Medication Errors and Patient Safety in Mental Health CME/CE

Complete author affiliations and disclosures are at the end of this activity.

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Target Audience

This activity is intended for primary care and mental health clinicians who care for patients with psychiatric and substance abuse disorders.

Goal

The goal of this activity is to demonstrate critical system and practice areas contributing to medical errors in diagnosing or treating psychiatric or substance abuse disorders.

Learning Objectives

Upon completion of this activity, participants will be able to:

1. Summarize the historical background of efforts to reduce medical errors in psychiatry
2. Describe major classes of healthcare safety problems, such as missed diagnoses of mood and anxiety disorders, insufficient treatment, preventable adverse events, and errors of commission
3. Discuss errors in the use of seclusion and restraint and analyze efforts to reduce them
4. Review the factors that contribute to medical errors in high risk clinical populations, such as persons with comorbid diagnoses, children who may have ADHD, and recipients of electroconvulsive therapy
5. Analyze both systemic factors that affect patient safety and recommendations to address them

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Medication Errors and Patient Safety in Mental Health

Introduction

In *To Err Is Human*[^1] and *Crossing the Quality Chasm*,[^2] the Institute of Medicine (IOM) shed light on high rates of medical errors and unintended harm to recipients of care. Subsequent efforts in the *Quality Chasm* series have elucidated components of a safer healthcare system.[^3] However, the series has largely focused on medical and surgical care. In this article, we address quality and safety concerns for another group of persons that are perhaps more vulnerable to unintended harm and less likely to advocate for themselves -- recipients of mental health and substance abuse treatment.

The charge from the Institute of Medicine's Committee on Crossing the Quality Chasm -- Adaptation to Mental Health and Addictive Disorders has been to produce "a clear picture of the incidence and nature of errors and preventable adverse events in the treatment of mental illnesses and substance use disorders..."[^4]

Background

The number of persons receiving inpatient or outpatient treatment for mental illness and substance abuse disorders is substantial. The Centers for Disease Control and Prevention's...
(CDC)’s 2000 National Hospital Discharge Survey reported more than 2 million discharges for care recipients with an International Classification of Disease, Clinical Modification (ICD-CM) Mental Disorder. Their 2001 National Ambulatory Medical Care Survey reported:

- 26 million visits with symptoms referable to psychological/mental disorders;
- 25 million visits with symptoms referable to the nervous system (excluding sense organs); and
- 51 million visits with symptoms referable to general symptoms.

It is likely that a significant percentage of individuals in the 2 latter categories of visits have mental illness.

Despite the staggering numbers, few reports have been published on medical errors in mental health and substance abuse or related methodological issues. Some prominent psychiatric journals have yet to include medical errors or adverse drug events as keyword options for submitted manuscripts. In addition, terms more recently invoked in patient safety research such as near risks and preventable adverse events are largely unknown in mental health and substance abuse. A MEDLINE search performed June 2004 using medication errors and psychiatry as search terms yielded 37 citations. A similar search using medication errors and substance abuse yielded 69 citations, and medication errors cross-referenced with addiction yielded 1 citation. In contrast, a search of medication errors in general yielded 4892 citations, most of which were in anesthesiology and medicine.

History

The study of unintended harm caused by medical errors began in the field of anesthesiology 20 years ago. At that time, anesthesia death rates were roughly 1 in 10,000, and there was a precipitous rise in medical liability premiums. An anesthesia research foundation was formed, numerous research and performance improvement initiatives were undertaken, and death rates have since dropped to approximately 1 in 200,000.

In the early 1990s, Classen and colleagues as well as Brennan and associates in the Harvard Medical Practice Study made forays into internal medicine patient safety research. Once the Institute of Medicine released To Err Is Human in 2000, the often-cited medical error mortality rate of 44,000 to 98,000 per year began to increasingly appear in the lay press. In 2000, the Centers for Disease Control reported that approximately 100,000 persons die annually from hospital-acquired infection, which heightened concerns over patient safety.

Crossing the Quality Chasm, released by the Institute of Medicine in 2001, marked the beginning of the Quality Chasm Series, focusing on remedies needed to transform the US healthcare system. The series chronicled the substantial progress made identifying and quantifying unintended harm incurred by medical and surgical patients, and in developing the architecture of a patient safety regimen. The time has come to apply this experience and frame of reference to the inpatient and outpatient care of mental health and substance abuse patients.

As a specialty, psychiatry has started to adopt elements of the patient safety movement. The American Psychiatric Association (APA) convened its first Task Force on Patient Safety in 2002. Four areas were presented as priorities (1) change in clinical culture to focus on patient safety, (2) adverse medication events, (3) use of seclusion and restraint, and (4) suicides in inpatient and residential settings.
Additional recommendations included local and regional educational efforts through APA district branches, and inclusion of patient safety initiatives in medical school and residency programs. Its recommendations were approved by the Board of Trustees November 24, 2002 and by the Assembly Executive Committee January 24, 2003 leading to the inception of the APA Committee on Patient Safety.\cite{20}

Some potential harms to mental healthcare recipients have been studied extensively, including:

- Adverse drug reactions, such as:
  - Tardive dyskinesia;
  - Neuroleptic malignant syndrome;
  - Obesity and insulin resistance; and
  - Serotonin syndrome.
- Harm resulting from seclusion and restraint;
- The incidence and etiology of suicide; and
- Inappropriate psychiatrist-patient contact.

