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Safety Net Mental Health Services

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Photo: Douglas Novins

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Go for broke. Always try and do too much. Dispense with safety nets. Take a deep breath before you begin talking. Aim for the stars. Keep grinning. Be bloody-minded. Argue with the world. And never forget that writing is as close as we get to keeping a hold on the thousand and one things—childhood, certainties, cities, doubts, dreams, instants, phrases, parents, loves—that go on slipping, like sand, through our fingers.—Salman Rushdie

As Nussbaum and Simpson note in their Editorial, Denver Health is a safety net health care system—a model safety net health care system at that. But the authors of the articles published in this issue of the *Colorado Journal of Psychiatry and Psychology* wrote with a no-safety net boldness about what makes the behavioral health services at Denver Health such an important model for comprehensive, community-focused care. It is all here.

The diversity of patients and services. The challenges, pitfalls, and triumphs of innovation and service system change. Work completed, continued, and envisioned.

And behind all of these are the talented faculty who want to give us a hold on their handiwork. And like all scholarship, the articles in this issue offer us a snapshot of what is already in the (not-too-distant) past. Things will change at Denver Health as they always have. And so we must return to this place and people that no pen can ever fully capture, no matter how hard we try.

- Douglas Novins

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Call for Papers on
Behavioral Health Services

The *Colorado Journal of Psychiatry and Psychology* will be accepting papers for issues to be published in 2018. A call for papers will be posted on the Journal website in 2017.



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From the Editorial Staff

Abraham M. Nussbaum, MD, MTS; Scott Simpson, MD, MPH

Denver Health, Colorado's academic safety net health system, was founded in 1860, only 2 years after Denver came to life as a mining camp. While times and health care have changed, Denver Health endures in its missions: to care for all of Denver's citizens regardless of their ability to pay, to engage in research that enhances its ability to care for the ill, and to educate the next generation of health care professionals. Today, Denver Health's Behavioral Health Service conducts research, operates its own psychology residency training program, and is a core training site for University of Colorado School of Medicine psychiatry students, interns, residents, and fellows.

This edition of *The Colorado Journal of Psychiatry and Psychology* showcases the diversity of Denver Health's initiatives in behavioral health care. Readers will find articles describing practice in high-acuity settings—including a psychiatric emergency service, inpatient psychiatry units, and specialty eating disorder units—alongside studies highlighting integrated care models in outpatient settings. Readers will learn about Denver Health practitioners grappling with the decisional capacity of impaired patients, delivering information about a terminal diagnosis to a young child, and de-escalating agitated patients. As expected, the authors in this issue include psychiatrists and psychologists, but also obstetricians, internists, occupational therapists, social workers, and nurses.

These diverse efforts are a must for a system like Denver Health, and we hope readers will be most impressed by the skill and passion of its practitioners. They are motivated by Denver Health's mission to provide high-quality, accessible care to the people of Denver and Colorado. Driven by this mission, practitioners have adapted preexisting psychotherapy models, implemented trauma-informed care, developed telephonic counseling, pioneered adolescent substance abuse treatment, and built an educational training program for psychologists. These are just some of the many extraordinary accomplishments of our behavioral health team that are presented in this issue.

The authors published in this issue range from new writers to experienced veterans, but all share a passion for behavioral health care that manifests itself in this publication. As editors, we are honored to work closely with so many talented practitioners and to share their contributions with you. We hope you find, as we did, that the behavioral health faculty of Denver Health is comprised of a skilled and passionate faculty pursuing new ways to fulfill its long-standing mission.

Safety Net Mental Health Services

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A Call to Action: The Need to Develop, Study, and Refine Integrated Care Models for the Severely Mentally-Ill Population in Primary Care

Elizabeth Lowdermilk, MD*

The 2004 National Comorbidity Survey Replication found a 26.2% 12-month prevalence of mental disorders, 23.3% of which were classified as serious.¹ Practice guidelines exist for the treatment of mental disorders, including depression² and bipolar disorder³ using traditional hierarchical approaches, with mild to moderate cases treated in primary care and serious, complex, or refractory cases referred to specialty mental health practices. However, this is not the practice in many communities.⁴ This commentary reviews the current practice landscape, highlighting the fact that many people with serious mental illness are receiving mental health care from their primary care providers, how mental health practices in primary care settings can be structured to provide these services, the lack of a meaningful evidence base for these models, and a call to action to address this gap in research and practice.

Primary care providers are taking care of much more than mild to moderate anxiety and depression. A study by the CDC found there were 63,000 outpatient visits for schizophrenia in 2009-2010, 34,046 of which occurred in specialty mental health and 20,875 (38%) in primary care.⁴ Also concerning is that many patients who are referred to specialty mental health services fail to follow up there, or follow up too infrequently to receive adequate care.⁵ In one study looking at managed care referrals for depression, 22% of the patients who called looking for therapy did not make a single visit in the next 90 days; only 57% attended 2 or more sessions.⁶ Less severe depression at the time of the initial phone call was associated with higher attrition, but one-third with severe depression dropped out prior to the second visit.⁶ While the service use patterns for individuals with serious mental illness vary from study to study, in some studies, up to one-third of those suffering with schizophrenia, bipolar I, or

schizoaffective disorder who have contact with specialty mental health practices will drop out of treatment.⁵ Also concerning is that in one study, 18%-67% (median 58%) of individuals who are hospitalized with a severe mental illness “no showed” for their first post-hospitalization outpatient appointment.⁵

Why patients do not follow up with referrals to, or disengage from, specialty mental health services is not well understood. Many theories have been put forth: stigma, a positive relationship with a primary care provider and/or clinic, lack of transportation to specialty clinics, lack of resources to afford specialty care, a belief that they can take care of their mental health issues on their own, cultural beliefs, preference, and previous bad experience at a specialty clinic.^{6,7,8}

More detailed characterization of the population who seeks mental health care in primary care could serve as the basis for targeted integrated care interventions. One health center found that while 20.9% of their studied population reported psychotic symptoms, diagnostic evaluation revealed only 7.1% had a psychotic disorder.⁹ Most had typical forms of less severe mental illness, including major depressive disorder, panic disorder, generalized anxiety disorder, alcohol use disorder, and borderline personality disorder.⁹ Psychotic symptoms were associated with higher degrees of reported impairment in work, social, and family functioning, and were inversely related to income.⁹ This highlights several potential integrated care interventions: (1) the screening of all patients for psychotic symptoms, (2) the referral of those who screen positive to integrated behavioral health clinicians for differential diagnosis, and (3) the subsequent development of a team-based treatment plan that incorporates individual psychological, psychosocial, and medication needs.

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Factors including variable access to care, workforce shortages, and a growing population suggest that primary care providers will increasingly be asked to treat patients with serious mental illness. A national survey of physicians found that half of all psychiatrists do not accept Medicaid or Medicare, and a little less than half of psychiatrists do not accept private fee for service insurance, with some regional variability.¹⁰ Percentages of psychiatrists accepting insurance has been decreasing.¹⁰ Furthermore, the psychiatry workforce is aging; more than half of the psychiatrists currently practicing are 55 or older.¹⁰ Without significant changes, it is unclear how the mental health needs of our growing population will be met.

Clinical innovators, recognizing the need, developed the Collaborative Care Model (Impact Model) to improve the usual care of depression and anxiety in primary care demonstrating improved quality of treatment and decreased health care costs.¹¹ The Impact Model team members include the primary care provider (PCP), an embedded Behavioral Health Consultant (BHC), and a consulting psychiatrist. Cases are referred to the BHC for diagnostic evaluation and brief treatment.¹¹ The psychiatrist, working in a step-wise fashion, reviews cases with the BHC, prioritizing complex and refractory cases, providing medication and other treatment recommendations that are implemented and followed by the PCP and BHC.¹¹ Patients who do not improve are seen by the psychiatrist.¹¹ This model allows for the psychiatrist to manage more patients than they would otherwise be able to, and the team to manage the needs of their clinic population.

Integrated care has continued to evolve. In some models, like the Primary Care Behavioral Health Model (PCBH), the BHC accepts all referrals, optimally in conjunction with a PCP appointment.⁸ The PCBH model, compared to the Impact Model, has the potential to intervene on more patients, but does not utilize a registry to track individual patients or to manage the population.^{8,11} In integrated care practices that do not restrict access by diagnosis, clinicians end up treating the seriously mentally ill.

Yet, there is a gap in the literature regarding clearly-defined models for the treatment of the severely mentally-ill population in primary care. There are no guidelines describing the treatment of the seriously mentally ill in primary care practices. A Cochrane

review¹² of approximately 330 articles found only 1 randomized-controlled trial. They concluded that there was no evidence to support the use of collaborative care (here a generalized term) in schizophrenia, and there was only 1 low or very low quality study addressing the use of collaborative care to treat bipolar disorder, the findings of which could not be generalized to the seriously mentally-ill population. These findings are disheartening and counterintuitive, given what we know about where people with seriously mental illness obtain treatment. More recently, patients with bipolar disorder who were treated in a primary care clinic using the Impact Model were studied.¹³ Patients with bipolar disorder, on average, had more housing concerns and were more likely to lack dependable transportation than seen in a prior study of depressed patients at the same site. They also tended to receive more intensive services, possibly related to the high number of comorbidities and a high rate of suicidal ideation. Interestingly, only 26% were referred to specialty mental health care. While the authors did not assess the reasons for the lack of referrals, they noted limited resources and patient preference as possible explanations.

This author co-designed a proposed model for the treatment of Schizophrenia Spectrum and Other Psychotic Disorders in integrated care that will be published in *Psychiatry, Primary Care & Medical Specialties: Pathways for Integrated Care*.¹⁴ The proposed model incorporates existing fundamental integrated care practices, the clinical integrated care experience of the authors at the Denver Health Medical Center, and current specialty-focused guidelines. The proposed team is an enhanced one and includes the PCP, the BHC, the psychiatrist, as well as clinic navigators/care coordinators, health coaches, social workers, and clinical pharmacists. The team coordinates care and prioritizes patient needs via monthly team meetings and weekly meetings between the BHC and the psychiatrist (involving others as needed). Key components include the identification of patients with psychotic symptoms, initial evaluation (including assessing for medical and psychiatric emergencies), a full bio-psycho-social evaluation, and treatment via multiple modalities (medication, supportive psychotherapy, social skills training, cognitive behavioral therapy, group therapy, vocational rehabilitation, and substance abuse treatment) occurring in the community or in the clinic. In addition to treating a patient's primary psychiatric disorder, the team screens for and

treats co-occurring medical conditions, co-occurring psychiatric conditions (eg, substance abuse, and trauma), all of which are tracked in a registry. Special attention is paid to the identification and management of emergencies (psychiatric and medical), to transitions of care (emergency room and hospital), and the potential to identify and offer targeted interventions to high utilizers is described. Emphasizing a team approach, the treatment intensity and team members involved vary, responding in real time to changes in clinical presentation. In this way, the model is very flexible, more closely resembling existing integrated-care models at some times and traditional specialty-care models at others.

With limited access and barriers to specialty mental health care, and patient factors such as preference, those with severe mental illness are increasingly treated by primary care providers. As psychiatrists age and opt out of insurance plans, the burden on primary care systems will only increase. While this may seem like a daunting task, as collaborative care models are not fully developed, there is a historic opportunity

upon us. The call to action is as follows: psychiatrists and psychologists, and master's-level clinicians, united with their primary care partners, need to further develop, study, and refine integrated care models to treat the seriously mentally ill. Those models that take into account clinic population and resources, community resources, and specialty provider availability are a priority. Clinicians may need to use multiple models, applying different types and levels of intervention based on the patient need. Further, clinicians need to describe in the literature what is and is not working. Outcome studies are essential for the needs of both patients and providers in the primary care setting and the efficacy of these enhanced integrated care models. Given the present and likely future systemic realities, there is no time to lose.

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To Tell or Not to Tell: A Case Report of Terminal Illness in a Complex Youth

*Kristie Ladegard, MD; Peggy D. Baikie, DNP, RN, PNP-BC, NNP-BC**

Introduction

Terminal illness in children evokes a number of emotional issues. Among the many decisions that must be made regarding the illness is whether to tell the child their prognosis. We discuss the case of a young female, involved in the child welfare system, with Friedreich's ataxia, a neurodegenerative disorder that is often fatal by young adulthood. We also examine the ethical challenges that arose surrounding the notification of her illness and the subsequent ramifications of the actions taken.

Friedreich's ataxia is a rare autosomal recessive disease that leads to progressive, neurodegenerative disability. Symptoms typically start with an uncoordinated gait (ataxia) that gradually worsens and spreads to the arms and trunk. Tendon reflexes are lost, and speech becomes slow and slurred. Hearing and vision loss, incontinence, and scoliosis are common. Hypertrophic cardiomyopathy, myocardial fibrosis, and arrhythmias (tachycardia or heart block) cause symptoms of chest pain, shortness of breath, and palpitations. Up to 32% of people with Friedreich's ataxia develop diabetes. Cognition is usually preserved, though neuropsychological testing may show evidence of mild executive dysfunction.¹ No specific psychiatric conditions are comorbid with Friedreich's ataxia. The severity of the disease and the rate of progression are variable. The mean time from symptom onset to use of a wheelchair ranges from 11 to 25 years.¹ Most affected persons with Friedreich's ataxia die by age 40. A team approach involving neurology, cardiology, orthopedics, endocrinology, and physical and speech therapy are required to provide care to those affected.²

Case Presentation

Catherine, an 11-year-old Hispanic female, presented to a residential treatment center for care after a substantial history of traumatic experiences, including witnessing severe domestic violence, and experiencing neglect and physical, emotional, and suspected sexual abuse. She became involved in the child welfare system at 5 years of age and required a higher level of care after multiple failed placements both in kinship and foster care. She had received no substantive mental health treatment prior to this placement. While in residential care, Catherine had been given diagnoses of major depressive disorder, recurrent, moderate severity; post-traumatic stress disorder (PTSD); and oppositional defiant disorder. Subsequent providers diagnosed her with mood disorder, not otherwise specified (NOS) and attention deficit-hyperactivity disorder, combined type (ADHD). She had an individualized education plan (IEP) for emotional and physical disability. Her IQ was reported to be in the mid-70s range—too high for her to qualify for a cognitive disability and associated school services.

Catherine was diagnosed with scoliosis at age 10 and Friedreich's ataxia at age 13. Her condition was further complicated by diabetes mellitus, cardiomyopathy (left ventricular dysfunction and left ventricular hypertrophy), hyperthyroidism requiring radioablation, and incontinence. She became progressively debilitated and was wheelchair bound within a year of her diagnosis. Her struggle to accept her limited mobility resulted in frequent emotional instability. Maladaptive behaviors included aggression, hostility, out-of-control behaviors, non-compliance, and suicidal gestures.

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Due to the rapid progression of her Friedreich's ataxia, Catherine's prognosis was poor. A multidisciplinary team meeting was held with her neurologist, psychiatrist, medical care providers, and social services caseworker (legal guardian). Topics of discussion included the severity of her prognosis, whether and when she should be told, how much information should be disclosed, and who would be best to deliver the information. In this meeting, evidence was presented from the literature that recommended children should be told the prognosis as soon as possible.³ Different treating professionals, however, had differing opinions. The social services caseworker felt that her emotional state was too fragile for her to be informed, while the patient's primary care provider, psychiatrist, psychotherapist, and other members of her therapeutic team felt she should be told as soon as possible. These members of the team felt her neurologist in particular should share this information with her because of the expertise with this illness. The neurologist stated that Catherine had previously decompensated emotionally when informed that she would be unable to ambulate in the future. He therefore declined to notify the child of her prognosis due to fears of causing emotional harm to an already-traumatized child. A second plan was proposed to have the primary care provider—a certified physician assistant—inform the child of the prognosis, but this provider did not feel qualified to discuss the details of her illness and the outcome of the disease process.

Prior to being informed of her prognosis, Catherine repeatedly asked why she was experiencing physical symptoms and expressed feeling a lack of control in her life. Her behavioral problems worsened with increased defiance, aggression, self-harm, and pseudo-seizures, possibly in response to her inability to control her body. The team noted increased problematic behaviors associated with decreased physical mobility and loss of muscle control. The exact etiology of her behaviors was likely multifactorial, and Catherine's providers often perceived these aggressive behaviors as an expression of her determination to survive. Her aggression became so severe, she was not allowed to use her motorized wheelchair. This kept others from being severely hurt and protected her from legal ramifications due to her aggression.

