ([Corley 2014](#)). It was found to have good sensitivity, reasonable specificity, and good diagnostic odds ratios across hospitals but primarily in med/surg patients. So Bugajski and colleagues applied it to psychiatric inpatients and found that had a higher sensitivity (0.68) than the other psychiatric specific assessments, an acceptable specificity (0.70), and a strong diagnostic odds ratio (4.964). The authors felt that the medication profiles considered in the BHHRFA might be more relevant to behavioral health compared to those in the other 2 tools. Importantly, the BHHRFA takes nurses only 38 seconds, on average, to administer.

But there is a problem with all fall risk assessments that use a "score" to identify patients at high risk. We discussed the issue of general vs. individualized fall risk assessment in our August 4, 2009 Patient Safety Tip of the Week "[Faulty Fall Risk Assessments?](#)". While labeling a patient as "high risk" could justify some of the general fall prevention interventions you might consider on a psychiatric inpatient unit (eg. non-slip footwear, beds low to the ground, bedside mats, etc.) it doesn't really pick out those who need more specific individualized interventions to prevent falls.

So what are some of the more individual risk factors for falls encountered in behavioral health or psychiatric inpatients?

Physical Activity

One obvious factor is simply the level of physical activity and movement on the psychiatric unit. Compared to med/surg units where patients are largely confined to bed or chairs (even though we encourage early ambulation) patients on behavioral health units are usually much more active. Hence the increased risk for falls may simply be related to this increased opportunity to fall. Scanlan et al. ([Scanlan 2012](#)) looked at activity during falls and found that the majority occurred on walking or transferring.

Location of falls was most often bedrooms, outdoor areas, corridors and bathrooms. Another study ([Al-Khatib 2013](#)) attributed falls to behavioral issues more often (around 40%) than medical (around 30%) or environmental (around 12%) or other issues. About a third of their falls occurred while the patient was ambulating (observed), in 20% the patient was found on the floor, and about 15% on toileting activities.

Primary Psychiatric Diagnosis

Primary psychiatric diagnosis may play a role both with regard to the diagnosis and the treatment for that diagnosis. Depression is a risk factor for falls, at least in the elderly. One meta-analysis showed an odds ratio of 1.63 for the association between depression and falls ([Deandrea 2010](#)). But the relationship is very complex and bidirectional ([Iaboni 2012](#)). The psychomotor slowing and fear of falling in depression may lead to falls but treatment with antidepressants may also lead to falls. In a meta-analysis of relation of medication classes to falls in the elderly antidepressants had an odds ratio of 1.68 ([Woolcott 2009](#)). Antidepressants may lead to falls via either causing orthostatic hypotension or by their effects on cognitive function.

Similarly, patients with acute psychosis or the manic phase of bipolar disorder may be predisposed to falls either because of the increased physical activity and clouded mental status or because of the medications used to treat these conditions. In the study by Lee et al ([Lee 2012](#)) the authors noted that as root causes both undertreatment and overtreatment. The “undertreated” patients had falls related to agitation, etc. But patients with acute psychosis are often treated with multiple drugs that increase the risk of falls.

And the patient’s primary psychiatric problem may interfere with their ability to comprehend instructions about avoiding activities that may precipitate falls.

Sleep disturbances

Sleep disturbances are common on inpatient psychiatric units and may increase the fall risk. Keep in mind that sedative/hypnotic medications are at the top of the list of medications commonly increasing the risk for falls.

Medications

Medications, of course, are a major risk factor for falls regardless of whether a patient is on an inpatient psychiatric unit or a med/surg floor. The total number of medications, regardless of type, is a risk factor for falls. But certain categories, most of which are commonly used on inpatient psychiatric units, are especially likely to be associated with falls. These include benzodiazepines, sedative/hypnotic drugs, antidepressants, antipsychotic drugs, and anticonvulsants. Medications in several of those categories may cause drowsiness, which is a significant risk factor for falls. Many also cause orthostatic hypotension. And several cause extrapyramidal (parkinsonian) side effects that impair mobility and impair balance or ability to recover from loss of balance. Anticholinergic side effects of several may also lead to visual impairment, another fall risk factor. And the anticholinergic side effects may also lead to dry mouth which, in turn, may lead to polydipsia and polyuria (you’ll recall falls are especially prevalent during toileting

activities in many settings). Lastly, several of the medications may potentially have cardiac side effects which can lead to falls during syncope.

