

Patient Safety Tip of the Week

February 6, 2018

Adverse Events in Inpatient Psychiatry

Much of the good patient safety literature related to behavioral health comes from the VA health system. Two new studies from the VA shed light on some of the adverse events encountered on inpatient behavioral health units.

Mills and colleagues searched the VA's national database for any reported adverse event that occurred on an inpatient mental health unit over a two year period and found 87 Root Cause Analysis (RCA) reports and 9780 safety reports ([Mills 2018](#)). The RCA's included 31 suicide attempts, 16 elopements, 10 assaults, 8 events involving hazardous items on the unit, 7 falls, 6 unexpected deaths, 3 overdoses and 6 cases coded as "other". In safety reports falls were the most common event, followed by medication events, verbal assaults, physical assaults, medical problems and hazardous items on the unit. Mills and colleagues recommend that mental health unit staff should undertake a structured assessment of all risk on their units and that such a broad approach may be more successful than focusing on a particular event type.

Another study from the VA health system interviewed staff in 7 hospital-based mental health settings for insights on causes of patient safety events and the factors that constrain or facilitate patient safety efforts ([True 2017](#)). Those researchers found that protective factors included: promoting a culture of safety, advocating for patient-centeredness, and engaging administrators and organizational leadership to champion these changes.

We've discussed suicide attempts, violent behaviors, and elopements in multiple columns (listed below) and will not further discuss them now. However, one point from the current Mills study worth noting is that, since the VA focus on reducing all types of anchor points, available methods for suicide attempts are less lethal, such as use of plastic bags used for asphyxiation and use loose screws and poorly-maintained windows. This likely attests to the success of the from the VA's [Mental Health Environment of Care Checklist](#), which we've discussed in so many columns.

But we will reiterate the many medical issues we first discussed in our May 10, 2016 Patient Safety Tip of the Week "[Medical Problems in Behavioral Health](#)". Behavioral health units, whether they are standalone facilities or part of general hospitals, are prone to many adverse events due to medical rather than psychiatric conditions. There are a variety of factors predisposing to such events and barriers to preventing them (see below).

Medical “Clearance”

What should be done during “**medical clearance**” in the emergency room prior to admission to behavioral health units has long been debated. Most now agree that the medical history and physical should direct the need for laboratory or imaging studies and that there really is no standard battery of tests that should be done. Most testing is unnecessary and wasteful and delays admission to behavioral health. Traditionally, the main goal of the “medical clearance” is to be sure that the patient’s behavioral health presentation is not the result of an underlying medical condition. But equally important should be identification of medical problems that are likely to complicate management during a behavioral health admission.

As above, “routine” lab testing is seldom of value as part of the medical clearance. Even drug toxicology screening is of limited benefit. Such drug screening is more likely to identify recent use of drugs rather than identify drugs contributing to the current behavioral health condition. However, we’d like to highlight one problem that may be becoming more troubling. The ever-increasing use of **long-acting and/or delayed release formulations of opioids** raises specific concerns. We’ve seen patients who have taken such drugs and been alert in the ER with low levels of drug in their urine screen yet become obtunded due to opioid intoxication the following day due to the delayed absorption of these drugs.

Falls

Falls are probably one of the more frequent adverse events on behavioral health units. In our Patient Safety Tips of the Week for January 15, 2013 “[Falls on Inpatient Psychiatry](#)” we noted that falls are disproportionately more frequent on behavioral health units compared to med-surg units. In that column and in our December 3, 2013 Patient Safety Tip of the Week “[Reducing Harm from Falls on Inpatient Psychiatry](#)” we noted also that injuries from falls are also more likely with falls on psychiatric/behavioral health units.

One reason for more falls is likely that patients are more active on behavioral health units. But the other big reason is related to the medications used in behavioral health. Most importantly, they are on a variety of medications that may increase the fall risk (antipsychotics, antidepressants, sedative/hypnotics, and others). Some may be confused or agitated. Others may have impaired gait or balance, sometimes as a result of extrapyramidal side effects of their medications. Many of the medications cause orthostatic hypotension. The elderly patient on the behavioral health unit is especially at risk for falls with injury. Another factor is that sometimes behavioral health units restrict use of canes or other devices that could assist ambulation because such might also be used as weapons.

Our March 14, 2017 Patient Safety Tip of the Week “[More on Falls on Inpatient Psychiatry](#)” was a comprehensive discussion on falls in the inpatient behavioral health setting and we refer you to that column and the ones listed above for details and recommendations. That column discussed risk factors for falls, such as prior history of

falls, activity levels, primary psychiatric diagnosis, medications, sleep disturbances, and coexisting medical conditions. It also emphasized that, just as on general medical units, falls are often related to toileting activities. It also discussed environmental risk factors for falls, and system issues such as time of day, miscommunication, equipment issues, and issues with the culture of safety. We also noted that **staff may not see psychiatric patients as medically ill** and thus may overlook their need for assistance in avoiding falls.