Catherine would often refuse medications and sometimes refused to eat, stating she was mad, although she did not know why she was mad. At other times she consumed large amounts of candy and other sweets. In 1 year, her hemoglobin A1C increased from 5.9% (normal) to 12.1% (high). Her self-harm behaviors continued to escalate to the point where she wrapped a hose around her neck so tightly that she became cyanotic. This episode resulted in a psychiatric hospitalization. During the hospitalization, she informed the psychiatrist that she was not suicidal but rather was seeking attention from staff because they were not meeting her needs in a timely manner.

While she was hospitalized—almost 2 years after the initial discussion of whether to inform the patient of her prognosis—the treating psychiatrist notified the youth of the terminal nature of her disease and its rapid progression. The psychiatrist utilized a highly empathetic approach, and after this conversation she was upset. Ultimately, she was able to accurately describe her medical condition and prognosis and to accept this information within the supportive environment of the psychiatric inpatient unit.

Upon release from the hospital, Catherine continued to decompensate psychiatrically. It was unclear if her decompensation was related to the notification of her prognosis or because of other factors, such as the worsening of her diabetes and cardiomyopathy, social stressors including multiple placements, lack of family support, or worsening depression and subsequent hopelessness. This patient's oppositionality was worse during periods of greater medical or social stress.

The team employed multiple treatment modalities to address these behaviors, including trauma-focused cognitive behavioral therapy, eye movement desensitization reprocessing, dialectical behavioral therapy, and animal-assisted therapy. Catherine would often refuse to participate in therapy, thus forcing a change in therapists in an attempt to engage her. Because she was not physically or mentally able to participate for the duration of a typical therapeutic session, more frequent, shorter sessions were offered. Therapy was augmented with the use of various psychotropic medication trials including selective serotonin reuptake inhibitors (fluoxetine, sertraline, and citalopram), antipsychotics (risperidone, aripiprazole, paliperi-

done), clonidine, and hydroxyzine. As she progressed in her treatment, she gradually accepted her condition and was moved to a group home to facilitate her integration back into the community.

Discussion

This case represented many complex and challenging issues. Did the lack of disclosure contribute to the severity of this child's mental illness? In hindsight, disclosure of the prognosis should have occurred much sooner. The delay in notification likely contributed to her decline and the fact that she continued to struggle psychiatrically after the disclosure. The team did not reach consensus despite literature supporting early notification.^{4,6} Two professionals were asked to deliver the notification of the prognosis but declined. At this point, the medical and psychiatric treatment team could have been more assertive in pushing the conversation forward. A child psychiatrist with a general pediatric medicine background was invited to be part of the discussions. A second opinion from an expert in Friedreich's ataxia may have been helpful.

Prior expert guidelines have suggested disclosing terminal diagnoses to children as soon as possible in a caring, therapeutic manner, which decreases uncertainty and anxiety.³⁻⁶ A report from the American Academy of Pediatrics states that although physicians tended to wait until they perceive the family and patient is ready to hear the prognosis, delaying led to additional emotional and physical suffering.⁵ Telling children their prognosis as soon as possible empowers children rather than devalues them, allows them to more effectively participate in and guide their treatment, and fosters personal growth.⁵ Even if not informed of their condition, children as young as 3 are able to learn of their illness through interactions with adults.⁴ However, without a frank discussion of their disease and prognosis, the child is not able to respond to or draw upon the support of parents and their larger social network to process the meaning of a terminal diagnosis. By withholding this information, the child's social acceptance and sense of self-worth become endangered. This is especially true in a child with severe mental illness. Notification in a structured higher level of care, such as a hospital setting, may be helpful when delivering a prognosis to a child at high risk of behavioral dyscontrol.

The value of disclosure is even greater for children living in foster care systems, because these children lack a stable and loving home environment and already feel a lack of agency in their lives.⁷ Catherine had very limited family and social support to help her process such devastating information. Instead, she had a variety of providers involved in her care: caseworkers, guardian ad litem, therapists, health care providers, case managers, foster parents, and educational staff; these professionals frequently changed for various reasons, including the severity of the patient's symptoms, her multiple placements, and system issues. Many non-medical professionals did not understand Catherine's medical and mental health conditions or how to navigate the system to best meet her needs. Stronger advocacy for consistency in her care may have been beneficial in improving her overall emotional state. Despite the many professionals involved in this case, several additional professionals with specific roles may have been valuable. A child life specialist might have helped manage Catherine's emotional fragility. A single care coordinator may also have provided Catherine with a single, reliable provider with whom to communicate. This person could further oversee and coordinate different aspects of care and help decide the most appropriate manner in which to disclose a terminal prognosis.⁸

Telling a child that they have a shortened lifespan is never easy. Determining when to inform a child of their prognosis requires an individualized approach, starting with thoughtful conversations with every person involved in the child's care.⁶ Providing a nurturing, supportive environment is critical to ensure an emotionally-healthy response to a difficult conversation.

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Case Report: Psychotherapy for a Male with Comorbid Borderline Personality Disorder and Posttraumatic Stress Disorder

Trina Seefeldt, PhD*

Introduction

Borderline personality disorder (BPD), a diagnosis typified by affect dysregulation and impulsive behaviors, is known to cause significant, long-term functional impairment.¹⁻⁷ BPD is a fairly common disorder, affecting 1.4% of the general population.² While BPD does not respond well to medications, several psychotherapeutic treatments have proven effective for this disorder.⁸⁻¹⁰

BPD, posttraumatic stress disorder (PTSD), and complex posttraumatic stress disorder (CPTSD) comprise overlapping symptoms that, when comorbid, increase the complexity of treatment.^{5,11} CPTSD has been defined as “a syndrome involving pathological dissociation, emotional dysregulation, somatization, and altered core schemas about the self, relationships, and sustaining beliefs (ie, morality, spirituality) in the aftermath of exposure to traumatic interpersonal victimization.”⁵ It has been suggested that BPD might be considered a subgroup of PTSD or CPTSD, in part because so many patients with BPD have experienced childhood abuse and/or neglect.^{2,5} However, a recent study¹¹ has instead found evidence of 4 distinct diagnostic groups in a sample of women with histories of childhood abuse: (1) PTSD, (2) CPTSD, (3) BPD with comorbid PTSD or CPTSD, and (4) a low symptom group. Researchers and clinicians are still learning how best to treat patients with comorbid BPD and PTSD or CPTSD⁴ as the evidence-based treatments for BPD and PTSD/CPTSD differ in significant ways^{5,11} and the central tenets of PTSD-focused treatment can be so emotionally overwhelming to individuals with BPD that they often drop out of treatment.⁵

Another area in which knowledge has been scarce is in regard to the adaptation of BPD treatment

for males. In the past, BPD has been diagnosed more frequently in females than males in clinical samples—due in part to clinician bias in diagnosis and in part to sampling bias, as women utilize mental health treatment more frequently than men—but recent research has found equal rates of BPD between males and females in the community.¹² However, there do appear to be differences in diagnostic presentation between genders^{2,12-14} that are likely to affect treatment. For example, recent research suggests that men with BPD are more likely than women to evidence anti-social behaviors and to have higher rates of substance use disorders.¹² Male patients with a history of child sexual abuse may also struggle with this abuse history differently than females.¹³ Thus it is still unclear how to adapt treatment of BPD for males.

Although BPD is treatable and can have a good prognosis,¹⁴ treatment is often inefficacious if the patient and therapist are unable to develop a solid, trusting therapeutic rapport.^{15,16} Unfortunately, the nature of BPD makes building this rapport more difficult and time-consuming than for other psychological disorders.^{10,11,17} This higher rate of resource usage (ie, time in therapy) behooves clinicians and researchers to continue to work on ways of improving treatment efficiency and efficacy—including building therapeutic rapport—especially with patients with the added complexity of comorbid PTSD/CPTSD.

This case report details the long-term outpatient psychotherapeutic treatment of a male patient with comorbid BPD and PTSD. This case emphasizes the importance of therapeutic rapport as a foundation for effective treatment. Moreover, this case illustrates how the treatment of comorbid BPD and PTSD requires an integrated approach that is flexibly adapted, based on the acuity of specific symptoms.

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Patient Information

“Jack,” a 47-year-old biracial Asian-American/Caucasian male presented to the outpatient mental health clinic at Denver Health Medical Center in December 2011. His presenting psychiatric concerns included severe depression, anxiety, feelings of “emptiness,” and near-weekly parasuicidal cutting.

Jack reported a complex childhood trauma history. Diagnosed with congenital heart disease at the age of 2, he underwent open-heart surgery that year. He subsequently underwent 2 more open-heart surgeries and approximately 20 heart catheterizations. He remembered often being alone in the hospital while his mother cared for his siblings. His mother was emotionally neglectful: for example, he noted that when he would have nightmares about his surgeries, she would not allow him to come into her room, and as a result he would sleep on the floor outside of her bedroom door. His biological father left the family when he was quite young and his mother subsequently remarried. Jack witnessed his stepfather physically and emotionally abusing his mother and was himself physically and emotionally abused by his stepfather. When Jack was 6 years old, he began to be sexually abused by his 12-year-old sister; this continued for a number of years. Eventually his brother (3 years older than Jack) also started sexually abusing him and mistreating him in other ways, such as intentionally rubbing pepper in his eyes. Further, Jack was sexually abused by a male mentor in the Big Brothers program when he was in seventh grade and was bullied by peers in high school. Jack reported having close relationships with his grandmother and a maternal aunt—the only close, positive adult relationships he could recall during his childhood.

Jack dropped out of high school in the tenth grade but subsequently graduated from an adult high school program. He married twice and had 1 son from his first marriage and 2 daughters from his second marriage, which ended in 2007. During his second marriage, he worked full-time, but often impulsively quit jobs due to severe panic attacks and interpersonal conflicts at work. After his divorce, Jack became homeless in 2009. He was awarded Social Security Disability that year for his mental health issues and eventually found permanent, subsidized housing. At the time of his intake at Denver Health, his physical health issues included pulmonary hypertension,

obstructive sleep apnea, edema, and morbid obesity (body mass index=53).

Jack reported undertaking 3 sessions of psychotherapy with a male therapist prior to presenting at Denver Health, but noted that the relationship was not a good fit. He had not had any previous long-term therapy as an adult. Concurrently with this therapy course, he received medication management services from a psychiatrist in the same clinic.

Diagnostic Assessment

At intake, Jack was diagnosed with major depressive disorder and posttraumatic stress disorder (including intrusive and obsessional thoughts and trauma memories, especially related to sexual abuse and medical trauma he experienced in childhood; severe feelings of shame in regard to past sexual abuse, which led to his questioning his sexual orientation; avoidance of people/events related to past trauma; and dissociation). However, after some time, it became apparent that he also met criteria for borderline personality disorder including severe fear of abandonment/rejection by attachment figures, extremely low levels of self-esteem, feelings of emptiness, and suicidal ideation. Jack noted at the time that receiving this diagnosis helped him to make sense of his various symptoms. Later still, Jack suggested that he believed he met criteria for binge eating disorder, and a collaborative review of the DSM 5 criteria established this diagnosis as well.

Therapeutic Intervention

Although BPD was not established as a diagnosis for Jack at treatment outset, it was evident that he experienced parasuicidal cutting, suicidal ideation, and extreme fear of abandonment. Especially during the first year of therapy, safety issues were a significant concern and focus of intervention. Cutting episodes occurred approximately every 7-10 days from the beginning of therapy for about 6 months, and suicidal and homicidal thoughts were frequent. Dialectical Behavior Therapy (DBT) concepts⁸ were utilized to help the patient address his parasuicidal behaviors. Concepts such as sitting with distress, mindfulness, both-and thinking, and wise mind were introduced and reinforced during sessions to facilitate skill-building and symptom reduction. The DBT concept of *irreversibility* (ie, “communication strategies...to push the

patient ‘off-balance’ so that rebalancing can occur” within a consistently warm and genuine therapeutic relationship)⁸ was also utilized by the therapist to strengthen the therapeutic rapport and to encourage positive change. For example, in order to express frustration (but also genuine caring and concern) regarding some of Jack’s choices, the therapist joked that his choices were making her pull her hair out, and declared that he would soon have a completely bald therapist. Jack was also encouraged to recall prior cutting episodes and collaborate on a DBT chain analysis of the situations, thoughts, and feelings that had led to the urge to cut.⁸ Concurrently, concepts from Interpersonal Reconstructive Therapy (IRT),¹⁸ a psychodynamic treatment model that utilizes Bowlby’s Attachment Theory,^{17,19} were introduced to help Jack identify connections between his childhood trauma experiences and his present-day patterns of thought and behavior and to introduce the idea that he could choose to “stop playing by the old rules” of his family of origin. The relationship between the therapist and Jack was utilized as a way to process Jack’s thoughts and feelings within the microcosm of the therapeutic relationship (a psychodynamic concept). The therapeutic relationship provided Jack with a “corrective emotional experience”²⁰ that could in turn improve his relationships outside therapy.

Breathing and meditation exercises were introduced early in the therapy course as a way to begin to improve Jack’s anxiety and other PTSD symptoms. However, eventually Jack disclosed that he felt very uncomfortable with these exercises as they reminded him of his parent’s Asian background and thus served as a trauma trigger for him. Because of this, use of these exercises was suspended. As Jack’s BPD symptoms improved, sessions focused more on his trauma memories and the shame he felt about having been sexually abused by 2 males. He worked through his concern that he might be homosexual (which he felt he was not) and eventually concluded that any sexual thoughts he had about males were caused by his abuse experiences. However, he continued to worry that his intrusive memories and other PTSD symptoms would inhibit him from ever establishing a long-term, secure relationship with a woman. Eye Movement Desensitization and Reprocessing therapy (EMDR)²¹ was discussed as a possibility to improve his trauma symptoms. However, due to his high level of discomfort with imagery and relaxation exercises (a

large component of this therapy), it was decided not to pursue this line of treatment. Instead, it was jointly decided that Jack and this therapist would begin incorporating more discussion of his trauma memories into regular talk therapy sessions.

Outcome and Follow-Up

Jack’s cutting episodes became less frequent after the first 6 months of treatment, occurring 10 times in the next 27 months. Jack then experienced a brief resurgence in cutting episodes and a suicide attempt by overdose on his antidepressant, venlafaxine, in the context of rejection by a woman with whom he had begun a long-distance relationship. The overdose occurred while this therapist was out of town and another therapist was providing clinical coverage. He did not require hospitalization after this attempt. These situations were processed extensively, utilizing DBT concepts, after this therapist returned. As part of this process, the therapist expressed both her own anxiety and frustration (ie, countertransference) about the suicide attempt, as well as her commitment to continue working with him in therapy. As of this writing, Jack has not been psychiatrically hospitalized throughout the treatment course.

Over the course of treatment, Jack experienced other life improvements in addition to psychiatric symptom reduction. He enrolled in college to work toward his bachelor’s degree. In January 2014, Jack underwent gastric bypass surgery, and his body mass index decreased to 34, although he continued to struggle with emotional (binge) eating at times. Over time, he improved in his ability to become emotionally close to others and to handle his abandonment fears. He was able to take a short out-of-state trip by himself for the first time. He became more involved in parenting his teenage daughters (who lived with their mother but saw him frequently) and made progress in his ability to remain calm but firm with them even under trying circumstances.

Jack observed that this therapist was the first person in his life he felt he could genuinely trust, and the close, trusting therapeutic relationship helped provide him with a safe context to learn to *sit with distress* (a DBT concept) and realize that he does not have to act on his negative thoughts of self-harm or harm to others. He further noted that the therapist’s disclosure of some of her own life stresses and frustrations was

very helpful for him, as it helped him realize he was not the only one experiencing such stresses.