Medical Conditions

While patients on behavioral health, in general, are probably younger than those on med/surg units, they can still have multiple medical comorbidities that may predispose them to falls. Estrin and colleagues ([Estrin 2009](#)) did a retrospective analysis of fallers vs. matched nonfallers at a psychiatric inpatient facility and looked at a variety of potential variables that might predict falls. Fallers were more likely to have an acute medical condition at the time of the fall, to have more physical symptoms on the day of the fall, and to be on more medications. They were also more likely to have urinary frequency or incontinence, generalized weakness, dizziness, mental status impairment, history of falls within 90 days, history of syncope and history of impaired mobility. However, after multivariate logistic regression analysis only **summed physical complaints on the day of the fall** and current clonazepam use held up as independent predictors of falls.

Previous History of Falls

One of the strongest predictors of falls, regardless of setting, is a history of prior falls. Inpatient psychiatry patients are no different.

Toileting Activities

In our December 22, 2009 Patient Safety Tip of the Week “[Falls on Toileting Activities](#)” we noted that almost half of falls in the nonpsychiatric hospital occur during activities related in some way to toileting. Falls on inpatient psychiatric units also often occur during **toileting activities**. Many of the fall risk assessment tools include urinary frequency and bladder/bowel incontinence as risk factors for falls. Of falls that took place on medical, surgical or mixed medical/surgical units in a community hospital only 6% of the falls actually occurred while getting on or off the toilet but most of the falls occurred when attempting to go from bed or chair to the bathroom or returning from the bathroom ([Tzeng 2010](#)). Such falls are especially likely to occur at night. While lighting issues may play a role, another root cause is not having enough staff to help such patients do their toileting activities before they go to bed. On a busy psychiatry inpatient service, where 20-30 patients may be on every 15 minute safety checks, staff often do not have adequate time to help those patients with their toileting activities. As above, note also that polydipsia, a common occurrence on psychiatric floors whether psychogenic or because of medication-induced dryness of the mouth, might lead to the need to urinate multiple times at night, further increasing the opportunity for falls.

Unfortunately, one of the dilemmas on inpatient psychiatric units is that there is sometimes a tradeoff between the fall risk and the suicide risk. Some of the bathroom assist devices we might use to help prevent falls (eg. grab bars) may be “loopable” items that represent a suicide risk.

Age

Age, by itself, may not be a good fall risk predictor. In the series reported by the Pennsylvania Patient Safety Authority ([PPSA 2010](#)) the average age of patients with falls

in behavioral health hospitals was 45 years old, compared to 65 years old for those with falls in other hospitals. We suspect this may to some degree reflect the demographics of behavioral health hospitals but it may also reflect the other risk factors unique to this population and setting. In general, we see fall risk increase with increasing age. Other studies ([Scanlan 2012](#)) have shown higher fall rates in psychogeriatric units. However, many studies have found that age, per se, is not an independent risk factor for falls but rather older people are more likely to have multiple comorbidities and conditions that predispose to falls and are more likely to be on multiple medications. Also, the elderly are more likely to have the multiple sensory deficit syndrome. That is where deficits of such senses as vision, hearing, proprioception, etc. are individually not sufficient to causes falls but collectively do pose a significant fall risk.

But there are **also non-patient factors that predispose to falls**. These include environmental factors and inadequate communication.

Environmental Risk Factors

Environmental factors like poor lighting, slippery floors, uneven surfaces, loose floor tiles, etc. may predispose to falls. Behavioral health units must remove items that could be used for suicide so some items that can help prevent falls (eg. grab bars in bathrooms or showers, height-adjustable beds with electrical cords) may not be available.

The VA National Patient Safety Center, which does a great job of aggregating lessons learned from RCA's across the VA system, put together such lessons learned as they pertain to falls on behavioral health units ([Lee 2012](#)). One of their recommendations is assessing the **environmental risks**, using a checklist.

Time of Day

We could find no good reviews on the role of time of day of falls on psychiatric inpatient units. Logically, one might expect more to occur at night because of factors such as poor lighting, need to get out of bed for toileting, sleep disturbances, etc. An increased frequency of falls has been reported at night in a psychogeriatric hospital ward ([Tangman 2010](#)). Another inpatient psychiatric unit discovered that falls were occurring **during shift report** and this improved when they divided up report into two separate groups so that one group of nurses was always with the patients ([Lusky 2008](#)).

Communication/Handoff Failures

One of the frequent root causes identified by Lee et al. ([Lee 2012](#)) was **failure to adequately communicate the fall risk** from caregiver to caregiver. It should be a part of the daily discussion during the multidisciplinary case conference on each patient. Fall risk must be addressed during all **handoffs** and should be a formal item on your standardized handoff tool.