However, errors have not been systematically examined, and the contemporary patient safety paradigm and terminology have not been widely incorporated into the lexicon, research, and daily clinical practice of mental health and substance use treatment.\cite{11,12}

**Terminology**

According to the Institute of Medicine's nomenclature, a medical error is any mistake made in diagnosis or treatment.\cite{8} One category of medical errors is medication errors, defined as mistakes made in prescribing, transcribing, dispensing, or administering medication. Mistaken diagnoses and errors in treatment are examples of errors of commission; missed diagnoses, and needed treatments not given are errors of omission. A mistake that has not caused harm is a near miss. When harm is caused by a mistake, it is termed a preventable adverse event. Adverse drug events that cause harm but have not resulted from an error and could not have been prevented (for example, a drug rash when a medication is correctly prescribed to a patient without a history of allergic reaction) are adverse drug reactions.

Applying this nomenclature, mental health and substance abuse clinicians and researchers have had some success studying medical errors that cause preventable adverse events, including errors of commission and omission. Examples of errors of commission include the physical and psychological harm caused by excessive seclusion and restraint, and by medication errors. An example of an error of omission causing preventable adverse events is the under-diagnosis and treatment of depression and subsequent morbidity and mortality.

There are only a few studies of medication errors causing near misses, and of errors in psychotherapy (including insufficient coordination of care between non-psychiatric prescribers and counselors and psychotherapists) causing near misses.

This paper summarizes research on *medical errors* in mental health and substance abuse, and recommends future initiatives. Additional areas of potential harm not usually characterized as errors are also considered from a patient safety perspective including:
• Memory loss from electroconvulsive therapy; and
• Inappropriate clinician-patient contact.

Medication Errors: Recap

Medication errors in mental health settings have been reviewed by Grasso and colleagues for IOM\(^\text{[11]}\) and for Medscape\(^\text{[12]}\) and are summarized here. Adverse drug events (ADEs) were defined as any patient harm caused by administration of a medication, and were categorized as either adverse drug reactions (ADRs) or medication errors. The World Health Organization (WHO) definition of an adverse drug reaction was used -- namely, a complication caused by a drug when used in the usual manner and dosage.\(^\text{[21]}\) Medication errors were defined in accordance with the recommendations of The National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP): “Any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient, or consumer.”\(^\text{[22]}\) Such events may be related to professional practice or healthcare products, procedures, and systems, including:

• Prescribing;
• Order communication;
• Product labeling, packaging, and nomenclature;
• Compounding;
• Dispensing;
• Distribution;
• Administration;
• Education;
• Monitoring; and
• Use.

Methodologically, this review involved an extensive literature review. English-language studies involving ADEs and medication errors in psychiatry were identified by reviewing the following keywords in MEDLINE from 1966 to 2002, all cross-referenced with the term psychiatry:

• Medication error;
• Adverse drug event; and
• Adverse drug reaction.

Studies were included if they contained original data on medication errors or adverse drug events in mental healthcare.
Incidence studies of ADEs had been conducted almost exclusively in general medical settings, and had primarily examined ADRs, not medication errors. Only 2 medication error incidence studies in mental health settings were found. One was a 1984 epidemiologic study of state psychiatric hospitals, which reported that 75% of randomly selected patients experienced ADRs; medication errors were not examined.

In the only study examining the incidence of medication errors in a mental health setting, Grasso and colleagues retrospectively studied 31 state psychiatric inpatients over 2 months of care. Nine errors were self-reported using the usual incident reporting process, whereas an independent multidisciplinary review team found 2194 errors for the same 31 patients and episode of care:

- 19% of errors were rated as having a low risk of harm;
- 23% as having a moderate risk; and
- 58% as having a high risk.

The absence of studies of medication errors understood as near misses is highlighted. This is a significant category of errors, which can occur during prescribing, transcribing, dispensing, and administering medications, and has the potential to cause significant harm. Indeed, near misses may sometimes be termed as such because the study did not include assessment of patients and an attempt at drawing causal connections between the observed medical errors and the patients’ clinical course.

The literature review noted above yielded:

- No reports on medication errors in outpatient mental health settings;
- No medication error incidence studies in settings where psychologists have prescriptive authority; and
- No studies on the incidence and characteristics of medication errors in substance abuse settings, including medical detoxification for alcohol, sedative hypnotic, or opiate withdrawal.

One important concern rarely addressed in published studies is the exclusive reliance upon self-reporting in psychiatric and medical-surgical hospitals. Only 3 studies were found that compared self-reporting with an independent teams’ detection and reporting of errors (a methodological factor affecting the validity of reported error rates). In these studies, independent review teams detected error rates that ranged from 88 to 1000 times higher than self-reported error rates, and that were determined to be more valid that self-reported rates.

**Medication Error Summary**

Medication errors in mental health treatment settings have not been adequately studied. The potential for errors of omission and commission in mental health, however, causing either near misses or preventable adverse events is high for each of the following reasons:

- Volume of outpatient visits;
- Number of psychiatric medication prescriptions written;
• Absence of evidence of a contemporary understanding of medication errors and their consequences in both inpatient and outpatient mental health treatment settings;

• High prevalence of co-occurring substance abuse disorders that complicate diagnosis and treatment; and

• Greater vulnerability of individuals with mental illness.

In addition, the validity of reported error rates is limited by self-reporting -- the error reporting method currently used in almost all hospitals.

Errors in Diagnosis

Missed Diagnoses and Insufficient Treatment of Mood and Anxiety Disorders in Ambulatory Medical Settings

Introduction to missed diagnosis. Over half of patients with a psychiatric problem receive treatment solely from a primary care physician rather than a mental health specialist. Of all patients seen in primary care, from 15% to 25% have a mood or anxiety disorder. Because mood and anxiety disorders are common in ambulatory medical settings, but providers in these settings are usually non-psychiatric clinicians, treatment rendered in this setting may be prone to medical errors.

Errors of omission. The primary errors of omission in ambulatory medical settings, where non-mental health clinicians are the only providers interacting with patients, are missed diagnoses and failure to implement a needed treatment.