Discussion

This 4-year, weekly outpatient treatment of a male patient with complex childhood trauma and diagnoses of both PTSD and BPD demonstrates some of the limitations of evidence-based therapies for PTSD. These include comparatively little attention paid to establishing and maintaining therapeutic rapport and a brief treatment duration that, even when focused on complex trauma, rarely exceeds 25-30 sessions.²² With patients experiencing comorbid PTSD/BPD, in addition to reducing posttraumatic stress symptoms, the goals of treatment should also include reducing safety risks (often brought on by fear of rejection/abandonment); minimizing iatrogenic anxiety introduced by trauma-focused modalities due to gender, cultural, or other factors; and helping patients advance toward their life goals.¹⁵

Evidence-based therapies for PTSD are limited in their lack of extended focus on safety issues in the presence of BPD. In the present case, therapy focused on improving safety issues within the context of building trust in the therapeutic relationship. Although every patient will have a different treatment trajectory, it should be noted that in this case, despite gradual improvement in safety issues, safety continued to be a significant concern well past the 30-session mark. Only after safety issues and other, related BPD symptoms had significantly remitted could the focus of treatment begin to incorporate processing of posttraumatic stress symptoms, including intrusive memories, feelings of shame, and questions of sexual orientation.¹³

The literature on working with patients with BPD suggests that a trusting therapeutic relationship must underlie any therapeutic work.^{4,5,8} As mentioned above, however, the symptoms of BPD make establishing a trusting therapeutic relationship time-consuming and challenging, even as the therapeutic relationship is crucial to stabilizing safety, emotional, and interpersonal symptoms prior to engaging in trauma work. In this case, Jack observed that the therapeutic rela-

tionship helped him cope with significant emotional distress that arose through discussing trauma-related memories.

One way to address the issues of therapeutic rapport building and safety with comorbid patients would be to cease thinking in terms of any one particular therapy modality and instead flexibly integrate modalities to address the complex presenting symptoms.²³ In this case, concepts from DBT and psychodynamic therapies were introduced to help Jack tolerate and re-frame distressing thoughts and emotions.^{8,17-19} Although offered, it was ultimately decided that EMDR would not be beneficial for this patient, and thus, he and the therapist collaboratively agreed on a more informal approach to discussing childhood trauma memories.²³

To clarify issues raised by this case, future research should focus on further delineating the most potent characteristics of the therapeutic relationship as an agent of change, and how to best blend treatment modalities so as to improve treatment effectiveness in this patient population. Questions for future inquiry might include the following:

What is the correlation between how strong the patient believes the therapeutic relationship to be, and the frequency of thoughts about harm to self or others over time?

What therapist characteristics or acts most benefit the therapeutic alliance with this population?

How might one identify the best time to change focus from improving symptoms of BPD to improving PTSD symptoms?

How can trauma from child sexual abuse be best addressed with male patients?

Answering these questions might help shorten the duration of treatment while improving outcomes for patients with this complex, comorbid symptom presentation.

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When Avoidant/Restrictive Food Intake Disorder Becomes Life Threatening: A Case Report of an Adult Male Patient

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Introduction

Avoidant/Restrictive Food Intake Disorder (ARFID) is a recent addition to the fifth edition of the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM-5).¹ The primary concerns in ARFID are that the patient is not consuming enough nutrients necessary to meet daily nutritional demands and that food restriction is causing impairment in functioning.² These concerns are explicitly addressed with one part of the DSM-5 criteria for ARFID: “the persistent failure to meet nutritional needs resulting in weight loss (or inability to gain weight in children), malnutrition, reliance on enteral feeding or dietary supplements, and/or substantial dysfunction in everyday functioning.”¹ However, unlike anorexia nervosa (AN), those with ARFID do not have associated issues with body shape or weight.³ Instead, there is an associated disturbance in eating that is attributed to 3 different features that comprise the second part of the DSM-5 criteria for ARFID: (1) disinterest in eating, (2) aversion to particular sensory properties of food, or (3) excessive anxiety about an aversive event associated with eating.¹ These features will be discussed briefly below.

Disinterest in food or eating is often described as *selective eating* (among other terms) and has been typically associated with unusually narrow dietary preferences and marked reluctance to try new types of food, lasting more than 2 years.⁴ Aversion to sensory properties of food has also been identified as a feature of ARFID.¹ Perceptions about the negative sensory properties (particularly taste and

texture) of food are believed to mediate willingness to eat a non-familiar item.⁵ While most of the research in this area has been done with children, disgust reactions in adults regarding food has also been established.⁶ Presumably, for some individuals, particular sensory properties of food signal a warning about ingestion, thereby leading to restricted eating.⁷ Finally, DSM-5 criteria for ARFID note that some people may restrict food intake because of a conditioned negative response, or in anticipation of an aversive experience while eating.¹ This has been explored in the literature and described sometimes as a *choking phobia*, or *phagophobia*. Such a fear is typically associated with weight loss and social dysfunction.^{8,9} Anticipatory anxiety regarding the aversive act of vomiting may also result in disordered eating. Fear of vomiting, or *emetophobia*, has been associated with reduced quantity of food eaten (to lessen the amount of vomit) and food restriction, either by refusing to eat food prepared by another person, or becoming highly selective about eating only food items that are perceived as having a low chance of inducing emesis.^{10,11}

In summary, there are 2 inclusion criteria for ARFID: one of the aforementioned 3 eating or feeding disturbances and persistent failure to meet nutritional needs. Additionally, there are 3 exclusion criteria to which the eating or feeding disturbance cannot be attributed: it cannot be diagnosed (1) in the setting of food scarcity or a culturally-sanctioned practice, (2) during a course of AN or bulimia nervosa (BN), nor (3) with a disturbance in how body weight or

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shape is perceived; moreover the symptoms cannot be better explained by a co-occurring medical condition or another mental disorder.¹ Although ARFID unites conditions that are associated with restricted food intake (and not associated with other eating disorders), the particular etiology of disturbed eating can be quite varied. Patients who meet criteria for ARFID are a highly heterogeneous group, complicating research and treatment strategies.

Only codified in the DSM since 2013, research on the treatment of ARFID is virtually non-existent.^{2,12} There is also a paucity of research regarding those with ARFID who are severely medically compromised. In this article, we present such a case—a young adult male with severe malnutrition secondary to food restriction not related to fear of weight gain. Our aim is to provide guidance for diagnostic assessment and psychotherapeutic intervention for medically unstable patients with ARFID.

Case Report

In February of 2015, a markedly emaciated 18-year-old male, Mr X, presented to the ACUTE Center for Eating Disorders (ACUTE) at Denver Health Medical Center for treatment of severe malnutrition. ACUTE is a 15-bed medical stabilization unit for medically compromised adults with eating disorders who require medical stabilization prior to transfer to traditional mental-health focused inpatient or residential eating disorder programs across the United States. Indications for admission typically include patients with anorexia nervosa restricting subtype (AN-R) whose body weight is less than 70% of ideal body weight (IBW); patients with anorexia nervosa binge-purge subtype (AN-BP) whose body weight is less than 75% of IBW but who have concomitant severe electrolyte abnormalities or prior inability to cease purging behaviors because of severe edema formation; patients with ARFID who meet weight/medical complexity criteria as described above; and patients with a serious eating disorder and another concurrent medical diagnosis which makes stabilization in a specialized medical setting preferable and safer. The ACUTE team follows a multidisciplinary approach to patient care. The clinical team includes an attending internal medicine physician, clinical psychologist, registered dietitian, social worker, physical therapist, occupational therapist, registered nurse, certified nursing assistant who sup-

ports each patient 1:1, and psychiatric consultation as needed.

Mr X was estimated to be only 68% of his IBW at presentation and was found to have bradycardia, hypotension, leukopenia, anemia, and profound hypotestosteronism as a result of his severe malnutrition.

Mr X first came to medical attention 1 year prior to this admission, when he developed abdominal pain, rectal urgency, and was found to have excessive stool and obstipation. He underwent exploratory laparotomy with no additional findings. The symptoms resolved following extensive chemical and mechanical bowel disimpaction. A recurrence of symptoms followed some months later, and Mr X was admitted to a hospital with severe obstipation and fecal vomiting. He was subsequently diagnosed with Celiac disease, confirmed by both biopsy on upper endoscopy and antibody testing. Celiac disease is prevalent in his family.

He reported seeking treatment due to a 30-pound weight loss over the past year. This weight loss was attributed to the patient restricting intake and following a strict gluten-free diet, as well as avoiding red meat, dairy products, and processed foods due to fear of abdominal pain. Mr X also denied eating junk food. Additionally, he frequently played soccer and went snowboarding.

With his family's support, he agreed to enter an eating disorder program. However, out of concern for his degree of medical instability, the program referred him initially to ACUTE to begin weight restoration and medical stabilization.

Physical Findings

Presenting weight, IBW, body mass index (BMI), vital signs, noteworthy laboratory studies, and electrocardiogram interpretation are given in Table 1.

Diagnostic Assessment

Following an initial diagnostic interview and assessment, Mr X agreed he was underweight and understood the seriousness of his malnutrition. He explained that his restrictive diet was in service of avoiding abdominal pain and/or constipation, as well as optimizing his athletic performance. He did not present as being preoccupied with his appearance or driven for thinness. No fear of gaining weight was not-

ed. He denied symptoms associated with depression, anxiety or other psychiatric disturbance, and there was no history of substance use disorder.

Eating disorder type was determined collaboratively between the clinical psychologist and attending physician, based on the patient's clinical presentation and the DSM-5 inclusion and exclusion criteria. Mr X met the diagnostic criteria for ARFID.

Therapeutic and Medical Interventions

Primary aims of psychotherapy with Mr X included psychoeducation, stress management, and motivation for recovery. There have been studies finding cognitive impairment in individuals with malnutrition before treatment followed by improvements in cognitive functioning following weight restoration.¹³⁻¹⁶ Accordingly, insight and cognitive-oriented therapies were deemed unlikely to be effective for Mr X in his malnourished state. Instead supportive psychotherapy was utilized to reinforce his ability to cope with the stress associated with hospitalization while also cultivating resilience and hope. Daily therapy sessions were conducted at his bedside 6 days a week and were approximately 30 minutes in length to accommodate for his diminished cognitive endurance. Active listening encouraged him to express thoughts and feelings to gain a broader understanding of his situation and options. Therapeutic assignments, journal exercises, and various games were employed. As Mr X's cognitive capacity improved with weight restoration and medical stability, Acceptance and Commitment Therapy (ACT) was introduced. ACT is an empirically-based behavioral and cognitive therapy that focuses on mindfulness, acceptance, cognitive defusion, and values.¹⁷ Mr X identified top values of family, school, athletics, and interpersonal relationships. In therapy sessions he learned to reframe the difficult work of recovery as committed action towards his values. He was eager to return to his senior year of high school and found the relative inactivity of his hospitalization challenging. In response, Mr X's sessions also focused on helping him to tolerate his medically-indicated decreased activity levels and the length of his hospital stay. Additionally, stress management skills were taught; while Mr X did not demonstrate difficulty with meals nor was he anxious about food, he did occasionally struggle with the challenges associated with first-time eating disorder treatment and refeeding

hospitalization. Mr X had a close relationship with his family, and he was encouraged to utilize those relationships for support.

During Mr X's hospitalization, standard ACUTE medical protocols were employed, included 24-hour telemetry, labs, blood glucose checks every 4 hours, warming blanket, an individualized meal plan beginning at 1800 calories and increasing by 400 calories every 3 days, and 24-hour 1:1 support from a certified nursing assistant.

Near the end of his hospitalization, emphasis was placed on preparation for discharge and ongoing care. On hospital day 15, Mr X was determined to be medically stable based on a varied and well-tolerated meal plan of 3800 calories daily, 3.9 kg weight gain, normal laboratory values and vital signs, acceptable bowel function, and physical strength sufficient to support his participation at a lower level of care. While Mr X lacked body image concerns and traditional eating disorder behaviors, he did require additional support and education in the reintegration of dietary variety, nutritional soundness, adaptive coping skills, and further weight restoration. He was therefore discharged to an eating disorder-focused partial hospitalization program.

Discussion

This case was unique given that Mr X was a severely malnourished young adult male requiring medical intervention. He sought treatment only after he lost a considerable amount of weight and became medically compromised. Mr X demonstrated disordered eating. He was malnourished due to restricting caloric intake. However, he did not demonstrate an intense fear of gaining weight or undue influence of body weight or shape on his self-evaluation. As such, Mr X did not meet criteria for AN-R; rather, his concern about the aversive consequences of eating combined with notable weight loss and significant nutritional deficiency exemplified the diagnostic criteria for ARFID. It is not uncommon for ARFID patients to seek treatment only when they come to the attention of medical professionals following significant weight loss as they do not have the body image preoccupation present in AN; therefore, dietary behaviors often go unnoticed.

Mr X responded positively to psychotherapies typically used during a medical inpatient hospitalization

for AN, specifically supportive psychotherapy and ACT. Certainly, psychotherapy has been effective in the treatment of other eating disorders.¹⁸ However, severely medically-compromised patients with eating disorders may be unable to engage in cognitive behavioral therapy due to the cognitive impairment associated with starvation.¹⁹ Supportive psychotherapy even at a medically-compromised stage of illness has shown promise.²⁰ In a randomized controlled study comparing cognitive behavioral therapy, interpersonal therapy, and supportive psychotherapy (nonspecific supportive clinical management) for AN,²¹ more participants improved with supportive psychotherapy (58%) than with cognitive-behavioral therapy (32%) or interpersonal therapy (10%).²¹ Supportive psychotherapy appears best suited for people who are trying to cope with an acute medical situation.²⁰

Psychotherapy for severely-ill ARFID patients varies from traditional treatment for AN or BN. While patients with ARFID share many of the same medical concerns, psychological processes differ in important ways. Specifically, ARFID patients do not experience distress associated with distorted body image, negative assessment, or fear of weight gain. Therefore, it is critical to adapt psychotherapy to exclude interventions addressing body image and weight-related concerns. Failure to recognize this difference may alienate patients in treatment and decrease efficacy of therapeutic interventions. Patients are generally able to use interventions aimed at decreasing anxiety and helping them to cope with hospitalization and the rigor of medical stabilization. In this case, coping skills were taught to help the patient manage stress to make the hospitalization more tolerable. As this patient progressed in his nutritional rehabilitation and medical stabilization, ACT, a cognitive behavioral-based therapy, was introduced to advance treatment.²² Observing and accepting thoughts while taking action based on values (major tenets of ACT) help especially ruminative, perseverative patients advance in treatment and recover cognitively. These interventions also prepare the patient for the next level of care in a behaviorally-based program, which focuses on behavioral change while achieving final weight restoration.

Follow-Up

Ten months after he completed treatment, Mr X reports doing “very well.” He feels “great” physically and emotionally and has had no recurrence of bowel or digestive issues. He completed his senior year of high school and is now attending college in engineering. He remains active in his athletic pursuits and has a circle of friends. Importantly, Mr X is maintaining a weight of 67.3 kg (107% IBW, BMI 23.2 kg/m²). Additionally, he is eating a wide variety of gluten-free foods. His family reports he is “doing really well.”

Conclusion

This case report contributes to the literature by describing the treatment of an adult male with a severe, life-threatening presentation of ARFID and its attendant medical compromise. Although the diagnosis was previously described as a disorder of childhood, the DSM-5 recognizes that ARFID occurs across the lifespan. With the expansion of this diagnosis there are increased opportunities for clinicians to identify patient behaviors that have the potential for serious health consequences. Additional case reports and empirical studies regarding treatment of ARFID are needed to guide medical and mental health professionals in the management and treatment of this disorder. Providers should be aware of the diagnosis in order to make appropriate referrals to specialized programs, where patients can safely restore weight, learn new skills, and begin making life-saving changes in their approach to meeting nutritional needs.

Tables

Table 1. Mr X's presenting weight, BMI, laboratory data, vital signs, and ECG interpretation

| Type of Data | Data | |
|---|------------------------|----------|
| Weight | 43.4 kg | |
| Ideal Body Weight | 68% | |
| Body Mass Index | 15.2 kg/m ² | |
| Laboratory Values (normal range) | | |
| Sodium (135–143 mmol/L) | 139 | |
| Potassium (3.6–5.1 mmol/L) | 4.4 | |
| Chloride (99–110 mmol/L) | 103 | |
| Bicarbonate | 30 | |
| Glucose (60–199 mg/dL) | 73 | |
| Blood urea nitrogen (9–21mg/dL) | 12 | |
| Creatinine (0.50–1.39 mg/dL) | 0.6 | |
| Calcium (8.1–10.5 mg/dL) | 8.9 | |
| Magnesium (1.3–2.1 mEq/L) | 1.6 | |
| Phosphate (3.1–5.0 mEq/L) | 3.4 | |
| Alkaline phosphatase (78–577 U/L) | 49 | |
| Albumin (3.0–5.3 g/dL) | 4.2 | |
| Aspartate aminotransferase (10-40 U/L) | 27 | |
| Alanine aminotransferase (20–60 U/L) | 70 | |
| Testosterone (300–1080 ng/dL) | 46.1 | |
| White blood cell count (3.5–10.5 mL) | 3.4 | |
| Hemoglobin (13.5–17.5 g/dL) | 12.2 | |
| Hematocrit (38.8–500%) | 35.9 | |
| Platelets (150–450 K/uL) | 127 | |
| Other Hematology Values | | |
| Absolute neutrophil count (1.5–8.0%) | 1.7 | |
| Erythrocyte sedimentation rate (0–22 mm/hr) | 1 | |
| Vital Signs | Supine | Standing |
| Heart rate | 51 | 42 |
| Blood pressure | 108/71 | 94/59 |
| Respiratory rate | 18 | 16 |
| Temperature | 35.6 | |
| Electrocardiogram | | |
| Sinus bradycardia (HR=36) | | |
| Corrected QT interval 378 ms | | |
| Abnormal ECG | | |

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Packing Pills: Respiratory Failure and Submammary Opiate Pill Bottles

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A 41-year-old woman with a history of bipolar I disorder, posttraumatic stress disorder, polysubstance abuse, and chronic pain secondary to syringomyelia presented to an emergency department with shortness of breath. As she developed progressive acute hypoxemic respiratory failure, she was intubated and mechanically ventilated. Chest computed tomography (CT) demonstrated a plastic pill bottle tucked under each breast (Figure 1) which contained oxycodone and hydroxyzine.