The Lee study also notes that the culture on many inpatient psychiatry units is such that **staff may not see psychiatric patients as medically ill** and thus may overlook their need

for assistance in avoiding falls. Yet we know that the underlying medical conditions may be contributory factors to falls in many cases.

We've also stressed the risks of falls that occur when patients are sent to the **radiology suite** (see our January 2010 What's New in the Patient Safety World column "[Falls in the Radiology Suite](#)"). One of the items on your "**Ticket to Ride**" (or other structured tool you use to communicate various risks and concerns when you send a patient off to another part of the hospital) needs to be a flag for fall risk. Note also that some of the other items you'll put on your "Ticket to Ride" (such as altered mental status, certain medications, etc.) may also infer an increased risk of falling (see our November 18, 2008 Patient Safety Tip of the Week "[Ticket to Ride: Checklist, Form, or Decision Scorecard?](#)").

Not only does fall risk status need to be communicated between nursing staff and ancillary staff but it must also be adequately **communicated between physicians**. In most psychiatric inpatient units the psychiatrist often attends to just the psychiatric needs of the patient and another physician or midlevel practitioner attends to the "medical" issues. The latter is often attuned to the fall risk but the psychiatrist, if not aware of fall risk at all times, may make alterations in the treatment plan that increase the fall risk. Hopefully, all such parties are represented at the daily multidisciplinary rounds to make sure they are all on the same page.

Equipment Issues

Unfortunately, one of the dilemmas on inpatient psychiatric units is that there is sometimes a tradeoff between the fall risk and the suicide risk. Some of the bathroom assist devices we might use to help prevent falls (eg. grab bars) may be "loopable" items that represent a suicide risk. And even some of the walking assist devices may be banned from behavioral health units because they could be used as "weapons". We don't have good advice on resolving this dilemma.

Likewise, there is a paucity of literature on actual interventions implemented to prevent falls on behavioral health units or to mitigate their consequences. In our December 3, 2013 Patient Safety Tip of the Week "[Reducing Harm from Falls on Inpatient Psychiatry](#)" we highlighted a VA collaborative project ([Quigley 2014](#)) which addressed prevention of falls and fall-related injuries on psychiatry/behavioral health units. This VA collaborative project looked at evidence-based interventions for fall prevention and injury prevention and modified the interventions for inpatient psychiatry. Many of their interventions came from the [VA NCPS Falls Toolkit](#), a compendium of useful references, resources, presentations, posters, and spreadsheets that were culled from existing research and the Falls Collaborative. Ultimately they recommended each of the following across all their participating sites:

1. implement a unit peer leader program
2. customize use of hip protectors to reduce risk of hip fractures
3. customize use of floor mats to reduce trauma from bed-related falls
4. expand patient assessment to include injury risk on admission

5. expand patient education to include protection from fall-related injury

Another study reported what one primarily behavioral health, urban teaching hospital did to reduce fall rates ([Al-Khatib 2013](#)). They used the Morse Fall Scale for fall risk assessment and developed treatment plan templates for those patients classified as low- or high-fall risk. For patients deemed at high-risk for falls they placed a yellow identification band on the patient, dispenses yellow non-skid slipper socks, and used yellow dots on patient charts, communication boards, outside patient rooms, and in the medication book. They also developed educational tools for patients and their families to be used on admission and discharge.

One important piece of the program (and one which we have often expounded upon in our numerous columns on fall prevention) was development of a **post-fall documentation tool**. They attributed the success of their program to use of this tool and discussion of fall events in treatment team meetings, leading to changes in the individualized care plans. Interestingly, they attributed falls to behavioral issues more often (around 40%) than medical (around 30%) or environmental (around 12%) or other issues. And, surprisingly, only about 8% were attributed primarily to medications. About a third of their falls occurred while the patient was ambulating (observed), in 20% the patient was found on the floor, and about 15% on toileting activities.

After the initial improvement in fall rate there was a second increase in fall rate. Using prn haloperidol and lorazepam injections as a proxy measure for patient acuity, they attributed this increase in the fall rate to the increased patient acuity.

Another point is worth mentioning. They often received requests to reduce a patient's fall risk status from high risk to low risk. So they developed a "justification" form to provide a rationale that would support such a downgrade in fall risk status. In our January 15, 2013 Patient Safety Tip of the Week "[Falls on Inpatient Psychiatry](#)" that Estrin and colleagues ([Estrin 2009](#)) found that tools with low specificity for predicting falls (i.e. a high percentage of false positives) may have a "desensitizing" effect on staff. Given that just about every patient on an inpatient psychiatric unit is on one or more drugs that increase their fall risk, almost all inpatients could be classified as being at high risk for falls. That, of course, could justify some of the general fall prevention interventions you might consider on a psychiatric inpatient unit (eg. non-slip footwear, beds low to the ground, bedside mats, etc.) but it doesn't really pick out those who need more specific individualized interventions to prevent falls. We discussed the issue of general vs. individualized fall risk assessment in our August 4, 2009 Patient Safety Tip of the Week "[Faulty Fall Risk Assessments?](#)".