Missed diagnoses. Although the reliability of psychiatric diagnoses when made by trained diagnosticians using structured interviews is a good approach for most disorders, errors are made, even under conditions considered ideal or nearly ideal. In primary care medical practice, the following factors are likely to increase diagnostic errors of omission:

• Time constraints;

• Competing demands;

• Minimal training in mental health diagnosis and treatment; and

• Lack of use of a systematic diagnostic interview.

The overall missed diagnosis error rate for the detection of any mood or anxiety disorder by primary care physicians compared with a psychiatric interview has been reported to range from 25% to almost 67%. Primary care physicians correctly diagnose only 35% to 57% of the cases of major depressive disorder (MDD) that are identified with a psychiatric interview. A multinational investigation found that:

• 27% of false-negative cases (that is, primary care physician missing the diagnosis of MDD) were due to complete disagreement with a standardized interview diagnosis;
• 39.7% were due to the primary care physician recognizing some symptoms of depression but underestimating the severity of the condition and therefore not giving the diagnosis; and

• 33% were diagnosed with another condition.

Correct identification of MDD by primary care physicians is associated with:

• Greater familiarity with the patient; and

• Presence of suggestive clinical cues (eg, a history of depression or the presence of vegetative symptoms).

Anxiety disorders also frequently go undetected. In 1 study, about 10% of primary care patients with an anxiety disorder were identified by their physician. Approximately 70% of the time that a primary care physician identifies an anxiety problem, they diagnose an "anxiety state, unspecified" rather than a specific anxiety disorder. In 1 study in Israel, only 2% of patients with posttraumatic stress disorder (PTSD) were diagnosed correctly by the primary care physician. This underdiagnosis may be a result of inadequate education about anxiety disorders; for example, only 57% of primary care doctors in a study conducted in Germany considered generalized anxiety disorder to be an independent disorder.

**Insufficient treatment.** Treatment is absent when mood and anxiety disorders are missed. Insufficient treatment may occur even when anxiety and mood disorders are diagnosed correctly. Only about half of patients diagnosed in primary care settings with mood or anxiety disorders receive medication treatment. Psychotherapy referrals were not examined in these studies, so it remains unclear whether the patients who did not receive medication treatment were offered psychological treatment.

Even when a psychiatrist provided a consultation and advised antidepressant treatment, only 53% of appropriate primary care patients received antidepressant medication over the next year. The National Ambulatory Medical Care Survey database from 1985 to 1998 documented that treatment for anxiety is offered in 60% of visits to primary care physicians compared with over 95% of visits for anxiety to a psychiatrist. A recent naturalistic study of anxiety disordered patients in primary care found that 47% were receiving treatment from either the primary care physician or a specialty mental health clinician. A study of patients with panic disorder in primary care settings revealed that only 64% were found to be receiving either medication or psychotherapy.

**Preventable adverse events.** Missed diagnoses and insufficient treatment of mood and anxiety disorders in medical settings may cause serious preventable adverse events. For MDD, preventable adverse events include impairment in physical and mental functioning that is comparable to that found with common medical disorders such as hypertension and diabetes. Depression exacerbates the outcomes of chronic medical illnesses and is associated with higher rehospitalization rates and higher mortality rates following a myocardial infarction.

MDD is also associated with a substantial risk of suicide, which is increased when treatment is insufficient. The economic burden in the United States due to MDD has been estimated at about $83 billion as of 2000. Of these costs, about three-fourths represent indirect costs (vs the direct cost of providing treatment), particularly reduced productivity and absenteeism in the workplace. The World Health Organization has ranked MDD as second only to ischemic heart disease in magnitude of disease burden in countries with established market economies.
The functional and economic burden of MDD has been an area of focus for payers and employers. Less recognized, however, is the substantial impairment in social and occupational functioning, and in physical health, documented in mental health treatment settings for individuals with specific anxiety disorders, such as:

- PTSD$^{61,62}$;
- Panic disorder$^{63,64}$;
- Generalized anxiety disorder$^{65}$; and
- Social anxiety disorder.$^{66,67}$

Impairment from anxiety disorders is also apparent in those who present to a primary care physician.$^{68,69}$ Generalized anxiety disorder produces impairment in health-related functioning that is equivalent to or significantly greater than patients with diabetes and recent myocardial infarction.

Primary care patients with anxiety disorder are high utilizers of general medical services, resulting in increased overall healthcare costs compared with primary care patients who have subthreshold disorders or no anxiety disorder.$^{70}$ The economic burden of anxiety disorders in the United States has been estimated to be $42.3 billion in 1990, primarily due to increased use of non-psychiatric medical services.$^{71}$

However, missed diagnoses do not necessarily lead to preventable adverse events. Some studies have suggested that patients with unrecognized MDD in the primary care setting are less severely depressed and less functionally impaired$^{32,37,70}$, and therefore at less risk for:

- Loss of employment;
- Impaired social functioning;
- Exacerbation of co-occurring medical disorders; and
- Suicide.

When recognized and unrecognized patients with MDD are tracked over time, clinical improvement has often been comparable,$^{37,70}$ although greater short-term improvement for recognized cases has also been reported for MDD and anxiety disorders.$^{72}$

**Errors of commission: mistaken diagnoses.** As described previously, for MDD, about one-third of the diagnostic errors in primary care are mistaken diagnoses.$^{37}$ Mistaken diagnoses range from anxiety disorders to alcohol/substance abuse to psychotic/dissociative disorders. Conversely, when an anxiety disorder is present, a mistaken diagnosis of depression is sometimes given.$^{38}$ The high level of comorbidity between anxiety and mood disorders is likely to contribute substantially to such diagnostic errors.$^{72}$

Primary care physicians also occasionally diagnose a mood or anxiety disorder when it is not present (false positive). Among non-depressed patients, a false positive rate of 12% in primary care was reported in 1 study$^{38}$ and 14% in another.$^{37}$ About 25% of these MDD false-positives in the Tiemens study actually had an anxiety disorder, 20% were the result of overestimation of severity of depression by the primary care physician, and 55% were "true" false positives. In the Klinkman study, a history of depression was apparent in over half of the false-positive cases,
suggesting that physicians might have been unduly influenced by a history of depression rather than the clinical evidence for depression at the time of examination.