During subsequent clinical interviews, she disclosed that she had unintentionally overdosed with the intent to manage pain and anxiety while suffering from influenza, bacterial pneumonia, and sepsis. Her symptoms resolved with treatment including antibiotics.

Patients often present to the hospital with their own medications,¹ but to our knowledge, no prior literature has documented patients hiding this medication. Although use of patients' own medication (POM) in hospitals can facilitate medication reconciliation, POM may present a risk for medication errors.¹ Opioids often represent a coping strategy for not only acute pain but also psychiatric distress in individuals with comorbid pain and psychiatric disorder,² and these individuals are at greater risk of drug overdose.³ This case illustrates the risk of chronic opioid use, especially in individuals with complex biopsychosocial presentations, and suggests that, along with reviewing opioid prescribing practices, medical systems may benefit from reviewing policies on patients bringing their own medications to the hospital.

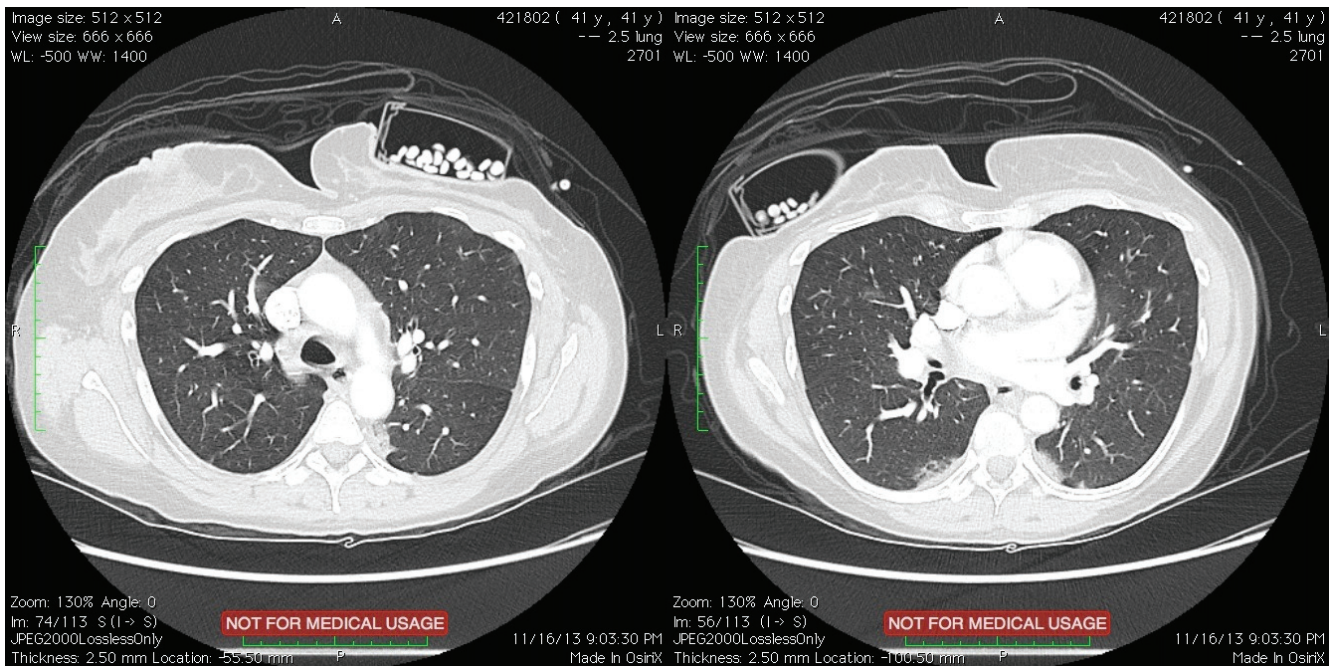


Figure 1. Contrast-enhanced CT scans

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A Completer's Analysis of an Integrated Psychiatric/ Substance Treatment for Adolescents and Young Adults

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Abstract

Background: At least 80% of youth in treatment for substance use disorders have co-occurring psychiatric disorders. However, there are few treatment models that integrate psychiatric and substance treatment for youth. To address the gap, this study evaluates treatment outcomes for adolescents undergoing a clinical implementation of Encompass, an evidence-based intervention that integrates psychiatric and substance treatment for adolescents and young adults.

Methods: Outcomes from 53 youth (11-20 years) who completed the 16-week outpatient program were collected using the attention-deficit/hyperactivity (ADHD) disorder symptom checklist, Child Depression Rating Scale-Revised; Child Post-Traumatic Stress Scale; conduct disorder symptom checklist; Multidimensional Anxiety Scale for Children, 2nd edition; Timeline Follow-Back Interview; and urine drug screens. Paired t-tests, or their non-parametric equivalent, were used to evaluate change in psychiatric and substance use disorder severity.

Results: Overall, 54.7% of participants had a month of confirmed, substance abstinence at the end of treatment. Significant reductions in symptoms of ADHD ($p < 0.0001$), anxiety ($p = 0.01$), depression ($p < 0.0001$), post-traumatic stress disorder ($p = 0.02$), and proportion of days used substances ($p = 0.0004$) were observed.

Conclusions: These preliminary findings support the need for multi-site, controlled studies with intent-to-treat analyses to assess the efficacy of this type of integrated treatment. Further research is also needed to evaluate whether this intervention is feasible, and sustainable, and achieves outcomes similar to outcomes from controlled research trials.

Background

At least 80% of youth in substance treatment have a co-occurring psychiatric disorder.¹⁻³ The most prevalent comorbidities among these youth are conduct disorder (CD; 40%-60%), attention-deficit hyperactivity disorder (ADHD; 30%-50%), major depressive disorder (MDD; 20%-30%), generalized anxiety disorder (GAD; 20%), and post-traumatic stress disorder (PTSD; 14%).^{1,2,3} The presence of co-occurring psychiatric disorders, when entering treatment and psychiatric symptoms at the end of treatment or post-treatment, are both associated with worse substance treatment outcomes.⁴⁻⁹

Current best practices call for integrated treatment of psychiatric and substance use disorders.¹⁰⁻¹² However, estimates show that only about 25% of youth in substance treatment receive such care.¹³ Barriers

to integrated psychiatric and substance use disorder treatment include separate sources of funding, licensure, and training as well as a paucity of models that integrate these services.¹³

To address this gap, several studies were conducted to treat co-occurring psychiatric and substance use disorders in youth.^{9,14-16} The integrated approach for providing concurrent treatment of co-occurring psychiatric and substance disorders included: comprehensive diagnostic and clinical evaluation, motivational enhancement therapy, individual cognitive behavioral therapy, family sessions, contingency management, case management, and fidelity monitoring to ensure adherence to evidence-based practices. Urine drug screens were collected at each weekly session. Reliable and validated measures were administered at intake and monthly to track reductions in psychiatric and substance symptoms. The findings from the inte-

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grated treatment approach employed in these studies led to the development of a manual-standardized 16-week outpatient treatment program for adolescents and young adults with co-occurring psychiatric and substance use disorders called Encompass. We conducted a PubMed literature search including the terms “adolescent,” “substance treatment,” and “co-occurring psychiatric disorder” (using “AND” between search terms) and were unable to find another integrated psychiatric and substance treatment model for this population.

While these components of integrated treatment have been developed and tested in rigorous randomized-controlled studies, they have not been evaluated in non-research clinical settings, and have not been evaluated as a single package or model. To address these gaps, this study presents the outcomes of an Encompass implementation to an urban, safety net hospital. It was hypothesized that patients completing the Encompass treatment program would have significantly reduced (1) frequency of substance use, and (2) severity of specific psychiatric symptoms such as ADHD, anxiety, conduct disorder, depression, and PTSD.

Methods

Procedure. Funding was obtained from private foundations to implement Encompass at a hospital-based, outpatient treatment program for adolescents and young adults with substance use disorders. The clinical program is located at a hospital affiliated with a large academic institution. The Encompass team consisted of 4 full-time therapists (2 licensed clinical social workers, 1 licensed professional counselor, and 1 certified addiction counselor) and a child and adolescent psychiatrist. Treatment responses and outcomes as well as therapist adherence to the clinical protocol were regularly assessed. Approval from the Colorado Multiple Institutional Review Board was obtained to use the data collected from Encompass patients for research purposes.

Participants. Participants were 53 consecutive adolescents and young adults who completed Encompass. Participants were considered completers if they completed 17 weeks of treatment. A total of 117 patients enrolled in the program, yielding 53 who completed 17 weeks of treatment. Patients enrolled in the treatment from August, 2013 to June, 2015. Inclu-

sion criteria were: (1) ages 11-24 years, (2) meeting criteria for at least 1 Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5) non-nicotine substance use disorder; and (3) completed 17 weeks of Encompass treatment.¹⁷ Completers were chosen for these initial analyses to evaluate clinical changes with a full dose of treatment. Of note, while Encompass is designed to integrate psychiatric and substance treatment, it may be adapted to youth without co-occurring psychiatric disorders.

Measures. Data were obtained from clinical assessments that are systematically tracked as part of the Encompass intervention. The measures were administered by the patient’s therapist or physician. All staff received a 2-day initial training to ensure proper and consistent administration of the measures. Baseline administration of the measures was conducted jointly with the patient’s physician and therapist to ensure diagnostic consensus and to ensure consistency of administering the measures. The measures included in the intervention were the following:

Kiddie Schedule for Affective Disorders and Schizophrenia Present and Lifetime Version (K-SADS PL).¹⁸ The K-SADS is a reliable and valid semi-structured child and adolescent psychiatric diagnostic interview widely used in research. The instrument has shown to have good reliability for diagnosing ADHD, bipolar disorder, conduct disorder, generalized anxiety disorder, posttraumatic stress disorder, oppositional defiant disorder, and substance use disorder in adolescents.^{19,20} For minors, both adolescent and parent/guardian report were used. This instrument was used to obtain baseline psychiatric and substance use disorder diagnoses using the adolescent and guardian report, if the patient was a minor.

Timeline Followback Interview (TLFB).²¹ The TLFB uses anchor points to assess the number of days an individual used substances in the past 28 days. The TLFB was administered at baseline and weekly during treatment. The weekly results were collated into monthly outcomes. The TLFB is clinician-administered and has been shown to be reliable and valid in research and clinical settings of youth and young adults.²¹

Child Depression Rating Scale-Revised (CDRS-R).²² The CDRS is a reliable and valid clinician-administered assessment of depression severity in children and adolescents and is widely used in treatment studies of adolescent depression. Raw scores are converted

to t-scores (0-100) with a mean of 50 and a standard deviation of 10 in normative samples. The cutoff score for clinically-significant depressive symptoms is 65. The CDRS-R was administered only to youth with a diagnosis of major depressive disorder at baseline and monthly throughout treatment.

Multidimensional Anxiety Scale for Children, 2nd edition (MASC II).²³ The MASC II is a reliable and valid self-report, pen-and-paper questionnaire assessing anxiety severity in children and adolescents. Raw scores are converted to a t-score with a cutoff of 65 for clinically-significant anxiety. The MASC II was only administered to youth with an anxiety disorder at baseline and monthly throughout treatment.

Diagnostic and Statistical Manual of Mental Disorders, 5th edition conduct disorder symptom checklist (DSM-5).¹⁷ The conduct disorder symptom checklist is a self-report, pen-and-paper questionnaire created for this intervention that calculates the number of conduct disorder symptoms in the past month. Scores range from 0 (no symptoms) to 14 (maximum symptoms). The conduct disorder checklist was administered to youth with a diagnosis of conduct disorder at baseline and monthly during treatment.

DSM-5 ADHD checklist.²⁴ The DSM-5 ADHD checklist assesses the severity of ADHD symptoms on a scale of 0 (none) to 54 (most severe). A clinical cutoff score is 22. This clinician-administered instrument rates each ADHD symptom on a scale of 0 (none) to 3 (severe) over the last month. For minors, both adolescent and parent reports were used for baseline severity rating. This instrument has been widely used in clinical research of adolescents and young adults.^{15,16} Consistent with how the instrument was used in these studies, the current study relied on adolescent self-report as the primary outcome for ADHD severity. The ADHD checklist was administered to youth with a diagnosis of ADHD at baseline and monthly during treatment.

The Child PTSD Symptom Scale (CPSS).²⁵ The CPSS is a 17-item self-report, pen-and-paper questionnaire used to assess the severity of post-traumatic stress disorder (PTSD) symptoms. Scores range from 0 (no symptoms) to 51 (maximum symptoms) with a standard clinical cutoff of 15. The CPSS was only administered to youth with a diagnosis of PTSD at baseline and monthly throughout treatment.

Urine drug screen. A commercially available, point-of-care urine drug screen was used weekly during treatment to evaluate substance use. The urine drug screen evaluated for alcohol, amphetamine, benzodiazepines, cocaine, marijuana, and opioids.

Intervention. The Encompass intervention is a manual-standardized treatment for adolescents and young adults with co-occurring psychiatric and substance use disorders. Patients usually came to the clinic weekly for the Encompass intervention. What follows is a description of Encompass and how it was implemented in this study.

Comprehensive and ongoing assessment. Each patient was evaluated jointly with a master's-level therapist and board-certified child/adolescent and adult psychiatrist. Baseline DSM-5 diagnoses were obtained using the K-SADS PL, adapted for use with the updated DSM-5. Frequency of substance use was obtained using the TLFB, and severity of ADHD, anxiety, conduct disorder depression, and PTSD were obtained using the ADHD checklist, MASC II, conduct disorder checklist, CDRS-R, and CPSS respectively.

Motivational enhancement therapy and cognitive behavioral therapy (CBT). Encompass uses motivational interviewing throughout treatment to motivate youth for positive change.^{16,15} CBT has been shown to effectively treat multiple psychiatric and substance use disorders in youth.²⁷⁻³⁰

All sessions are individual, not group, in order to tailor treatment to the specific co-occurring psychiatric disorders with which a patient was diagnosed.

Contingency management. Youth have point-of-care urine drug screens with each session. The results are used with the fish-bowl technique to reward clean urine drug screens with an escalating, positive reinforcement schedule.^{31,32} Patients also get a drawing for showing up and 1 to 2 chances to draw for completing 1 or 2 pro-social activities that were collaboratively established in the prior therapy session. The fish bowl contains chits that are labeled "good job," "small prize," "medium prize," and "jumbo prize." Small prizes were of approximately \$1 to \$5 in value; medium prizes were approximately \$10 to \$20 in value; and the jumbo prize was about \$100 in value. Patients received an automatic medium prize for the first time they obtained 2 consecutive clean urine drug screens.

Family treatment. Families were encouraged to attend up to 3 sessions to work on goal-setting, communication, and problem-solving. These sessions could occur at any time after the fourth session. Families could choose not to participate in family sessions.

Medication-assisted treatment. Medications were prescribed as indicated for psychiatric and substance use disorders.

Ongoing assessment. Substance use was formally assessed weekly with urine drug screens and monthly with the TLFB. Psychiatric symptoms were formally assessed monthly with the ADHD checklist, CDRS, conduct disorder checklist, CPSS, and MASC II.