That column also discussed fall risk assessment tools and how they apply to patients on behavioral health units. But we can't overemphasize the fact that, just like on med-surg units, fall risk is a dynamic risk and may change during the course of a behavioral health stay. For example, extrapyramidal side effects may gradually evolve after certain drugs have been started so patients should be examined daily to identify the occurrence of extrapyramidal side effects and the fall prevention strategies modified appropriately as they occur.

We refer you to the 3 columns listed above for details and recommendations on prevention of falls and injuries from falls on behavioral health units.

Seizures

Seizures are not uncommon on behavioral health units. Many of the drugs used may lower the seizure threshold, particularly in patients with a previous history of seizures. Withdrawal syndromes are a major concern, too (keeping in mind that substance abuse a common comorbidity in behavioral health patients) and seizures may be part of those syndromes. While seizures from alcohol withdrawal typically occur early after abstinence, withdrawal from cessation of drugs like benzodiazepines typically occur much later. And in patients with pre-existing seizure disorders who have been on anticonvulsant therapy it is important to recognize they may have been poorly adherent to their regimen. You should check their serum anticonvulsant levels (if they are on anticonvulsants that have therapeutic ranges) and make dosage adjustments as appropriate.

Most importantly, staff need to be trained in what to do when a seizure does occur. That includes ensuring the patient does not injure him/herself during the seizure and knowing how to get help in determining the cause of the seizure and any subsequent management steps. They also need to consider how other patients on the unit might react to seeing a seizure (and especially prevent those patients from inadvertently injuring a patient in attempt to help).

Cardiovascular Events

Cardiovascular events may also occur on behavioral health units. We noted orthostatic hypotension as a cause for falls. **Orthostatic hypotension** may also cause syncopal episodes. A whole host of drugs used in behavioral health, particularly certain antidepressants and antipsychotic drugs, may cause orthostatic hypotension. We won't

repeat our usual harangue about how to properly assess for orthostatic hypotension but if you really want to know go back to our Patient Safety Tip of the Week for January 15, 2013 "[Falls on Inpatient Psychiatry](#)".

Weight gain, metabolic syndrome, glucose intolerance and frank diabetes mellitus may be seen as side effects of several medications used in behavioral health, most notably the atypical antipsychotics. Such may predispose to cardiovascular events.

Torsade de Pointes is a form of ventricular tachycardia, often fatal, in which the QRS complexes become "twisted" (changing in amplitude and morphology) and is best known for its occurrence in patients with **long QT intervals**. In our June 29, 2010 Patient Safety Tip of the Week "[Torsade de Pointes: Are Your Patients At Risk?](#)" we discussed the risks of this potentially fatal syndrome in hospitalized patients. Though cases of the long QT interval syndrome (LQTS) may be congenital, many are acquired and due to a variety of drugs that we prescribe. And many of those drugs may be used in behavioral health settings. Perhaps the best known are haloperidol and methadone but a variety of antipsychotic drugs and antidepressants may prolong the QT interval (see our February 5, 2013 Patient Safety Tip of the Week "[Antidepressants and QT Interval Prolongation](#)"). For a full list of drugs that commonly cause prolongation of the QT interval and may lead to Torsade de Pointes, go to the [CredibleMeds™ website](#). So if one of these drugs will be prescribed for a behavioral health patient they should have a baseline electrocardiogram and then a followup one to see if the QT interval has been prolonged to dangerous levels.

DVT

Deep venous thrombosis (DVT) is relatively rare on behavioral health units. Yet every year state incident reporting systems receive reports of DVT or even fatal pulmonary embolism in patients on behavioral health units. This most often occurs in patients with severe behavioral health problems that leave them bedridden. We've seen DVT in one patient who had laid in bed at home several weeks prior to admission. Therefore, it is essential that every patient admitted to behavioral health units received an assessment for DVT risk factors just as if they had been admitted to a med/surg unit.

Extrapyramidal Syndromes

A major category of medications typically used on inpatient psychiatric units are antipsychotic drugs that may have **extrapyramidal side effects**. These may affect gait, balance, and reaction times to increase the risk of falls. When these drugs are started the patient should be examined daily to identify the occurrence of extrapyramidal side effects and the fall prevention strategies modified appropriately as they occur.