One criticism we've had of most fall risk assessment tools is that they tend to trigger global interventions rather than focusing on interventions for the key risks for falling. For example, the interventions for drug-induced orthostatic hypotension are different than those for drug-induced extrapyramidal syndromes. Tools that just use a score to identify patients at high risk for falls are of limited utility.

The other critical point is that **fall risk assessment needs to be updated frequently**. On med/surg units fall risk should be reviewed and updated daily or any time there is any change (such as addition of a new medication, surgery, anesthesia, etc.). On inpatient psychiatry units it is important to regularly update the fall risk assessment even if no such changes have taken place. The primary reason for that is that the extrapyramidal (parkinsonian) side effects of many of the medications used are not immediate when such medications are started but develop more gradually. It is really essential, then, that the patient be assessed daily for such extrapyramidal side effects by someone qualified to recognize them. Similarly, monitoring for orthostatic hypotension needs to be done daily if a patient is on one of the drugs that may have orthostatic hypotension as a side effect (and please see our January 15, 2013 Patient Safety Tip of the Week "[Falls on Inpatient Psychiatry](#)" for the correct way to check for orthostatic hypotension).

To summarize key action points:

- Fall risk must be assessed not only on admission but virtually every day on psychiatry inpatient units. It should be part of the daily discussion during the multidisciplinary case conference on each patient.
- Fall risk must be addressed during all handoffs and appropriately conveyed to all caregivers. It should be a formal item on your standardized handoff tool.
- On units where physicians or physician extenders other than the psychiatrist address "medical" issues, there must be frequent communication with the psychiatrist (ideally both should be participating in the daily interdisciplinary case conferences).
- Fall risk needs to be conveyed during in-hospital transports (eg. to radiology). It should be a formal item on your "Ticket to Ride" tool.
- Your psychiatrists need to be aware of the fall risk status since their prescribing has a huge impact on that risk.
- If the patient is on any medications known to cause orthostatic hypotension, they should have their orthostatic signs recorded daily (and do them the correct way!).
- If the patient is on any medications known to have extrapyramidal side effects, exam every day (by someone qualified to recognize such signs) should focus on whether such have occurred and are likely to impact fall risk
- Every change in medication regimen should be assessed for its potential impact on fall risk. At each change potential side effects should be discussed and an appropriate monitoring plan established.
- Take steps to minimize the likelihood a patient will need to use the bathroom at night (eg. do "comfort" rounds at bedtime and assist the patient in voiding before they go to sleep; avoid late evening fluid intake; etc.)

- Consider use of motion-sensitive lighting to ensure those patients who do need to use the bathroom at night will have adequate lighting
- Do regular environmental assessments, using a checklist, looking for fall risk factors (eg. loose floor tiles, etc.)
- Provide non-slip footwear for patients (and make sure they wear them!)
- Keep beds low to the floor and consider mats adjacent to beds for patients with increased fall risk
- Consider some of the interventions to prevent harm discussed in our December 3, 2013 Patient Safety Tip of the Week “[Reducing Harm from Falls on Inpatient Psychiatry](#)” (such as use of hip protectors, padded mats, etc.)
- Structure your sign out rounds or other conferences in a manner that ensures some staff will still be available for patient supervision at all times
- Audit compliance with all your fall-prevention strategies
- Consider a formal process for justification of downgrading fall risk when staff question the continued need for “high-risk” status
- Make sure you have a good post-fall documentation form and process and that you do a mini-RCA for every fall, both to determine factors that led to that patient falling and learn about factors that might impact other patients as well
- This topic is also a good one for a FMEA (failure mode and effects analysis) if you have a behavioral health unit.

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](#)”
- November 4, 2014 “[Progress on Fall Prevention](#)”

- March 2015 “[Another Paradox: Falls Due to Walking Aids](#)”
- June 9, 2015 “[Add This to Your Fall Risk Assessment](#)”
- July 28, 2015 “[Not All Falls Are the Same](#)”
- October 2015 “[Patient Perception of Fall Risk](#)”
- October 27, 2015 “[Sentinel Event Alert on Falls and View from Across the Pond](#)”
- February 16, 2016 “[Fall Prevention Failing?](#)”

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