Fidelity monitoring. The clinical team attended a 2-day didactic session prior to beginning treatment. The didactic was led by the Encompass team, and included the rationale for the Encompass interventions as well as information and skill building about the assessments and intervention. The team had weekly phone consultations with the Encompass physician, lead therapist, and operations manager to discuss cases for the first year of the implementation of the treatment. The frequency of phone consultation decreased to every other week in year 2. Encompass staff also conducted monthly site visits in the first year. The Encompass therapists attended weekly group supervision and weekly individual supervision with the Encompass therapy supervisor in year 1. The supervision was decreased to every other week group supervision in year 2. Therapy sessions were audio-taped and randomly scored by the Encompass therapy supervisor for fidelity using an Individual or Family Session Rating Scale. These scales rated therapist adherence on different domains common to CBT such as agenda setting, use of role plays, and collaborative agreement on at-home practice. The scales also assess for common practices of motivational interviewing such as use of empathy and reflective statements as well as respect for patient autonomy. Adherence was rated on a scale of 1 (minimal adherence) to 5 (maximum adherence), with a 3 being a passing score. One session per month was evaluated for adherence to the treatment. Prior research shows that ongoing fidelity monitoring is crucial for therapist adherence to manual-standardized treatments.³³ These therapist rating scales were adapted by the Encompass team from previous psychotherapy research studies.³⁴

Analyses. Data were analyzed with SAS Enterprise

Guide 5.1.³⁵ Depending on tests of normality, continuous data are presented as means with standard deviation or as medians with inter-quartile range, or IQR; categorical variables are presented as counts (%). A difference between the proportion of days completers used at least 1 non-tobacco substance in the month prior to program initiation and the month before program completion was assessed using a Wilcoxon signed-rank test. Completers reporting no non-tobacco substance use for the month prior to entering the program were excluded from this assessment, leaving a sample size of 40 for the pre-post comparison of proportion of days used substances. Paired t-tests were used to determine change in pre- and post-program anxiety, ADHD, and MDD severity. All tests were two-tailed and used a p-value of 0.05 to detect statistical significance.

Results

Based on the mean age and frequency of baseline characteristics, the typical profile for an Encompass program completer is a 16-year-old male with at least 1 psychiatric diagnosis, most likely major depressive disorder, and who uses cannabis (Table 1). On average, program completers participated in 92% of the 16 sessions offered in the program. All 4 therapists achieved passing scores on their adherence rating scales.

Over half (54.7%) of all completers had at least 1 month of abstinence by the end of treatment as measured by both urine drug screen and self-report. The proportion of days used substances also showed a significant pre-post decrease. The average number of negative urine drug screens during treatment is 7.9 (SD=6.6). Participants diagnosed at intake with ADHD, anxiety, depression, and/or PTSD showed significant improvement in severity scoring upon completion of the program. For the 3 youth with conduct disorder, the average number of conduct disorder symptoms in the past month decreased from 5.3 to 3.3, but no formal statistical analysis was conducted for this variable because of the small sample size.

Discussion

Those who completed Encompass treatment had a significant decrease in ADHD, anxiety, depression, and PTSD severity. They also had a significant decline in

the proportion of days used at least 1 non-tobacco substance. Fifty-five percent of completers had 1 month of confirmed substance abstinence at the end of treatment.

Previous research studies of individual CBT and the prescription of psychotropic medications show pre-post reductions in ADHD, conduct disorder, depression, and substance use during adolescent substance treatment.^{9,15,16} However, these evaluations were conducted in research settings, and the potential impact of these treatments in primarily clinical settings are lacking. This study is the first to present such outcomes. These findings are also significant because Encompass is the only adolescent substance treatment model, of which we are aware, that is specifically designed to integrate psychiatric and substance use disorder treatment for adolescents.

The main limitation of this study is that it is not a controlled trial and includes only those who completed treatment. Therefore, these current analyses do not demonstrate a causal link between treatment and reduction in clinical symptoms. Furthermore, to limit the amount of potentially-identifying information in communications between the clinic and Encompass staff, the data collected did not include information related to participant race, ethnicity, or socio-economic status. Therefore, it is not possible to evaluate the relationship between various demographic variables and treatment outcome. Finally, the results of this single-site implementation may not generalize to other sites.

Given these limitations, there are several future directions for this line of research. First, it is difficult to compare these completer's outcomes to published results, which are typically intent-to-treat. A recent study of adolescents with cannabis use disorder (12-18 years, n=153), who underwent 14 weeks of MI/

CBT and contingency management, showed that 53% of the intent-to-treat sample had at least 4 weeks of abstinence during treatment.³² Therefore, further intent-to-treat analyses are needed for this Encompass data set to see how the real-world clinical outcomes compare to outcomes from a controlled research trial. Second, other analyses, such as comparisons between completers and non-completers, are also needed to evaluate predictors of treatment response. Third, data from multiple sites will inform whether or not these findings generalize to other clinical settings.

Finally, given that only 1 in 10 adolescents with a substance use disorder receives substance treatment, research is needed to promote increased access to effective, integrated psychiatric and substance treatment.³⁶ Such research involves developing ways to disseminate and sustain models such as Encompass. It also may involve adapting and evaluating this care to non-traditional settings such as schools, or adapting it to be delivered via telemedicine.

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Tables

Table 1. Participant characteristics

| | Encompass Completers (N=53) |
|--|-----------------------------|
| Age at intake (mean, SD, range) (in years) | |
| | 15.8±1.6, 11-20 |
| Gender (n, %) | |
| Female | 14 (26.4) |
| Male | 39 (73.6) |
| Completers with at least 1 psychiatric diagnosis (n, %) | |
| | 41 (77.4) |
| Psychiatric diagnosis (n,%) | |
| Attention deficit or hyperactivity disorder | 17 (32.1) |
| Conduct disorder | 6 (11.3) |
| Generalized anxiety disorder | 7 (13.2) |
| Major depressive disorder | 24 (45.3) |
| Oppositional defiant disorder | 5 (9.4) |
| Post-traumatic stress disorder | 8 (15.1) |
| Other | 3 (5.7) |
| Substance use disorder (n,%) | |
| Alcohol | 15 (28.3) |
| Cannabis | 52 (98.1) |
| Hallucinogen | 4 (7.5) |
| Opioid | 5 (9.4) |
| Nicotine | 9 (17.0) |

Table 2. Differences in psychiatric disorder severity and substance use

| | Average at program intake | Average at program completion | Test Statistic | p-value |
|--|---------------------------|-------------------------------|----------------------|---------|
| CDRS score (n=25)* | 64.6±9.7 | 52.6±12.0 | t ₂₄ =5.5 | <0.0001 |
| ADHD severity score (n=16)* | 26.6±9.7 | 16.8±9.9 | t ₁₅ =6.4 | <0.0001 |
| MASC II score (n=9)* | 80.3±21.8 | 57.67±18.5 | t ₈ =3.4 | 0.01 |
| CPSS (n=7)* | 31.9±5.3 | 17.9±14.4 | t ₆ =3.0 | 0.02 |
| Proportion of days used substances, past 28 days (n=40)[†] | 0.34 (0.13, 0.54) | 0.0 (0.0, 0.26) | U=240 | 0.0004 |

*Mean + S; †Median (IQR); CDRS is Child Depression Rating Scale; ADHD is attention-deficit/hyperactivity disorder; MASC II is Multidimensional Anxiety Scale, 2nd edition; CPSS is Child PTSD Symptom Scale.

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Implementation of Integrated Behavioral Services and Training in Urban Pediatric Primary Care

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Abstract

Introduction: The high prevalence of behavioral health problems in ethnically-diverse, low-income youth can have negative effects on their developmental trajectories and health. This population typically has limited access to psychological assessment and treatment. Multidisciplinary primary care teams that include behavioral health services are a viable delivery model to efficiently increase access to care. However, there is currently a shortage of training opportunities for psychologists to learn about working in these settings (particularly with pediatric populations) with only a handful of psychology internships nationally.

Methods: We implemented an integrated behavioral health service in an ethnically-diverse, underserved pediatric primary care clinic and trained doctoral psychology interns in integrated pediatric primary care competencies. A 22-item quality improvement survey was given to providers to assess the satisfaction and reach of integrated behavioral health services at the clinic. The doctoral interns rated their training experience at the clinic using a 39-item survey.

Results: A range of intervention and assessment services were provided by the integrated behavioral health service. Two full-time, doctoral psychology interns successfully completed training in the clinic. Data indicated strong endorsement of the project by primary care practitioners as well as a positive training experience by the psychology interns. Recommendations for programs interested in developing integrated pediatric primary care services are discussed.

Discussion: Limitations and future directions of the project are presented.

Introduction

Psychiatric and behavioral disorders in children are a major public health concern and are prevalent in primary care. Nationally, 13%-20% of children have a mental illness in a given year¹ and nearly half of adolescents experience a mental disorder at some point during their teenage years.² Fifty to 80% of all pediatric primary care visits include mental or behavioral health concerns and in 15% of cases, such concerns are the primary reason for the visit.³ Children's mental health disorders can have a considerable negative impact on school, family, and life trajectory and are highly correlated with an increased risk for mental disorders in adulthood.⁴ Therefore, it is critical that settings such as primary care clinics that treat children include resources to target prevention and early intervention.

Despite this high prevalence, most children with men-

tal health disorders do not receive adequate treatment.⁵ This is especially true for ethnic minority children. The Center for Health Care Strategies found that only 6.7% of children enrolled in Medicaid received any type of behavioral health service in a given year, and that the rate was even lower (3.7%) for Hispanic/Latino children.⁶ Additionally, a large national study found that Latino and African-American adults were less likely to access and receive adequate depression care compared to non-Latino white patients.⁷ Levels of acculturation, perceptions of mental illness, and differences in how psychiatric illness is expressed may affect utilization rates across cultures.⁸ The disparities in access to mental health services experienced by Latino patients in particular are likely influenced by multiple factors, including insurance status, treatment costs, lack of Spanish-speaking providers, transportation issues, deportation fears, and lack of culturally-responsive treatments.⁸

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The integration of behavioral health providers into primary care teams has the potential to provide immediate access to mental health services, facilitate engagement in treatment, reduce the stigma of mental health treatment, better treat comorbid medical and behavioral concerns, address chronic health conditions, and provide preventative services.⁹ Indeed, emerging evidence suggests that brief behavioral interventions delivered in pediatric primary care can be efficacious.¹⁰ For example, a recent meta-analysis of 31 randomized controlled trials representing over 13,000 participants found that integrated care was superior to care as usual when examining behavioral health outcomes for children and adolescents across a range of conditions (eg, depression, anxiety, behavioral concerns).¹⁰ These advantages are particularly relevant for underserved populations and for those who may be reluctant to use specialty mental health services.⁸

Despite this need, there are currently few psychologists trained to work in integrated pediatric primary care and few psychology training programs that offer clinical rotations in these settings.¹¹ A 2013 survey by the American Psychological Association of existing doctoral internship training programs found 23 intensive integrated care training experiences for adults and only 9 for children.¹² We conducted a search of the Association of Psychology Postdoctoral and Internship Centers database in January 2016 and found only 6 child-focused programs nationally (out of a total of 769 listed programs) when searching for keywords of “integrated primary care.” Successful pediatric integrated training builds on specific provider and practice competencies for general integrated care such as those highlighted in a recent review by Kinman et al,¹³ including strong team-based collaboration skills and the ability to work quickly and flexibly. The Committee on Psychosocial Aspects of Child and Family Health and Task Force on Mental Health recommends that programs will also need specific pediatric competencies in order to effectively manage and treat mental and behavioral health conditions specific to this population.¹⁴

Like many other institutions, our Denver Health system is at an early developmental stage of implementing pediatric integrated behavioral health (IBH). While IBH services had been implemented at other medicine and family practice clinics, pediatrics was

a new frontier. The 2 primary goals of this project were to develop, implement, and evaluate: (1) an IBH program in a pediatric primary care clinic serving an ethnically-diverse, low-SES population, and (2) an IBH psychology internship rotation within the primary care clinic. Results of a survey of primary care providers (PCPs) about the IBH services will be presented, along with the psychology interns’ evaluation of the training program.

Methods

Setting and Population

The project took place at a large, 27,000 visits per year pediatric primary care clinic with a clientele of predominantly low-income, ethnically-diverse children at Denver Health. Ninety-four percent of the population was below 150% of the federal poverty level. Patients were covered by Medicaid (89%), commercial insurance (8%), or Child Health Plan (2%); the remaining patients were uninsured. Children were identified by their parents as Caucasian (77%, includes Hispanic Caucasian), Hispanic American (49%), African American (11%), Unknown (8%), and Other (4%; percentages add up to more than 100% as parents could select all that apply). Interpretation services were available for families and, for Spanish, included in-house, telephone, and video interpreters. The clinic followed a Medical Home model.¹⁵ Before this project, the multidisciplinary clinic team included 12 primary care providers (pediatricians, advanced practice nurses, and physician assistants) as well as nurses, medical social workers, and patient navigators, but did not include any behavioral health providers. Funding for this project came from a HRSA grant aimed at increasing the number of psychologists trained in providing integrated primary care services for vulnerable and underserved groups, and was associated with a significant overall expansion of IBH services throughout the entire DH medical system.

Program Overview

Psychologists and Doctoral Interns. Doctoral interns were selected through a national match process for Denver Health’s American Psychological Association-accredited psychology internship program. Two grant-funded, doctoral interns (1 intern per grant year) received pediatric IBH training in the primary care

clinic for the majority of their year-long internship. The internship included didactic training and journal club relevant to primary care with underserved populations, such as seminars on working in medical settings, motivational interviewing, drugs of abuse, and a series of diversity offerings. Each month, psychology interns participated in a pediatric consultation group in which pediatric behavioral health providers working in primary care discussed difficult cases. Two pediatric psychologists joined the clinic team and trained interns in psychological assessment and pediatric evidence-based interventions, as well as conducted live, curbside “on the fly,” and formal intern supervision. These psychologists also provided IBH services to the clinic.

Integrated Behavioral Health Services Provided.

Over the course of the 2-year project, we developed a package of assessment and treatment modalities specific to the high-need patient population at Denver Health. This integrated project, developed in collaboration with pediatric staff at the clinic, served both the general pediatric clinic as well as embedded pediatric specialty clinics. Psychology staff provided a wide range of services at the clinic including assessment, crisis management, brief treatment, and curbside consultation with medical providers regarding challenging patient presentations. Depending on patient needs, we offered a blend of same-day, integrated care visits and scheduled follow-up sessions.

Assessment. Psychology staff routinely conducted diagnostic mental health evaluations, often using validated screening measures to assess for attention-deficit hyperactivity disorder, depression, anxiety, behavior problems, autism, and posttraumatic stress. The screening measures provided immediate information to patients and providers and were used to track treatment progress and outcomes. We also assisted medical providers with crisis evaluations (eg, suicidality, self-injury, child abuse reports) and developed safety plans with patients and families.

During the second year of the grant, we offered clinic-wide postpartum depression and anxiety screening. New parents were assessed and treated during same-day visits for their newborn, easing the burden of multiple appointments. At the baby’s 2-, 4-, and 6-month visits to the clinic, mothers were screened using the Edinburgh Postnatal Depression Scale. If mothers were screened as positive, we met with the

family to further evaluate symptoms and supports, and scheduled brief, follow-up treatment sessions at the clinic. We also helped to coordinate the mother’s health care with her own primary care physician and/or referrals to specialty mental health care.

Brief Treatment. Psychology staff provided evidence-based treatments (eg, cognitive behavioral therapy, motivational interviewing) for a wide range of concerns and frequently communicated with school staff regarding classroom behaviors. We also provided culturally-responsive parent management training (including in-vivo parent skill training and practice) and parenting education regarding normative child development and appropriate developmental expectations. Given that the preschool period is a critical time for addressing behavioral issues and preventing more significant problems in the future,¹⁶ parenting support was an important component of the services we provided.