The implications of these misdiagnoses require more study. Because the treatments for most mood and anxiety disorders are similar, and because even subsyndromal disorders cause significant distress and functional disability, it is possible that imprecision in diagnosis may still result in the use of appropriate medication treatment. Of course treatment of an individual without a disorder, even subsyndromal, causes unneeded exposure to medication errors.

Recommendations to diminish misdiagnoses in primary care. Since primary care clinicians will most likely continue to be the point of entry, and often the sole provider of mental health treatment, for patients suffering from mood and anxiety disorders, improvements in diagnosis and appropriate treatment of these disorders in primary care should be an important priority. Better education of primary care providers about the symptoms and management of depression and anxiety are essential. Programs designed to increase primary care clinicians’ recognition of depression and other psychiatric disorders have not yet proved to improve treatment outcome. However, studies that have added training in depression management in addition to education on better recognition of its presence have yielded better outcomes.

The feasibility and sustainability of programs focusing on better education of primary care clinicians has not been established. Because of the time constraints of standard primary care practice, fast, efficient methods of screening, such as the Primary Care Evaluation of Mental Disorders (PRIME-MD) for anxiety, depression, and other psychiatric disorders are recommended. The Patient Health Questionnaire, a 9-item subset of the PRIME-MD, is a more concise screen for depression if time constraints preclude use of the full PRIME-MD questionnaire. The routine use of such simple methods for screening and ongoing monitoring might provide a sustainable way of reducing diagnostic errors in ambulatory medical settings.

A final recommendation is for managed care and insurance companies, as well as health systems and provider networks, to consider the implementation of incentives for better detection and treatment of mood and anxiety disorders. Pilot “pay for performance” programs, such as Bridges to Excellence or the Integrated Healthcare Association initiative in California, have focused on physical conditions such as diabetes or asthma. Quality measures do exist for the medication treatment and follow up of diagnosed depression, such as performance standard and report card measures. Adding incentives for better detection and treatment to the use of quality measures is a recommended first step.

Errors in the Use of Seclusion and Restraint

In October 1998, The Hartford Courant reported on the death of Andrew McClain, an 11-year-old boy who died while restrained and secluded in a psychiatric hospital in Connecticut. Thus began the Courant’s 5-part series based on a 50-state survey that confirmed 142 deaths related to the use of seclusion and restraint in mental health settings over the past decade. The series cautioned that most deaths related to seclusion and restraints are unreported, and that the actual number of annual deaths was possibly much higher.

The national response to the Courant exposé was far reaching. Congress commissioned the US General Accounting Office (USGAO) to report on the use of seclusion and restraint. The USGAO responded by releasing a report in 1999 entitled, Improper Restraint or Seclusion Places People at Risk. The USGAO report confirmed the majority of the Courant’s allegations, including the following:
Improper use of seclusion and restraint are dangerous;

There is inadequate monitoring and reporting of its use and of resulting harm (or preventable adverse events) to patients;

Serious injuries or death can occur and are underreported;

Licensing and accreditation of seclusion and restraint standards are inconsistent and insufficient; and

Successful strategies for preventing seclusion and restraint as well as reducing the risk of injury when use occurs are not widely used.

Seclusion and restraint are commonly used practices intended to prevent adults and children with mental health and substance abuse diagnoses from harming themselves or others in inpatient or residential treatment environments. Unfortunately, access to incidence data collected by The National Association of State Mental Health Program Directors (NASMHPD) is controlled (and forbidden) by participating hospitals. There are no published data interpreted as accurately reflecting the true incidence of seclusion and restraint use.

The use of these interventions is intended to be severely restricted to "individual situations in which an emergency safety need is identified," but as use is generally ordered by staff and based on subjective criteria, the use of these emergency interventions has a wide range.[86] Restraint is defined in a variety of ways, but the term generally refers to "a manual method or mechanical device, material, or equipment attached or adjacent to the patient's body that he or she cannot easily remove and that restricts the patient's freedom or normal access to one's body."[87] Seclusion refers to "the involuntary confinement of a person in a room where they are physically prevented from leaving."[88] Recent literature reviews of seclusion and restraint reflect the absence of substantiated prevention strategies; indications for use; application methods; monitoring; post-event activities; and absence of evidence of its effectiveness in preventing harm.

The Centers for Medicare and Medicaid Services (CMS) -- formerly known as the Healthcare Financing Administration (HCFA), the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and state licensing agencies have attempted to regulate the use of seclusion and restraint through licensing and accreditation standards.[87,91,92] However, the Courant series, the USGAO report, and others have documented alarming rates of patient harm, including death, despite the application of such standards.[81,82,86] While efforts are underway to resolve these issues, the appropriate and safe use of seclusion and restraint is far from assured.[86,93]

In recent years, advocates, consumers, professional associations, provider organizations, and the legal field have increasingly recommended a reduction in the use of seclusion and restraint, or even its elimination.[83,86,94] These recommendations resonate with Recommendation no. 1 in the IOM's Crossing the Quality Chasm that states "All healthcare organizations, professional groups,
and private and public health purchasers should adopt as their explicit purpose to continually reduce the burden of illness, injury, and disability, and to improve the health and functioning of the people of the United States. Using the IOM's medical error nomenclature, reports about seclusion and restraint reflect high rates of medical errors, mostly errors of commission, perhaps errors of omission, causing either near misses or preventable adverse events in routine clinical practice.