Anticholinergic Side Effects

Many of the drugs used in behavioral health have **anticholinergic side effects**. Dry mouth is the most common symptom but dry eyes, mydriasis, constipation, and others

may occur. Probably the most significant anticholinergic effect would be **urinary retention**.

Other Medication Adverse Events

The current Mills study did not go into detail about the medication-related adverse events they found. But they did mention that one category of event was **overdose**. One of the root causes identified was a problem with hazardous items checks. The other primary root cause was poor systems for managing opioid medication on the unit. It is important to make sure that patients are taking their opioid medication and not saving it to give to others or building up their own supply. In addition, having naloxone immediately available to reverse the effects of an opioid overdose is recommended. Along those lines we'd like to reiterate a point made earlier about the ever-increasing use of **long-acting and/or delayed release formulations of opioids**. We've seen patients who have taken such drugs in suicide attempts. They had been alert in the ER with low levels of drug in their urine screen so they are "cleared" for admission to a behavioral health unit. The next day they become obtunded due to opioid intoxication resulting from the delayed absorption of these drugs.

Eye Care and Oral Health/Dental Hygiene

See our May 10, 2016 Patient Safety Tip of the Week "[Medical Problems in Behavioral Health](#)" for issues related to **eye care** that are often overlooked on behavioral health inpatients. Similarly, that column also discusses **oral health and dental hygiene** that are often problematic in patients with behavioral health issues.

Other Medical Conditions

Two medical conditions particularly prone to problems on inpatient behavioral health units are diabetes and pregnancy. Behavioral health patients often cannot readily identify the insulin regimens they were on at home and access to family or caregivers at home may be limited. One study of psychiatric inpatients in the UK ([Kan 2016](#)) found that patients with severe mental illness and **diabetes** are not receiving standard care in glucose monitoring or appropriate access to specialist diabetes services when admitted to a psychiatric unit. Hyperglycemia events are poorly managed, suggesting an urgent need to raise awareness of diabetes management among clinical teams. They also found that capacity to consent for diabetes treatment needs to be addressed. Care is also complicated in that the patients may be poorly compliant with their medications and diet. We recommend that any diabetic patient who is taking insulin be followed by a medical consultant while they are inpatients on a behavioral health unit.

Pregnancy and behavioral health hospitalization raises both challenges and opportunities. An older study ([Miller 1990](#)) found in a group of pregnant psychiatric patients admitted to a psychiatric service a high rate of involuntary admission, homelessness, and substance abuse, and identified many risk factors associated with noncompliance with ongoing prenatal care. They concluded that brief psychiatric

hospitalization can be an important aspect in improving obstetric outcome by providing an opportunity to collect obstetric information and promote ongoing prenatal care.

Medical Emergencies

Medical emergencies like the neuroleptic malignant syndrome and serotonin syndrome are rare but potentially life-threatening and need prompt recognition and treatment.

Neuroleptic malignant syndrome (NMS) is characterized by fever, muscular rigidity, altered mental status, and autonomic dysfunction. NMS usually occurs shortly after the initiation of neuroleptic treatment (4-14 days) or after dose increases. Serum CPK is often elevated and rhabdomyolysis and myoglobinuria may be present. It may progress to renal failure, respiratory failure and death. In addition to cessation of the offending neuroleptic agent, treatment is mostly supportive. Several drugs have been tried as treatments but evidence for their effectiveness is limited ([Tse 2015](#)).

The **serotonin syndrome** is another potentially life-threatening condition with some similarities to the neuroleptic malignant syndrome. It also may have signs of autonomic instability (tachycardia, hypertension, dilated pupils, diaphoresis, piloerection), fever, and muscle rigidity. Other muscular phenomena are twitching, myoclonus, clonus, hyperreflexia, shivering, and loss of coordination. Seizures, unconsciousness and arrhythmia occur in severe cases. It is associated with serotonergic medications, such as selective serotonin reuptake inhibitors (SSRIs), and usually evolves more rapidly than NMS. Diagnosis is clinical and lab tests are not diagnostic. Treatment consists of cessation of the offending agent(s) and supportive care. Benzodiazepines are often used for sedation. Symptoms and signs usually disappear within a day of cessation of the offending agent(s) though they may last longer if the half-life of the offending agent is longer. Those cases associated with monoamine oxidase inhibitors tend to be more severe. Drugs that have serotonin antagonism (eg. cyproheptadine) have been used in some cases but evidence of efficacy is limited.

In the current Mills study, **unexpected death** (unrelated to suicide) on a VA mental health unit was relatively rare, with only 5 such deaths in their system over the 2-year period of study. They found that the primary root cause for sudden death on a mental health unit was a **delay in recognizing and treating** a serious medical condition that ultimately proved to be fatal.