Embedded Specialty Services. In addition to addressing the needs of the general pediatric clinic, psychology staff actively participated in multidisciplinary teams at 2 specialty services targeting specific pediatric problems. The Healthy Lifestyle service provides pediatric patients with family-centered weight management counseling, and addresses medical and mental health comorbidities. Psychology staff saw over 50% of Healthy Lifestyle patients for health behavior change interventions or comorbid mental health concerns that could interfere with successful weight loss. They frequently incorporated motivational interviewing to assess readiness for change, facilitated goal setting, provided parent training, and taught behavior modification techniques. Psychology staff also worked in an embedded specialty service (the Special Care service) that provided care for children with neurodevelopmental; chromosomal; or other serious, high-need, high-cost developmental issues (eg, cerebral palsy, Down syndrome, spina bifida). We provided psychosocial support and behavioral interventions adapted for children with developmental concerns. We also assisted with specialty referrals when warranted.¹⁷

Program Evaluation

Since pediatric integrated behavioral care was a new project in this clinic, it was important to measure the usefulness of services as perceived by PCPs. An

anonymous, 22-item survey called the *Integrated Care Effectiveness Survey (ICES)*; see Appendix 1) was developed and administered to PCPs as a quality improvement measure. The survey assessed (on a 5-point Likert scale) how helpfully psychology staff addressed psychiatric, behavioral, and medical conditions commonly seen in pediatric practice. Several items also assessed provider satisfaction with IBH services more generally and provided opportunities for PCPs to express their opinions about how the project had been helpful or problematic. The survey was administered initially at 9 months (4 out of 12 medical providers completed the survey) and again at 15 months (8 out of 12 completed the survey) after the roll out of IBH services (July 2015 and January 2016).

Psychology interns evaluated the year-long, IBH psychology internship rotation using a 39-item, 5-point Likert scale at 3 points during their respective training years (*Intern Evaluation of IBH Training*, see Table 3). The rating form included 6 domains of intern training: (1) case formulation, (2) intervention, (3) supervision ecology, (4) team functioning, (5) logistical support, and (6) an overall evaluation.

Results

Implementation Process

After receiving the HRSA training grant, staff psychologists recruited an initial pediatric psychology intern. Psychology and pediatric clinic staff collaborated to establish the role of psychology staff in the clinic and to coordinate implementation logistics (eg, appropriate referrals, office space). Initially, IBH implementation focused on building relationships with PCPs, identifying clinic “champions” to shadow, and assessing the needs of providers and patients. The implementation process was relatively smooth, facilitated by PCPs’ need for immediate behavioral health services and frustration with access to specialty care.

Project Challenges and Lessons Learned

From our experience and evaluation of the implementation of this project, we identified a number of lessons learned:

1. *Integrate psychology staff into all levels of clinic operation as early as possible in the program implementation and solicit feedback from clinic staff.* Integration may include standardizing sched-

uling protocols and attending provider meetings. We found it more efficient and less confusing to use standard work protocols (eg, specifically how psychologists and medical providers interact when screening and treating postpartum depression).

2. *Provide standardized education to providers and clinic staff on the best way to utilize psychology staff.* One challenge during the implementation phase of the project was optimizing the use of psychology staff time and skill. While many providers knew about our expertise with certain disorders (eg, mood and disruptive behaviors), advertisement of our interventions for the 0-to-3 age range was necessary. We found that setting expectations and clarifying roles of psychology staff with the entire clinic early on can help prevent misunderstandings and underutilization of psychology services.
3. *Train psychology staff to be comfortable with the idea of being engaged and visible within the milieu of the clinic rather than working in a separate area or office.* We found that psychology staff received more referrals if they engaged in frequent face-to-face check-ins with providers. Frequent check-ins provided an opportunity to build relationships and foster trust with medical providers as well as an opportunity to promote and describe behavioral health services.
4. *Adapt behavioral health services to meet the needs of the population served.* In certain key areas, we expanded upon our skill set and training, including postpartum depression and developmental disorders, in order to meet clinic and patient needs. We also administered a fairly wide range of assessment measures to clarify diagnoses and track patient progress.
5. *Focus on efficiency.* Finding the right balance of same-day integrated care visits and behavioral health follow-up visits to meet patient needs and maximize revenue has been an ongoing challenge. Other programs would benefit from using patient utilization data to find the optimal times to schedule follow-up visits compared to time spent in warm handoffs. We found that scheduling parent follow-up sessions earlier in the day (when children were at school) and protecting time for integrated care visits during the busy afterschool clinic times was helpful. Additionally, daily gen-

erated reports alerted psychology staff to well child checks, patients on the schedule with a past behavioral health history, hospital discharges, and medically-complex patients.

6. *Offer flexible appointment times.* Whereas some models of integrated primary care offer only same-day appointments, our experience was that families are quite appreciative when offered a short-term course of scheduled psychotherapy.
7. *Consistency is key for building trust with providers.* Early in our project implementation, psychology staff served in the clinic on varying schedules, which proved hard for providers to remember. Other psychology training programs should consider maintaining consistent schedules.

Provider Perceptions of Project Effectiveness

At the 9-month survey, average PCP ratings of the degree to which psychology staff were helpful in addressing specific clinical problems were in the “Good” to “Very Good” range for depression and anxiety disorders, substance use, family or parenting issues, behavior problems and attention-deficit hyperactivity disorder, management of patients who are suicidal or in crisis, and specialty mental health appointment referrals (see Table 1). Ratings were in the “Acceptable” range for behavioral aspects of chronic medical conditions, obesity and/or diabetes, and severe mental illness and in the “Poor” range for psychiatric medications and managing patients with chronic pain. At the 15-month follow-up survey, the average PCP ratings for all items, including newly-added items regarding postpartum depression and coordination of services with school, fell in the “Good” to “Very Good” range.

PCPs also rated their perceptions of team functioning among psychology and medical staff (see Table 2). Overall, PCPs rated the quality of behavioral health services as “Very Good.” PCPs were comfortable with the warm handoff procedure and felt there was a positive clinical impact from their collaboration and communication with psychology staff. Most PCPs endorsed utilizing psychology staff multiple times per week. Comments from open-ended questions were generally quite positive. The project was described as “extremely helpful,” an “outstanding resource,” “incredibly effective” with “great communication” that “has helped to get families ... plugged in immediately.” Suggestions for improvement included more bilingual

coverage, more access to psychiatric medication advice, and more education of PCPs about the range of consultation services available.

Psychology Interns’ Evaluation of IBH Training

Overall, psychology interns evaluated the IBH psychology internship rotation highly (see Table 3). Across all 6 domains of the *Intern Evaluation of IBH Training* (case formulation, intervention, supervision ecology, team functioning, logistical support, and overall evaluation), the average of interns’ ratings fell in the “Very Good” to “Outstanding” range. Open-ended comments from the interns’ evaluations indicated a positive training experience: “I constantly learn new and creative interventions by observing them” and “The opportunity to take on a program development role within the clinic has also been helpful.” Comments regarding areas for program improvement included suggestions for increasing efficiency in their clinic onboarding. Overall, the interns rated their IBH training experiences as valuable to their professional development. Of note, the full-time psychology interns trained in this clinic successfully secured postdoctoral fellowships in pediatric primary care settings.

Program Sustainability. As the PCP and intern surveys demonstrate, IBH services have been well-received and are now a vital component of this pediatric clinic. After completion of the grant, staff psychologists will be funded through the newly-expanded IBH department at Denver Health. Because of this sustained presence and funding, staff psychologists in the pediatric clinic will continue to participate in the training of psychology interns in future years.

Discussion

Given that this was a new program, evaluating IBH team communication, collaboration, and utilization was vital to establishing trust between psychology staff, PCPs, and patients. Survey responses by PCPs indicated strong interdisciplinary team functioning among psychology and medical staff as well as positive collaboration on a wide range of clinical areas.

Traditionally, PCPs have struggled to effectively serve patients who are high utilizers of clinic time and resources (eg, those with depression, anxiety, substance abuse, and suicidality).¹⁸ Comments from PCPs on the open-ended survey questions suggest that our

high satisfaction scores may be partially due to PCPs' desire for IBH prior to the project's implementation. As one PCP wrote in the survey, it "takes some of the burden off the providers to address a multitude of issues in a short amount of time."

Our project is consistent with other IBH implementation studies,¹⁹ which indicated psychology staff members were particularly helpful in managing complex, high-need patients. Our own experience and comments from PCPs suggest the helpfulness of IBH services was at least partially attributed to the personal introductions by medical clinic staff to psychology staff. These introductions may build on the long-term, trusting relationships patients and families have with their medical providers. Although the impact of warm handoffs on engagement and show rates lacks strong empirical data, our project is consistent with professional consensus that supports the value of this practice.

Given the dearth of pediatric IBH psychology training programs nationally,¹² projects that support pediatric-specific training will contribute to high-quality patient care. Our program is now well established as a part of the existing IBH department at Denver Health and will continue to train interns to provide population-based behavioral care in ethnically-diverse and low-income populations. The training goals of this program are consistent with existing national efforts to transform the way health care is accessed and delivered.

Limitations

The absence of clinical outcome data is a limitation in evaluating the results of this project. Further work to measure integrated pediatric psychology intervention and training results in comparison to other behavioral health models would be valuable. A second limitation is the small sample size and low response rate by the providers to the initial ICES (4 out of 12 providers), which may have been related to the relatively new presence of psychology staff at the clinic. Had more providers completed the initial survey, stronger and more meaningful comparisons could have been made between initial and follow-up surveys. Also, this project was implemented in a single clinical setting and the results may not be applicable to other clinics.

Future Directions

Future directions for this project include the expansion of our IBH services, assessing and improving our clinical effectiveness, and increasing pediatric training opportunities for psychology interns and providers. We will continue to refine our assessment protocol across a range of presenting problems, implement more universal screeners, and adapt existing evidence-based interventions for brief primary care visits (eg, 5-6 session, cognitive-behavioral therapy protocol for pediatric anxiety disorders). We would like to integrate psychology services into even more embedded specialty pediatric clinics at Denver Health (eg, nursery clinic, neurology). We plan on enhancing our preventive services, including implementing culturally-responsive parenting groups. We also plan to study the effectiveness of our training program by evaluating trainees' progress based on established pediatric primary care psychology competencies.

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Disclaimer

This information or content and conclusions are those of the authors and should not be construed as the official position or policy of, nor should any endorsements be inferred by the BHW, HRSA, DHHS or the US Government.

Tables

Table 1. Results from the Integrated Care Effectiveness Survey (ICES)–Clinical Areas ^a

| Item | 9-month follow-up survey (N=4) | 15-month follow-up survey (N=8) |
|--|--------------------------------|---------------------------------|
| Depression and anxiety disorders | 4.75 | 5.00 |
| Substance abuse | 4.75 | 5.00 |
| Management of patients who are suicidal or in crisis | 4.25 | 5.00 |
| Family or parenting issues | 4.75 | 4.88 |
| Behavior problems and ADHD | 4.50 | 4.88 |
| Specialty mental health appointment referrals | 4.00 | 4.88 |
| Behavioral aspects of chronic medical conditions | 3.00 | 4.86 |
| Obesity and/or diabetes | 3.00 | 4.67 |
| Severe mental illness | 3.25 | 4.60 |
| Coordination of services with school | * | 4.43 |
| Postpartum depression | * | 4.43 |
| Managing patients with chronic pain | 2.25 | 4.25 |
| Psychiatric medications | 2.00 | 4.25 |

^a1=Very Poor, 5=Very Good; *=Item not included in July 2015 survey

Table 2. Results from the Integrated Care Effectiveness Survey (ICES)–Team Functioning

| Item | Average of July 2015 Responses (N=4) | Average of January 2016 Responses (N=8) |
|---|--------------------------------------|---|
| Scale: 1=Not comfortable at all, 5=Extremely comfortable | | |
| How well does the warm hand off procedure for patients with mental health disorders, chronic medical conditions, addictions and/or other psychosocial issues to Psychology staff work at your clinic? | 4.75 | 4.5 |
| Scale: 1=Very negative impact, 5=Very positive impact | | |
| Describe the impact of collaborating with Psychology staff to support patients with mental health disorders, chronic medical conditions, addictions and/or other psychosocial issues as it relates to your satisfaction with your practice. | 5.00 | 4.75 |
| Scale: 1=Never, 5=Daily | | |
| How much do you utilize Psychology staff in your clinic? | 4.25 | 4.00 |
| Scale: 1=Very Poor, 5=Very Good | | |
| How would you rate the communication between Psychology staff and the medical providers? | 5.00 | 4.50 |
| Scale: 1=Very Poor, 5=Very Good | | |
| How would you rate the quality of the behavioral health services provided to patients at your clinic overall? | 4.75 | 4.88 |

Table 3. Results from the Intern Evaluation of IBH Training Survey^a

| Psychology Training Competency Domain | Average of Intern Ratings |
|--|---------------------------|
| Assessment and case formation | 4.77 |
| Intervention and psychotherapy | 4.71 |
| Supervision ecology | 4.83 |
| Interdisciplinary team functioning | 4.80 |
| Logistical support | 4.67 |
| Overall evaluation | 4.83 |
| ^a Two full-time interns' ratings averaged across 3 time points during their respective training years (1=Unsatisfactory, 5=Outstanding) | |

Appendix

Appendix 1. Integrated Care Effectiveness Survey

Purpose: This survey is part of the evaluation of the HRSA grant that helped to set up integrated care services in your clinic. Your participation will help us understand how integrated care services have or have not been helpful. We will also ask about areas of additional need.

How helpful have Psychology staff been in addressing the following clinical areas:

Please rate using the following scale:

| Very Poor | Poor | Adequate | Good | Very Good | Not Applicable | | | |
|--|------|----------|------|-----------|----------------|---|---|-----|
| 1 | 2 | 3 | 4 | 5 | N/A | | | |
| 1. Depression and anxiety disorders | | | 1 | 2 | 3 | 4 | 5 | N/A |
| 2. Identification and treatment/or referral for substance abuse | | | 1 | 2 | 3 | 4 | 5 | N/A |
| 3. Severe mental illness | | | 1 | 2 | 3 | 4 | 5 | N/A |
| 4. Psychiatric medications | | | 1 | 2 | 3 | 4 | 5 | N/A |
| 5. Managing behavioral aspects of chronic medical conditions (eg, medication/treatment adherence, appointment attendance) | | | 1 | 2 | 3 | 4 | 5 | N/A |
| 6. Managing patients with chronic pain | | | 1 | 2 | 3 | 4 | 5 | N/A |
| 7. Family or parenting issues | | | 1 | 2 | 3 | 4 | 5 | N/A |

| | | | | | | |
|--|---|---|---|---|---|-----|
| 8. Behavior problems and ADHD | 1 | 2 | 3 | 4 | 5 | N/A |
| 9. Management of patients who are suicidal or in crisis | 1 | 2 | 3 | 4 | 5 | N/A |
| 10. Obesity and/or diabetes | 1 | 2 | 3 | 4 | 5 | N/A |
| 11. Obtaining specialty mental health appointments and managed care resources | 1 | 2 | 3 | 4 | 5 | N/A |
| 12. Management of mothers with postpartum depression | 1 | 2 | 3 | 4 | 5 | N/A |
| 13. Coordination of services with school | 1 | 2 | 3 | 4 | 5 | N/A |

14. How well does the warm hand off procedure for patients with mental health disorders, chronic medical conditions, addictions and/or other psychosocial issues to Psychology staff work at your clinic?

| | | | | |
|-------------------------------|-----------------------------|--------------------|-------------------------|------------------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not comfortable at all | Slightly comfortable | Comfortable | Very comfortable | Extremely comfortable |

15. Describe the impact of collaborating with Psychology staff to support patients with mental health disorders, chronic medical conditions, addictions and/or other psychosocial issues as it relates to your satisfaction with your practice.

| | | | | |
|-----------------------------|------------------------|------------------|------------------------|-----------------------------|
| 1 | 2 | 3 | 4 | 5 |
| Very negative impact | Negative impact | No impact | Positive impact | Very positive impact |

16. How much do you utilize Psychology staff in your clinic?

| | | | | |
|--------------|------------------------------|---------------|-----------------------------|--------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Once or twice a month | Weekly | Several times a week | Daily |

17. How would you rate the communication between Psychology staff and the medical providers?

| | | | | |
|------------------|-------------|-----------------|-------------|------------------|
| 1 | 2 | 3 | 4 | 5 |
| Very poor | Poor | Adequate | Good | Very good |

18. How would you rate the quality of the behavioral health services provided to patients at your clinic overall?

| | | | | |
|------------------|-------------|-----------------|-------------|------------------|
| 1 | 2 | 3 | 4 | 5 |
| Very poor | Poor | Adequate | Good | Very good |

19. In what ways has this behavioral health grant been most helpful to you and your clinic?

20. Please indicate any ways in which this behavioral health grant has been problematic in your clinic:

21. Please indicate areas in which you would like additional behavioral health assistance in your clinic:

Other Comments/Concerns?