Safety in healthcare practices is defined as keeping the patient free from accidental injury. Although not all errors cause injury, accidental injury can be due to error either by "the failure of a planned action to be completed as intended or use of the wrong plan to achieve an aim." The improper use of seclusion and restraint is not safe and causes serious and preventable adverse injuries, including death. The media continues to report adverse events as well. For example, in 2000, 3 deaths were reported just in Texas, including that of 2 boys, one 9 and the other 11 years old, and a 16-year-old girl. In South Carolina, in 2003, a 9-year-old boy died after he kicked a staff member in the leg and ran down the hall, which resulted in a "take down" and the boy's asphyxiation. In Arizona, a 32-year-old woman died in restraints for behavior that was later judged as not meeting the threshold of imminent danger.

Reducing and Improving Seclusion and Restraint Events: Recent Performance Improvement Initiatives

Several initiatives focused on seclusion and restraint reduction (embedded in public health prevention, continuous quality improvement, principles supporting recovery from mental illness, and trauma-informed care) have been developed by the American Psychiatric Nurses Association, the APA, the National Association for Private Health Systems, the American Hospital Association, the National Alliance on Mental Illness (NAMI), and the Children's Welfare League of America. These initiatives are intended to complement other essential elements such as adequate numbers of well-trained staff, and the use of proven psychological and medication treatments.

The public health constructs of primary, secondary, and tertiary prevention create a logical framework and redirect the focus from "safer use" of seclusion and restraint to interventions that prevent its use. The model of recovery espoused by the Surgeon General's Mental Health report necessitates:

- System-wide transformation by adopting goals of full recovery in a life outside the hospital;
- Emphasis on instilling hope;
- Availability of multiple treatment options; and
- Development of partnerships with those who seek services.

The use of controlling or coercive interventions is counterintuitive in this model and is to be avoided except, perhaps, as the last alternative in preventing death or significant harm to self or others caused by treatable manifestations of mental illness. A growing understanding of the neurologic, biologic, psychological, and social effects of trauma, and its high prevalence in the populations that seek mental health services, is informing approaches to assessment, diagnosis, stabilization, and treatment of individuals with mental illness, including the use of seclusion and restraint as a means of preventing injury to self or others.

Data should be analyzed for characteristics of facility usage by:
• Unit;
• Shift;
• Day; and
• Staff member involved.

With rare exception, data on individuals should be used confidentially to identify individual staff training needs, not for disciplinary actions. The facility needs to highlight data on seclusion and restraint use by graphing and posting this data on all units so that it is clearly visible for staff and consumers of service. Facility-generated data on seclusion and restraint used in a non-punitive way provides for healthy competition among treatment units and elevates the general oversight and knowledge of use and outcomes for everyone involved. It allows and encourages administration to identify successful staff and treatment units so that successful improvements can be shared.

A comprehensive national health information infrastructure could be a useful tool in reducing seclusion and restraint events. The National Association of State Mental Health Program Directors Research Institute, Inc. (NRI) performance improvement system has developed a set of technology standards applications, systems, and values that include a number of recommendations for reducing seclusion and restraint events and making their occurrence less error prone.

Reduction of the use of seclusion and restraint must start with clear leadership and a specific plan that articulates a mission and philosophy about seclusion and restraint reduction, and defines the roles and responsibilities of all facility staff. One core component is use of an executive on-call function and the daily review of the use of seclusion and restraint by executive leadership.

Creating a treatment environment that prevents seclusion and restraint is based on the principles of recovery and the characteristics of trauma-informed systems of care. Staff education needs to:

• Include the experiences of consumers and staff;
• Address the common myths associated with use;
• Introduce the rationale and characteristics of trauma-informed care;
• Educate on the neurobiological and psychological effects of trauma; and
• Describe a prevention-based approach to reduction.

Seclusion and Restraint Summary

The use of seclusion and restraint is associated with substantial harm to recipients of care, including death. Medical errors precede many seclusion and restraint events which, in turn, cause further errors and substantial harm to both recipients and providers of care. Several local and national initiatives are underway to improve the safety of seclusion and restraint events and to decrease its use. The results of their successful application can be seen in facilities:

• Pennsylvania;
Further study of causal antecedent events and of harm resulting from seclusion and restraint events is recommended, using the patient safety paradigm and nomenclature.

**High-Risk Clinical Populations Lacking Adequate Patient Safety Research**

**Introduction to High-Risk Clinical Populations**

There are no empirical data to quantify, characterize, or confirm medical errors in certain populations with mental illness and/or substance abuse where multiple risk factors for error also exist. A brief discussion of these populations, and their risks for errors, is provided below. It is hoped that heightened focus on these high-risk populations will be an impetus for medical error research.

**Persons with Co-occurring Mental Illness and Substance Abuse**

Individuals with co-occurring psychiatric and substance disorders have not been studied for medical errors, yet they are perhaps at greater risk for harm because of the nature and number of their co-occurring disorders. Several studies have reported the common occurrence of comorbidity among persons with a recognized diagnosis of either mental illness or substance abuse. For example, in 1990, Regier\[74] found a lifetime prevalence of substance abuse among 62% of persons with bipolar disorder. In 1996, Kessler and colleagues\[113] reported a lifetime prevalence of 59.9% of psychiatric illness among persons with substance abuse disorders, while 31% had a concurrent psychiatric disorder.