Barriers/Challenges/Models of Care

As opposed to training for staff in prevention of suicide, assaults, and elopements, training for staff in recognizing and preventing medical adverse events is typically less vigorous or totally lacking on behavioral health units.

Moreover, as mentioned above, we noted that **staff may not see psychiatric patients as medically ill** and therefore are less attuned to prevention of and recognition of factors predisposing to “medical” adverse events.

Barriers to care of comorbid medical conditions are common on behavioral health units ([Frost 2006](#)). Psychiatrists often do not do medically-oriented history and physicals on their patients because it might interfere with the therapeutic relationship. In some facilities, a different psychiatrist might do that portion of the H&P. But let's be frank – most psychiatrists have a limited ability to deal with comorbid medical problems in their patients. Therefore, behavioral health units typically have a medical person (often a nurse practitioner) attend to the comorbid medical conditions on their patients. But all the healthcare workers on behavioral health units may be uncomfortable with the medical conditions. Nurses may have not worked on med/surg units for many years. Many behavioral health units lack rooms or equipment that are needed for medical evaluation. Such equipment and supplies (eg. supplies a surgeon or other physician might need to perform simple wound care) may have to be kept locked securely on behavioral health units. And we often see consultants who are uncomfortable or even fearful when dealing with behavioral health patients.

Getting an adequate medical history may also be more difficult because of limited patient cooperation and difficulty reaching family or others who might be secondary sources of medical information. Behavioral health patients are also more likely to be non-adherent to medication regimens and non-compliant with other medical interventions. In addition, they often have not had the preventive health services that would have been recommended.

Frost ([Frost 2006](#)) also points out that some free-standing behavioral health units may have limited lab, radiology, and pharmacy resources available for handling the medical problems in behavioral health patients.

Our May 10, 2016 Patient Safety Tip of the Week “[Medical Problems in Behavioral Health](#)” discussed several potential **models of care** for handling medical problems on behavioral health units:

- the nurse practitioner model mentioned above
- the embedded hospitalist model
- the medical consultant model
- the med/psych unit
- the geriatric psychiatry unit

We refer you to that article for details of each model.

We also need to be cognizant that **the hospital may be only source of attention to medical care** that many of these patients will be exposed to. We know how difficult it often is just arranging for post-discharge behavioral health care in these patients. It is equally difficult **ensuring they get adequate followup for their medical problems.**

Some of our past columns on issues related to behavioral health:

- January 6, 2009 Patient Safety Tip of the Week “[Preventing Inpatient Suicides](#)”
- September 22, 2009 “[Psychotropic Drugs and Falls in the SNF](#)”
- February 9, 2010 Patient Safety Tip of the Week “[More on Preventing Inpatient Suicides](#)”
- March 16, 2010 Patient Safety Tip of the Week “[A Patient Safety Scavenger Hunt](#)”
- December 2010 What’s New in the Patient Safety World column “[Joint Commission Sentinel Event Alert on Suicide Risk Outside Psych Units](#)”
- September 27, 2011 Patient Safety Tip of the Week “[The Canadian Suicide Risk Assessment Guide](#)”
- December 2011 What’s New in the Patient Safety World column “[Columbia Suicide Severity Rating Scale](#)”
- March 20, 2012 “[Adverse Events Related to Psychotropic Medications](#)”
- July 2012 “[VA Checklist Reduces Suicide Risk](#)”
- August 2013 “[Suicide Attempts on Med/Surg Units](#)”
- January 15, 2013 “[Falls on Inpatient Psychiatry](#)”
- April 2, 2013 “[Absconding from Behavioral Health Services](#)”
- December 3, 2013 “[Reducing Harm from Falls on Inpatient Psychiatry](#)”
- August 25, 2015 “[Checklist for Intrahospital Transport](#)”
- October 6, 2015 “[Suicide and Other Violent Inpatient Deaths](#)”
- March 2016 “[TJC Sentinel Event Alert on Preventing Suicide](#)”
- April 12, 2016 “[Falls from Hospital Windows](#)”
- May 10, 2016 “[Medical Problems in Behavioral Health](#)”
- February 14, 2017 “[Yet More Jumps from Hospital Windows](#)”
- March 14, 2017 “[More on Falls on Inpatient Psychiatry](#)”
- August 29, 2017 “[Suicide in the Bathroom](#)”
- December 12, 2017 “[Joint Commission on Suicide Prevention](#)”

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Mental Health Environment of Care Checklist (VA)

<http://www.patientsafety.va.gov/docs/MHEOCCed092016508.xlsx>

<http://www.patientsafety.va.gov/professionals/onthejob/mentalhealth.asp>

CredibleMeds™ website.

<http://www.azcert.org>

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