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Implementation of an Integrated Perinatal Mental Health Program in a Federally-Qualified Health Center: A National Model of Perinatal Care in Vulnerable Populations

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Abstract

Introduction: Perinatal mood and anxiety disorders (PMADs) are the most common complication of pregnancy and have long-term implications for both mother and child. In vulnerable patient populations such as ours at a Federally-Qualified Health Center, the prevalence of PMADs is nearly double the nationally reported rate of 15%-20%. To address these issues, an Integrated Perinatal Mental Health program was created to screen, assess, and treat PMADs in alignment with national recommendations to improve maternal-child health and wellness.

Methods: A multidisciplinary team was assembled to create a universal screen-to-treat process in perinatal clinics and to adapt our existing Integrated Behavioral Health (IBH) model into a program suited to the health system's perinatal population. Universal prenatal and postnatal screening was implemented at the obstetric intake visit, a third trimester prenatal care visit, and at the postpartum visit across the clinical system. At the same time, IBH services were implemented across our health system's perinatal care system in a stepwise fashion. These efforts occurred in tandem to support all patients and staff and to enable an immediate response to a positive screen by a qualified mental health provider.

Results: Since initiation in August 2014, universal screening for PMADs has been implemented throughout our perinatal care system. Screening has improved from 0% of women screened at the obstetric care intake visit in August 2014 to >90% of women screened in June 2016. Integrated behavioral health coverage by a licensed psychologist or licensed clinical social worker exists in 100% of perinatal clinics as of January 2016, and the ability to bill and be reimbursed for these visits continues to improve.

Conclusion: Tandem implementation of a universal screening process for PMADs and development of an IBH model in perinatal care has led to the creation of a program that is feasible and has the capacity to serve as a national model for improving perinatal mental health in vulnerable populations.

Introduction

Perinatal mood and anxiety disorders (PMADs) affect 15%-20% of the general population,¹ and up to double that proportion in vulnerable patient populations,² making them the most common perinatal complication.¹ Perinatal populations are ideal candidates for an integrated behavioral and physical care model within a Federally-Qualified Health Center because limits

exist in what can be offered in specialty mental health clinics for an underserved, underinsured population.³ Additionally, many women of childbearing age only interact with the health care system during pregnancy and the postpartum period and many use perinatal care as primary care.^{4,5} Numerous national and international organizations have endorsed mental health screening during the perinatal period in an effort to

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improve pregnancy outcomes, such as preterm birth and low birthweight, as well as to improve long-term maternal-child health and wellness.^{6,7} Indeed, during the perinatal and first-year postpartum period, suicide and self-harm are the largest contributors to maternal mortality in the state of Colorado.⁸ Thus, moving integration of behavioral health into perinatal clinics is a necessary and urgent programmatic improvement to address PMADs, a leading cause of maternal morbidity and mortality.

Barriers to specialty mental health treatment exist, especially in vulnerable populations such as those served at Federally-Qualified health Centers. Studies suggest high rates of attrition when patients are referred to mental health care outside of their trusted system.⁹ In addition, a stigma exists among patients regarding the need for mental health care during the pregnancy and postpartum period.^{3,9,10} In combination, these factors lead to a large proportion of patients who do not follow through with mental health referrals.¹¹

In contrast, obstetrics and gynecology patients are nearly 4 times more likely to follow up with behavioral health treatment when services are offered at the same clinic compared to being referred elsewhere.^{3,12,13} In a randomized trial of “collaborative depression care” based in obstetrics and gynecology clinics, socially-disadvantaged women were most positively impacted.² Standard perinatal care involves scheduled visits that increase in frequency as pregnancy advances; an inpatient admission for labor and delivery and inpatient postpartum stay; and 1 to 2 postpartum visits scheduled in the first 6 to 8 weeks after birth. Thus, numerous resources are devoted to prenatal care delivery that address maternal-fetal physical health.¹² This overall heightened surveillance during the perinatal period also provides multiple opportunities to interact with women regarding their mental health. By integrating behavioral health care into perinatal clinical settings and seeing patients on the same day in the same space, it is possible to create care that is more convenient and safer for the patient, less disjointed, and in an environment where interaction with behavioral health is normalized and validated as standard of care.¹³ Based on this information and the critical need for behavioral health care in our patient population, the objective of this perinatal mental health program is to create an integrated,

sustainable infrastructure for the universal screening, assessment, treatment, and follow-up of PMADs in alignment with national recommendations.

Methods

Description of the Population and Program

Denver Health is a safety net academic medical center in the city and county of Denver, Colorado, with faculty, residents, and students from 39 health care disciplines. Twenty-five percent of all Denver residents, or approximately 150,000 individuals, receive their health care at Denver Health annually. One in 3 children in Denver, more than 3,200 annually, are born at and cared for by this health care system.

The Integrated Behavioral Health (IBH) program began over 10 years ago as part of a psychology internship training program. Over the years the service has expanded to include a postdoctoral position and now is a self-sustained department of 10 psychologists and 8 licensed clinical social workers who provide IBH services to 9 primary care community health service clinics, 3 Ob-Gyn-led women’s care clinics, and several medical and surgical specialty clinics throughout the system. Initially funded through grants, the IBH Division for Ambulatory Care Services has been able to demonstrate financial sustainability to the institution through billing changes and advancements in the Medicaid laws that allow for same-day billing for both medical and mental health care.

The Integrated Perinatal Mental Health Program

The integrated perinatal mental health program was designed to serve all women who enroll in prenatal care in our hospital system. This multidisciplinary team includes obstetrician gynecologists, maternal fetal medicine sub-specialists, certified nurse midwives, family practitioners, pediatricians, neonatologists, women’s health nurse practitioners, physician assistants, psychiatrists, psychologists, licensed clinical social workers, nurses, medical assistants, and front desk clerks. Other community agencies involved in the screen-to-treat process development included: Denver Public Health and Colorado Department of Public Health and the Environment (CDPHE), and the health system’s LEAN department. The perinatal clinics serve a diverse population that is a predominantly Hispanic, low socioeconomic status, and insured by

Medicaid. The rationale for this program's development is listed in Table 1.

Universal Screening and Assessment and Treatment of a Positive Screen

In the Fall of 2014, Denver Public Health convened a multidisciplinary advisory board to guide the development and implementation of this program. The board was led and directed by a Lean Facilitator. Lean is a systematic approach of continuous improvement utilized at Denver Health that uses a combination of principles and tools. Lean thinking is focused on identifying and eliminating barriers, improving customer experience, and engaging the front line in improvement of work.¹⁴ The advisory board developed a process map that described the current state of screening for PMADs. Through the mapping process, barriers were identified and processes developed to improve the consistency of screening for all women and the response to a positive screen. An example of the standard work created for the universal screening process is presented in Figure 1.

Screening for PMADs is done by the medical assistant or nurses in perinatal clinics using the Edinburgh Postnatal Depression Scale (EPDS). The EPDS is a validated instrument used to assess depressive and anxiety symptomatology and suicidality in perinatal populations.¹⁵ Despite its name, *Edinburgh Postnatal Depression Scale*, the instrument has been validated for use in pregnant populations and has been translated into over 50 languages.^{16,15} Scores range from 0-30 with a score of greater than or equal to 10 and/or an endorsement of thoughts of self-harm "sometimes" or "yes, quite often" considered positive. A positive score prompts immediate, same-visit, referral to an integrated behavioral health counselor.

An EPDS is administered twice during pregnancy: at the time of the initial prenatal care visit and at the beginning of the third trimester. Patients are screened once again at the 6-week postpartum visit and are also screened using the EPDS into the 2, 4, and 6-month pediatrics visits in the pediatric or family medicine primary care clinics.

Once a positive screen is determined, or if other cause for behavioral health concern is raised (eg, the patient's affect is distressed or she reports distress) during a prenatal care visit, same-day collaboration with a behavioral health counselor occurs and may

take multiple forms. This counselor visit may include: "curb-siding," restructuring the visit to be an integrated or co-visit, or a provider-to-provider in-person patient hand-off. A behavioral health counselor visit results in a detailed biopsychosocial assessment and, ultimately, establishment of follow-up behavioral health visits in tandem with future prenatal/postnatal care appointments. This type of collaboration allows for multi-functional assessments of a patient's psychosocial experience, cognitive functioning, and behaviors that affect mood over the perinatal period.

Psychological intervention is provided within a brief, focused, short-term model of care. Women often prefer non-pharmacological interventions for treatment of perinatal mood disorders and those given a preference are more likely to engage in treatment.¹⁷ Treatment may be provided to individuals, couples, or families and the goal is to provide culturally-sensitive, evidence-based psychotherapeutic care for our diverse population. Interventions are drawn from empirically-validated treatments for prevention and treatment of perinatal mood disorders including, but not limited to, cognitive behavioral therapy, interpersonal psychotherapy, mindfulness-based cognitive therapy, acceptance and commitment therapy, solution-focused therapy, and behavioral-activation therapy.^{17,18} Goals of care include but are not limited to increasing social support, improving self-care, improving communication and problem solving, increasing pleasurable/value driven activities, and increasing mindfulness.¹⁸

Behavioral health counselors also assist with referrals and case management as needed, linking women with internal or external behavioral health or other supportive community resources. They are available to assist in the transition of the mother/baby dyad into primary care. Often the behavioral health counselor in the women's care perinatal clinic will coordinate directly with another behavioral health counselor in the pediatric or family medicine clinic to provide wrap-around coordination of services for the patient.

If higher-level psychiatric care is necessary, a "Behavioral Health Ob" clinic, staffed by a psychiatrist and clinical psychologist, exists to manage more complex psychiatric issues. Additionally, a Perinatal Substance Dependence clinic began Fall of 2015 to specifically address and manage women and their infants with substance dependence. Aided by the existence of




| Unit: Community Health Services/Women's Care | | Job: Pregnancy Related Depression Screening in Women's Care | | Date: 03/17/16 |
|---|---|---|---|-----------------------|
| Anticipated Outcome: | All prenatal and postpartum women will receive the Edinburgh Postnatal Depression Scale (EPDS) on the recommended schedule to determine if further assessment for pregnancy related depression is needed. | | | |
| Recommended Schedule: |  At initial Prenatal History and Physical Exam (H&P) |  At 26 weeks (same appointment as Gestational Diabetes screen) |  At 6 weeks postpartum | |
| STEP | IMPORTANT STEPS (WHAT) | KEY POINTS (HOW) | REASONS FOR KEY POINTS (WHY) | |
| 1 | Provide Edinburgh Postnatal Depression Scale to patient at each recommended visit (Form # F61-348) | Form may be provided by clerks at registration or by HCP at check in | Depression impacts 1 in 7 women during pregnancy or the postpartum period. It impacts the health of the mother and the development of the infant, yet many cases go undetected. | |
| 2 | Alert patient to form and ask them to complete the form while they wait | Clerk or HCP asks patient to complete the form. Sample wording: "This form asks how you've been feeling over the past week. This is something you can ask your provider about during your visit. Keep the form and give it to your provider during your visit today." | Providing an explanation about the screening tool increases the likelihood that the patient will complete it accurately and honestly. | |
| 3 | Retrieve form from patient | The form must be received back from patient for scoring and interpretation. HCP or Provider may ask the patient for the form during check in or visit. If HCP reviews the form, HCP assures that provider receives it. | Assuring that the screen is completed and scored sends the message to the patient that her responses are important. | |
| 4 | Score form by adding up the numbers circled. Write score on form. | HCP or provider may score form. If HCP scores, HCP assures that provider is aware of the score. | | |
| 5 | Interpret score | A score of 10 or higher or any endorsement of Q10 considered a positive screen. | Proper interpretation assures an appropriate response to the screen. | |
| 6 | If screen is negative : Provide education and anticipatory guidance | Briefly review that feeling sad or worried is common in pregnancy, and something the patient can discuss with the provider. | Review of a negative screen creates an opportunity to educate and address stigma related to mental health concerns | |
| 7 | If screen is positive : Acknowledge, Assess, and Refer | Acknowledge positive screen, assess for medical causes and refer to Behavioral Health Consultant(BHC) for assessment and referral to resources | Timely response to positive screen assures the identified mental health concerns are acknowledged and addressed | |
| 8 | Refer to Standard Work: Role of Provider and BHC Following a Positive Edinburgh Postnatal Depression Scale (EPDS) Screening | The Standard Work describes the process for working with the BHC in the case of a positive screen | Begins the process for creating an appropriate treatment plan for positive screens. | |

Figure 1. Example of standard work created for the universal screening process

these resources, the advisory board developed a multidisciplinary team response to a positive screen; this process is presented in Figure 2. As indicated in Figure 2, if the patient declines further consultation with a behavioral health counselor for a positive screen or other concern, the patient's decision is documented in the chart and the offer to meet with a behavioral health counselor at subsequent visits is extended.

Results

Since the onset of the program in August of 2014, the integrated perinatal mental health program has been implemented and expanded into 9 community health and 3 Ob-Gyn-led perinatal care clinics. All clinics are staffed with full-time behavioral health consultant coverage for perinatal patients. As of June 2016, PMAD screening rates vary by clinic, ranging from 89% to 100% at the first prenatal care visit and 61% to 100% at the postpartum visit. These rates continue to improve from the time that we began tracking

these data in January 2015. Figure 3 represents the increase, over 1 year, of screening at the first prenatal care visit and at the postpartum visit at 3 clinics in the system. As more clinics within the system reach >90% of women screened, we will focus additional efforts on those clinics that are screening <90% of women and work to identify barriers and challenges at those clinic locations

From August 2014 until December 2015, a total of 2,005 behavioral health visits were billed throughout the system co-occurring with a perinatal care visit. Not all clinics have a coding process that elucidates a perinatal visit in tandem with an IBH visit. Thus, this number is likely an underestimate. Anecdotal feedback solicited from prenatal care providers has been overwhelmingly positive. Additionally, enthusiasm for screening and implementation of screening has expanded rapidly now that the prenatal care team has a behavioral health consultant present in all clinics for a same-day encounter and maternal mental

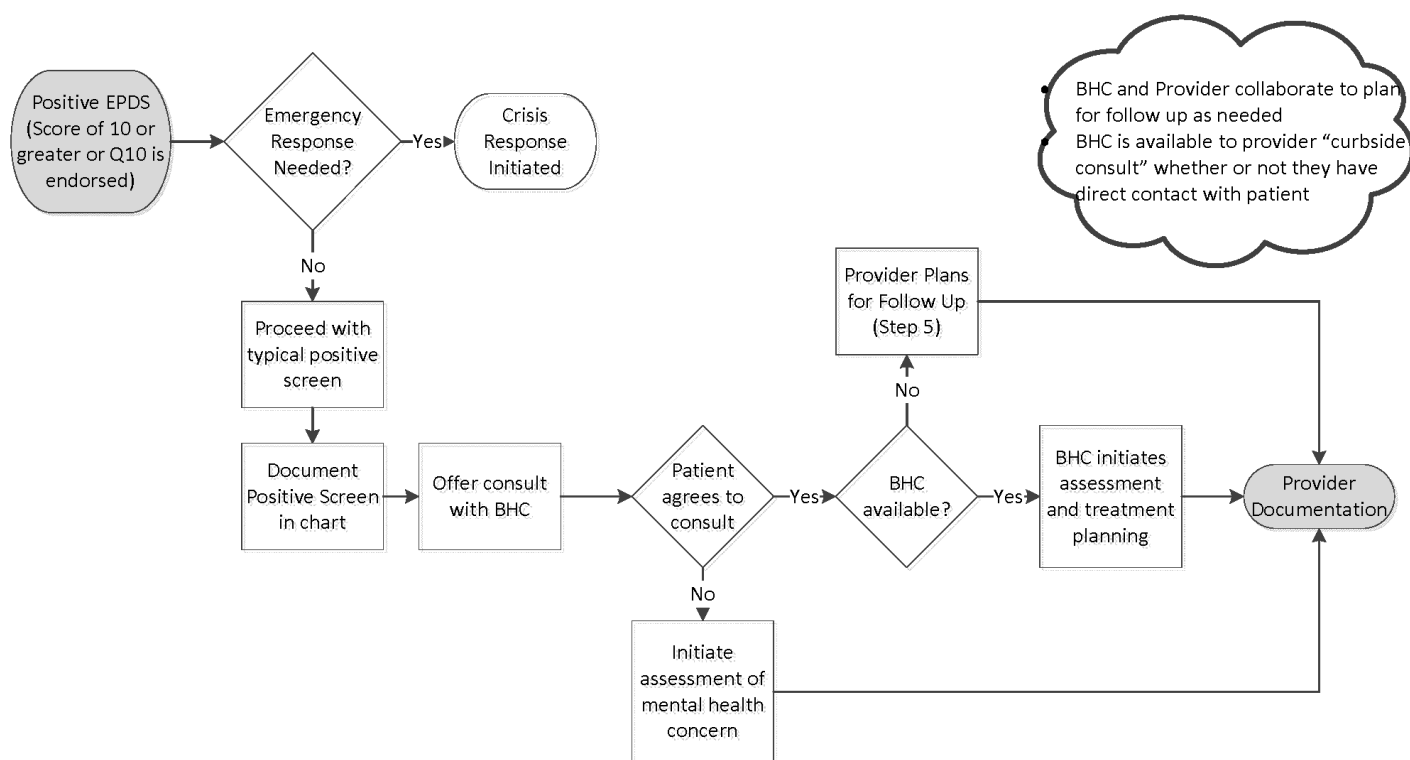


Figure 2. Process for responding to a positive Edinburgh Postnatal Depression Scale screen. (Score of ≥ 10)

health champions have been identified at all clinics. Identification of champions at each clinical site was an initial barrier to implementation of screening and to recruitment of behavioral health counselors to cover all clinical sites. Another remaining challenge of this program is securing referral and transfer of a woman to community mental health resources when she is beyond the postpartum period.