Persons with co-occurring disorders are high utilizers of medical resources, and therefore, more exposed to systems issues that may predispose to unintended harm. In 1995, an estimated 2.6 million (2.7%) of the 96.5 million emergency department (ED) visits were related to alcohol abuse alone.\[114]\n
In a study by Dickey and associates,\[115] using data from the Massachusetts Division of Medical Assistance and death records from the Department of Public Health, individuals with co-occurring psychiatric and substance use disorders had the highest risk of medical morbidity for 5 of the studied medical disorders. Medicaid beneficiaries with dual diagnoses are 6 to 8 times more likely to die of injury, primarily poisoning, than their counterparts treated for medical conditions only.\[116,117]\n
It is well-substantiated that persons with psychiatric and substance abuse disorders have higher rates of suicide attempts and death by suicide.\[118-123] In 2001:\[124]:

- 20,308 deaths were caused by homicide;
• 30,622 deaths by suicide; and

• 101,537 deaths were caused by accidents.

Given the frequency with which substance abuse by itself has been implicated in these 3 causes of death, the scope of morbidity and mortality related to co-occurring disorders is staggering.

The effects of substance abuse disorders in adults also affected the mortality rates of children during 1985 to 1996 -- 8482 (24%) of the 35,547 children aged younger than 15 years died in alcohol-related motor vehicle crashes.\[125\]

A subset of those with co-occurring disorders have substance dependence, PTSD, and chronic pain. The presence of chronic pain, and the complexities surrounding treatment of individuals with PTSD increase the risk for unintended harm and of a poor fit between clinical needs and the design of current healthcare systems. Despite the added risk factors, there is little science to direct clinicians. A Medline search using substance abuse, PTSD, and chronic pain as search terms in June 2004 yielded 10 citations. There were no incidence studies, and no published treatment guidelines.

**Conclusion regarding co-occurring disorders.** Individuals with co-occurring disorders are frequently encountered and at risk for multiple diagnostic and treatment errors including:

• Missed mental health, substance abuse, and medical diagnoses; and

• Insufficient or excessive medication treatment of either their substance abuse or psychiatric disorder.

Compared with the general population, these individuals are at higher risk for:

• Suicide attempt;

• Death by suicide; and

• Death at a younger age by medical illness.

There is a paucity of published studies on medical errors among individuals with co-occurring disorders despite several risk factors for unintended harm, and high rates of morbidity and mortality.

**Attention Deficit-Hyperactivity Disorder in Children: Excessive or Insufficient Diagnosis and Treatment?**

Inattentiveness, distractibility, impulsivity, and hyperactivity were recognized as elements of minimal brain dysfunction (now termed attention deficit hyperactivity disorder [ADHD]), and treated with stimulants, especially methylphenidate, beginning in the late 1960s.\[101,126,127\] Over the past 3 decades, the rate of drug treatment for behavior problems has increased exponentially, culminating in the prescription of ADHD drug treatment for at least 5-6 million American children annually.\[128\]

Children diagnosed with ADHD have been the focus of thousands of research studies over the last 40 years, yet the diagnosis and treatment of ADHD remain controversial among some within medicine and the general public.\[129,130\] Recent prevalence data from the 1998 National Institutes
of Health (NIH) consensus review\textsuperscript{131} and reported by Jensen\textsuperscript{132} suggest a prevalence of approximately 5%, affecting 3 million school-aged children.\textsuperscript{133,134}

ADHD is associated with\textsuperscript{135-137}:

\begin{itemize}
  \item Increased risk of accidents;
  \item Family and social dysfunction;
  \item Poor academic achievement;
  \item Substance abuse; and
  \item Antisocial behavior.
\end{itemize}

Recent treatment data, based on the number of methylphenidate prescriptions, show an estimated 5-6 million American children receive ADHD-related drug treatment annually.\textsuperscript{128} Aggregate national methylphenidate use has increased 100-fold from 1960 until 2000. Globally, nearly 90\% of the world's stimulant medication supply is consumed by the US population.\textsuperscript{138,139}

Substantial state-to-state and community-to-community variability in methylphenidate use raises concerns about potential pockets of over- and under-diagnosis and over- and under-prescribing. Drug Enforcement Association data on stimulant use reflect a 6-fold per capita variation in methylphenidate prescribing between some states,\textsuperscript{140} and a 20-fold prescribing variation between some communities.\textsuperscript{130,141}

LeFever and colleagues argue that, while the data are inconclusive, if communities such as Salt Lake City, Utah are used as a benchmark of acceptable diagnosis and treatment, then children in 36 states may be subject to over-diagnosis and over-treatment. Conversely, Jensen argues that ADHD is under-diagnosed and under-treated based on national aggregate data, allowing for pockets of over-diagnosis and treatment in some geographic areas.\textsuperscript{142} Given that in 1995, there were approximately 2 million pediatric visits in which ADHD was the focus of treatment, and 6 million stimulant prescriptions were written,\textsuperscript{132} 1 conclusion is that 3 million children with ADHD received an average of 2 prescriptions and 1 outpatient visit during that year, suggesting insufficient treatment. In another study cited by Jensen, the Multimodal Treatment Study of Children with ADHD, two thirds of ADHD children from reportedly highly motivated families obtained medication treatments, and for an average duration of only 8-14 months.\textsuperscript{142,143}

Despite the number of studies done, the strength of conclusions that can be drawn is contingent upon the adequacy of reported data. Studies to date are variously limited by data sources, sampling, accuracy, and interpretation.\textsuperscript{130}

When considered in aggregate, national ADHD prevalence rates and numbers of prescriptions written do not suggest excessive diagnosis and treatment. However, prevalence rates and stimulant use can vary as much as 30-fold when comparing different communities. A prevalence rate of 33\% among white elementary-aged boys in southeastern Virginia significantly challenges credibility.\textsuperscript{130} Such variability makes it essential that prevalence rates and stimulant use estimates be linked to sufficient demographics such as:

\begin{itemize}
  \item Geography;
  \item Age;
\end{itemize}
• Race; and
• Gender.

ADHD prevalence rates and stimulant use appear to be:

• Excessive in some communities;
• Plausible in other communities; and
• Perhaps insufficient in yet other communities.

Additional epidemiologic studies, reporting prevalence rates with specific demographics rather than in aggregate, and broader use of practice guidelines promulgated by the American Academy of Pediatrics (AAP) and others that advocate multimodal treatment rather than solely prescribing stimulants or other medications\(^{130,144}\) will help provide evidence of the extent of errors in the diagnosis and treatment of children with ADHD.

**Electroconvulsive Therapy**

Electroconvulsive therapy (ECT) remains a controversial treatment in psychiatry. As stated in the 1985 NIH Consensus Statement, "The nature of the treatment itself, its history of abuse, unfavorable media presentations, compelling testimony of former patients, special attention by the legal system, uneven distribution of ECT use among practitioners and facilities, and uneven access by patients all contribute to the controversial context in which the consensus panel has approached its task.\(^{145}\)

Epidemiologic data reported by Thompson and colleagues in 1994 found that\(^{146}\):

• 58,667 patients received ECT in 1975;
• 31,514 in 1980;
• 36,558 in 1986;
• 71% of the patients who received ECT were women; and
• Individuals older than 65 years of age had the highest rates per number of inpatients.

The rate of ECT use has been highly variable. For example, in 1995 Herman and associates\(^{147}\) reported that among 202 metropolitan statistical areas, annual ECT use varied from 0.4 to 81.2 patients per 10,000 population.

The most common adverse effect from ECT is memory loss. In a recent review of patients' perspectives as well as clinicians' studies, Rose and associates\(^{148}\) concluded that 29% to 55% of ECT treatment recipients experienced persistent memory loss. Recent empirical studies of ECT and memory loss continue to find persistent memory loss, with bilateral ECT producing more profound memory deficits than right unilateral ECT.\(^{149}\)

In a review of deaths caused by ECT, Abrams reported that ",...ECT is 10 times safer than childbirth, that approximately 6 times as many deaths annually in the US are caused by lightning as by ECT...and that the death rate reported for ECT is an order of magnitude smaller than the spontaneous death rate in the general population."\(^{150}\)
Corroboration of a low ECT death rate has arisen from 1993 legislation in Texas mandating reporting of all ECT-related deaths.\textsuperscript{[153]} As a result, the risk of death from ECT in Texas has been systematically tracked and reviewed. More than 8000 patients received 49,048 ECT treatments between 1993 and 1998. However, only 1 death could be linked to the associated anesthesia. An additional 4 deaths could plausibly have been associated with the anesthesia, yielding a mortality rate between 2 and 10 per 100,000 and the causes of death most likely were not the ECT stimulus or seizure.

Emotional harm, and erosion of faith in the medical profession that undermines accepting other needed treatments, can come to recipients of care for whom the experience of ECT is frightening.

**ECT conclusion.** ECT is effective for severe major affective illness, and is associated with a low mortality rate. Persistent memory loss is a consistent finding, despite attempts to optimize ECT administration, and must be expected at an incidence of approximately 25\% to 50\% by those contemplating, and those providing, ECT treatment.

Despite its relative safety, ECT continues to cause alarm in the general public. Even within medicine, it is described as dangerous and unethical by some.\textsuperscript{[152]} Such fears can cause emotional harm among ECT recipients. This may be especially true for older women (who comprise the majority of ECT subjects), some of whom may be accustomed to deferring to healthcare providers when consenting to treatment despite insufficient understanding of benefits and risks.

Recommendations include:

- Emphasis on pre-treatment education;
- Collaborative relationship with ECT recipients;
- Increased transparency regarding the substantial risk of persistent memory loss when seeking informed consent; and
- Continued research on its safety.

**Systems Issues Related to Patient Safety**

**Outpatient Care**

Risk of unintended harm may be increased by the segregated care settings in which psychiatric and substance abuse services are often delivered, including solo practitioner offices and free-standing psychiatric and substance abuse treatment facilities,\textsuperscript{[153,154]} and by insufficient communication and coordination of care between prescribers and psychotherapists.\textsuperscript{[155-157]} Despite the recognition of these potential contributing factors, there are no existing reports of the association between systems issues and medical errors.

Olfson\textsuperscript{[158]} reported that in 1987 there were 84 million outpatient visits with mental health practitioners, including:

- Psychiatrists;
- Psychologists;
- Social workers; and
Licensed counselors.

Kessler[154] reported in 1999 that an estimated 13.3% of a representative sample of Americans reported used outpatient services for mental health problems in the previous 12 months. Clearly, there are high numbers of individuals at risk for errors in outpatient mental health and substance abuse treatment.

Ethics and Malpractice Risk Management: Boundary Violations

A survey of recently published reviews and commentaries on patient safety reveals that for mental health and substance abuse issues, such discussion takes place mainly within the context of ethics and malpractice risk management.[159-162] Ethics statements from both the APA[162] and the American Psychological Association[163] support the duty to report and protect patients from deviations from the standards of care. This approach uses the individual practitioner's frame of reference, and relies on voluntary reporting from professionals who have been trained to consider confidentiality a critical component of their work. Harm caused by clinician boundary violations are understood as issues of professional misconduct, not as errors resulting from system failure and that minimize the individual clinician's responsibility and advise against punitive action.[164-167]

With the advent of therapeutic exchanges through email and other means of communication, additional boundary violations are possible. The Internet now has at least 110 million users, including 70 million using it for health-related information.[168] A recent survey indicated 40% to 50% of physicians use the Internet (or are preparing to use it) for clinical care.[169]

There is a risk of errors of omission or commission arising from lack of coordination of care between clinicians. Differences in therapeutic orientation and nomenclature used by the following specialists can compound systems issues that increase the risk of medical errors[158]:

- Social workers;
- Psychiatric nurse specialists;
- Psychologists;
- Licensed counselors; and
- Psychiatrists.

Confidentiality is critical in providing effective treatment within the secure and private setting of the therapist's office, and in protecting the patient from unauthorized disclosures of sensitive information and potential abuse from a third party.[170] However, confidentiality can also inhibit disclosure of near misses, impasses in treatment (for example, when treatment is not working), and preventable adverse events due to avoidance of sharing important clinical information with other professionals and with appropriate family members and other supportive resources.[171,172]

The solo practice model, commonly used by mental health clinicians, can also inhibit the adoption of best practices, and the development of policies and procedures to reduce risk, because all such practice management activities are left to the individual clinician whose focus is more likely to be exclusively clinical.

Summary About Systems Issues and Patient Safety
Systems for reliably reporting outpatient psychotherapy medical errors, particularly among the large numbers of solo practitioners, do not exist. The prevailing paradigm for reducing harm arises from risk reduction in order to diminish medical liability exposure. Studies that shed light on potential medical errors have arisen from risk management claims, medical liability lawsuits, and reports of death by suicide; not from research intended to examine patient safety per se.

Error reporting systems applicable to outpatient mental health settings, including incentives for their use, need to be developed. Professional risk management programs, primarily used to diminish medical liability exposure from the following could also be used to promulgate the relevance and value of the patient safety paradigm:

- Boundary violations;
- Suicide; and
- Treatment errors.

Most particularly, thought needs to be given to developing systems of error prevention applicable to the solo practitioner.

**Recommendations**

**Recommendation no. 1**

Widespread adoption of the IOM patient safety paradigm and nomenclature in mental health and substance abuse treatment settings is recommended. Advantages of its use include:

- Consistency with the nomenclature used by other medical specialties;
- Increased leverage in advocating for needed services and resources when the absence of essential treatments are quantified as errors of omission, causing near misses or preventable adverse events;
- Increased likelihood that medication errors in mental health and substance abuse will be researched and a determination made whether such errors are causing preventable adverse events; and
- Increased awareness among mental health and substance abuse clinicians that patient harm can come from a broader array of errors in diagnosis and treatment than has been studied to date.

Widespread adoption will require systematic educational efforts for trainees and current practitioners in mental health and substance abuse, including systematic introduction to the IOM's existence, mission, and safety and quality efforts such as the Quality Chasm Series (Many mental health and substance abuse clinicians and administrators seem unaware of the IOM at all.)

**Recommendation no. 2**
Further studies of medical error in mental health and substance disorders are needed.

Some areas of potential harm in this field remain largely unexamined. For example, we found only 2 studies of medication errors in mental health settings, and none in substance abuse detoxification and stabilization settings despite multiple risk factors for errors and preventable adverse events. The impact of variable education -- in pharmacology, physiology, and general medicine -- on the safety of prescribing practices has not been studied, nor has the clinical consequences of formulary restrictions on clinical outcome and potential patient harm. The current acceptance of self-reported hospital error rates must be challenged through a process of independently validating self-reported errors.

**Recommendation no. 3**

Integration of mental health and substance abuse services is recommended.

High rates of co-occurrence, and associated higher rates of morbidity and mortality, among those with mental health and substance abuse disorders requires integration of mental health and substance abuse treatment paradigms. This has not occurred to date.

**Recommendation no. 4**

The IOM’s 10 rules for change in healthcare should be adopted.

The 10 IOM rules for change in healthcare are as follows\(^\text{[179]}\):

1. Care based on continuous healing relationships.
2. Customization based on patient needs and values.
3. The patient as the source of control.
4. Shared knowledge and the free-flow of information.
5. Evidence-based decision-making.
6. Safety as a system property.
7. The need for transparency.
8. Anticipation of needs.
10. Cooperation among clinicians.

As an example of adoption of these rules, seclusion and restraint remain high risk treatments, yet current reporting systems do not permit transparency regarding the rate and types of injuries incurred, including mortality rates. Such transparency requires a non-punitive work culture, yet there is little evidence to suggest its adoption in high-risk environments such as state psychiatric hospitals, or inpatient detoxification and stabilization substance abuse treatment settings.

**Recommendation no. 5**
Reporting systems in outpatient mental health and substance abuse treatment settings must be adopted.

Reliance upon unsubstantiated self-reporting of medication errors in inpatient mental health and substance abuse settings remains a significant flaw when attempting accurate assessment of near misses and preventable adverse events and must be changed. A key necessity is anonymous, yet authenticated, medication error reporting for all staff, using available web-based error reporting systems. Such systems are cost-savers, and make reported error data immediately and continuously available. Web-based reporting systems providing anonymity with authentication could be used for further seclusion and restraint data collection, and as a means of establishing an outpatient error reporting system of safety and quality data by recipients and providers of outpatient treatment.

Recommendation no. 6

Resources should be allocated to study and develop practical interventions to improve patient safety.

Much current research in mental health and substance abuse, and resource appropriation, is focused on efficacy of pharmacotherapy and psychotherapy, and on establishing neurobiologic evidence to support causal theories of known clinical disorders. At a policy level, we recommend more consideration be given to funding practical interventions predicted to immediately improve patient safety.

References


84. National Technical Assistance Center for State Mental Health Planning (NTAC). Violence and coercion in mental health settings: Eliminating the use of seclusion and restraint. Alexandria, Va: National Association of State Mental Health Program Directors (NASMHPD), National Technical Assistance Center for State Mental Health Planning (NTAC); 2002.


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