Discussion

This program, which integrates behavioral health into perinatal settings, meets the recommendations from a number of professional societies invested in improving maternal morbidity and mortality, improving perinatal mental health, and in expanding this type of integrated care.⁴ When perinatal mental health problems are addressed and treated, we see improvements in both pregnancy outcomes¹⁹ and in multigenerational health and wellness.²⁰ By introducing IBH into perinatal care, we have improved screening, assessment, and management of complex mental and physical health issues during pregnancy and the postpartum period. Prior to implementation of this program, standard prenatal care primarily addressed the physical health of the mother, fetus, and infant.

Because we were not screening for PMADs and not treating them, we were missing an important opportunity to address the most common complication of pregnancy. The implementation of this program has allowed us to address this concerning gap in the services we provide as we continually strive to improve the standard of care for prenatal care delivery.

We are hopeful that this program will serve the needs of women and families during this pivotal time in their lives and allow for behavioral change and openness to seek therapeutic intervention. In addition, as suicide and self harm are the largest contributors to maternal mortality in the state of Colorado,⁸ we are hopeful that improving screening, assessment, and treatment during this vulnerable period will ultimately lead to a system that prevents long-term maternal and child morbidity as well as mortality.

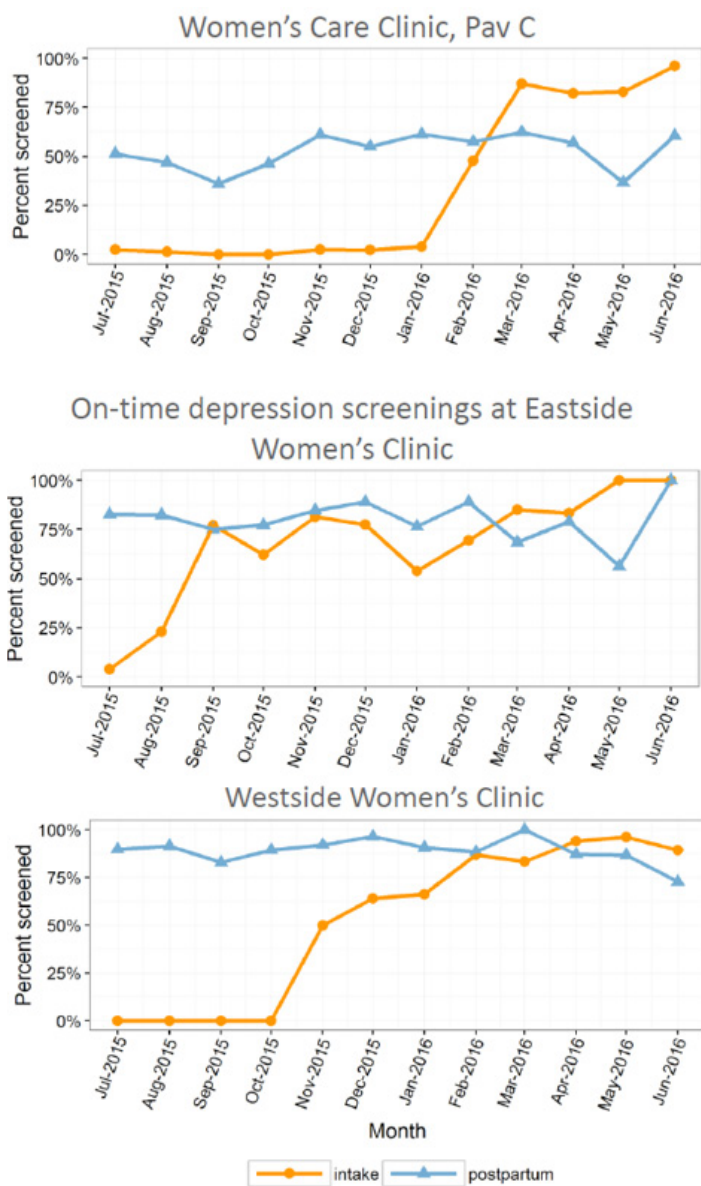


Figure 3. Upward trends in EPDS screens over 1 year at 3 clinics in a federally-qualified health care system

We plan to evaluate this program more formally in order to further refine it and establish it as a recognized best practice. In order to do this, we are tracking additional outcomes that include: the number of psychotherapy visits completed; initiation of pharmacotherapy and dose; diagnoses of postpartum depression or other psychiatric illness; gestational age at delivery, birthweight, and other delivery demographics. Long-term outcome measures include system-wide utilization of behavioral and physical health services by mothers and their children.

While we have implemented efforts to transition pregnant women with high-risk pregnancy conditions, including mental health issues, to primary care pro-

viders via patient navigation and social work, we are unable to serve every woman in need of ongoing care. We are therefore working on additional funds, both internally and externally, to secure long-term physical and behavioral health care for our patients. Another challenge is the known influence of childhood trauma, interpersonal violence, and substance dependence on the development of PMADs, but the unknown prevalence of these issues in our population.^{21,22} We are working to determine the prevalence of these experiences and comorbidities and to develop a better understanding of how these influence both patterns of prenatal care utilization as well as the risk for prenatal and postnatal physical and mental health conditions.

Strengths of this program are primarily found in the interdisciplinary collaboration that moved this large effort forward and in the continued multidisciplinary standard work of running this program throughout our perinatal clinics. Given our ability to implement this program in a Federally-Qualified Health Center, the use of this approach in clinics serving similar populations has the potential to improve maternal-child multigenerational health more broadly.

Acknowledgements

Conflicts of Interest

No authors have any conflicts of interest to disclose.

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Previous Presentations

A portion of these data were presented at the Collaborative Family Health Care Association meeting, October, 2015, Portland, Oregon by Drs Lomonaco-Haycraft and Lieberman.

Tables

Table 1. Rationale for Program Development

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| 1. Prenatal care involves an average of 8 encounters during pregnancy, plus 1 to 2 encounters in the first 6 to 8 weeks postpartum. Therefore, women are interacting with the health care system at regularly-scheduled intervals. |
| 2. Numerous missed opportunities exist to address mental health during these multiple scheduled appointments over the course of the perinatal period. |
| 3. Screening, assessment, treatment, and follow-up of PMADs may lead to improved overall maternal-child health by way of improving pregnancy outcomes (decreasing preterm birth and low birthweight), women's mental health over the life-span, and child mental and physical health and neurodevelopment. |
| 4. Universal screening of all pregnant and postpartum women is now recommended by multiple societies including: ⁴ <ul style="list-style-type: none"> • The American College of Obstetricians & Gynecologists (ACOG) • The Council on Patient Safety in Women's Health Care • The United States Preventive Services Task Force (USPSTF) • The Agency for Research Health & Quality (ARHQ) • The American Academy of Pediatrics (AAP) • The American Psychiatric Association (APA) • Health Resources and Services Administration (HRSA) |

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Assessment of Medical Decision-Making Capacity: Impact on Rates of Consultation and Involuntary Commitment at a Safety Net Hospital

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Abstract

Introduction: One of the most common questions posed to hospital behavioral health consultants is whether a patient has the capacity to make medical decisions. Such consultations are typically requested in complex clinical situations when the physician is unsure whether a patient has this capacity. At a safety net hospital where many patients have comorbid medical, cognitive, and psychiatric disorders that increase their risk of having impaired medical decision-making, such evaluations are frequent. Our behavioral health consult-liaison team created an instrument to assist physicians in more rapidly and accurately performing assessments of medical decision-making. This program evaluation study was undertaken to determine whether use of the instrument achieved its goals.

Methods: The “Medical Decision-Making Capacity Instrument” was introduced at the end of 2011. To assess the possible impact of this instrument on requests for behavioral health consults to assess medical decision-making capacity (DMC) as well as placement of inappropriate involuntary psychiatric commitments (we suspected mental health holds were being started to keep some patients from leaving against medical advice), the total number of behavioral health consults for DMC in 2010 (the last year without such an instrument) was compared to the number of consults in 2014 (the third full year of implementation). The number of civil commitments that were discontinued by the consult team was also calculated for these same years.

Results: There was a dramatic and statistically significant reduction in the number of DMC evaluations performed by the consult team, from 115 in 2010 to 56 in 2014. There was also a statistically significant drop in the percentage of mental health holds discontinued, from 55% in 2010 to 48% in 2014.

Discussion: These results suggest that the use of the Medical Decision-Making Capacity Instrument resulted in more autonomous determinations of DMC by medical teams and decreased use of psychiatric commitments.

Introduction

Contemporary medical ethics emphasize a departure from a paternalistic model of medical decision-making and the importance of clinicians respecting their patients’ treatment decisions.^{1,2} Presently, medical decision-making has evolved to strike balance between the clinicians’ recommendations thought to be in the best interest of the patient and the individual patient being left to make complicated treatment choices based on information furnished by the provider.^{3,4} There are, however, instances when shared

decision-making is not possible because the patient is incapable of making medical decisions.⁵ When a patient refuses care, but lacks medical decision-making capacity (DMC), a proxy decision maker is often asked to make decisions on behalf of the individual.⁶ For many patients, the source of incapacity is quite clear, such as the patient with end-stage dementia who can no longer communicate a choice. In other instances, the question of whether a patient has intact medical DMC is far more complex and may require expert consultation by a behavioral health provider⁷ and a bioethics committee.⁸

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In our urban, academic medical center designated as a Level I trauma center with a safety net mission, patients tend to present with high medical and psychiatric complexities. Many patients admitted to Denver Health (DH) have comorbidities of mental illness, substance use disorders, and cognitive impairments—conditions that often impair medical DMC. Further, many patients admitted to DH have not executed advance directives. As a result, our behavioral health consultation-liaison team is routinely asked to assess patients believed to lack medical DMC. Prior to 2011, our consultation-liaison team was regularly encountering patients that had already been deemed to lack medical DMC and the request for expert consultation was not to answer this question, but instead as a regulatory formality. When we explored this with our medical and surgical colleagues, we found that many were operating under the assumption that behavioral health providers had to be involved in any case where a patient's medical DMC had come into question. This was neither hospital policy nor a requirement under Colorado state law.

We believed that this misconception had the unintended consequences of our psychiatric consultation-liaison team being called to assess medical DMC even in clear-cut cases of incapacity that had little complexity, creating a significant additional burden for an already busy service. We also worried that by not performing their own evaluations, resident physicians were missing opportunities to learn how to assess medical DMC. Finally, we were regularly encountering patients deemed to lack DMC who were prevented from leaving the hospital by invoking laws designed to detain the mentally ill. Physicians were rightfully concerned about allowing a patient whose medical DMC was in question to leave the hospital, and that in this sense were a danger to themselves by being unable to make informed medical decisions. As a result, these patients were regularly placed on a “mental health hold,” (MHH), the colloquial term for describing the initiation of Colorado's civil commitment process.

Colorado Revised Statute (CRS) section 27-65 grants physicians (among others) the authority to legally detain those with mental illness under circumstances of imminent danger to self, others, or when gravely disabled.⁹ However, the statute does not address those lacking medical DMC. Despite this, in our hospital we found instances in which the rationale for detention

included phrases such as “lacks decision-making capacity, danger to self,” “hypoxia,” and “too intoxicated to make medical decisions.”

There are several reasons our hospital's physicians were using the mental health statute in cases of impaired DMC. Anecdotally, physicians told us they were urged to initiate the MHH by nursing staff and security who were fearful of legal liability for detaining a patient. It was also observed that the progress note assessing medical DMC was often lost in a voluminous patient care record and difficult to find under the tense circumstances of a patient demanding discharge against medical advice (AMA). MHHs, in contrast, were placed in a separate tab in the patient care record making it easier to find.

We wondered whether it might be possible to deliver better patient care by creating a formal process to assess and document findings of DMC in such patients. Benefits of such a process might include providing resident physicians guidance when performing medical DMC evaluations, limiting the use of MHHs because of reduced DMC, and reducing the overall number of DMC consults to our behavioral health team.

Our hospital is not the only one to struggle with these issues.^{10,11} There are several instruments available to help assess medical DMC.¹²⁻¹⁴ Our intent was to build on this work by designing a tool to help with not only assessment of reduced DMC, but also its documentation in an easily identifiable form in a patient's chart. This improvement would help to immediately identify a patient who had been assessed as lacking the capacity to appreciate the risks of AMA discharge. Further, such a form would ease the legal and disciplinary concerns of nurses and security officers who are ultimately responsible for detaining the patient.

We conducted a program evaluation to determine if implementing this medical DMC instrument achieved 2 quantifiable goals: (1) reduce the number of MHHs initiated for patients lacking medical DMC secondary to non-psychiatric disorders, and (2) reduce the number of consultation requests for assessment of medical DMC to our consultation service.

Methods

Program Service

The Behavioral Health Services (BHS) Consultation-Liaison (CL) team at DH is multidisciplinary. It is anchored by 3 attending psychiatrists, a second-year psychiatry resident, a psychology intern, a substance abuse nurse specialist, and a part-time attending clinical psychologist. The service is actively involved in supporting a psychosomatic psychiatry fellowship program. Medical and physician assistant students routinely rotate through the service. Urgent consults and patient follow-up are provided on weekends and evenings through on-call coverage by psychiatry residents and attending psychiatrists. The service also manages patients admitted to the correctional care medical facility, many of whom have mental health issues that cannot be managed in the correctional setting and require hospital-level psychiatric care.

Data Collection

The data for this analysis were compiled from 2 sources. The first was generated from annual reports automatically created through a database program (Microsoft Access. Version 2013. Redmond, WA: Microsoft; 2013). This database serves a day-to-day communication function in tracking patients and tasks for the CL team. It also allows for annual reports to be generated. The numbers are reported in an aggregated format (such as number of consult patients seen); there is no identifiable health information included in this report. The second source is from data collected to monitor hospital compliance as a State of Colorado-designated facility approved to detain and treat the mentally ill as involuntary patients (CRS 27-65). These sources permit identification of MHHs and their disposition. The department quality improvement officer approved this program evaluation according to institutional protocol.

Materials

The authors created the DMC instrument shown in Figure 1. We consulted previous approaches to the evaluation of medical DMC^{5, 15-17} and incorporated advice from the hospital legal department, bioethics committee, and compliance office. We based our form on Paul Applebaum's 2007¹⁸ article given the author's regard in this area and the article's high citation rate.

Applebaum recommends a 4-part process based on whether the patient can communicate a choice, understand relevant information, appreciate the situation and its consequences, and reason among treatment choices.¹⁸ We added 2 other features. One was to remind clinicians that they need not assess medical DMC in legal minors or those who have a guardian. The second feature addressed whether the patient's decision-making presented as being consistent with other medical decisions made in the past.

After approval by the hospital's forms committee, the DMC form was stocked with other clinical forms throughout the hospital. The authors provided in-service trainings to nursing staff, medical, and surgical services, and offered the form to treatment teams requesting DMC consultations. Our team remained available for more complicated DMC questions or for instances when the impairment of medical DMC was thought to be due to mental illness.

Data Analysis

Descriptive and inferential statistics were conducted using IBM SPSS. Version 23. Chicago, IL: IBM; 2015. Continuous variables were evaluated with an independent samples t-test. An χ^2 was used for dichotomous data. Effect sizes were examined using Cohen's *d*, and phi coefficient, respectively.

DENVER HEALTH MEDICAL CENTER MEDICAL DECISION-MAKING CAPACITY INSTRUMENT

Name, MR#, Pat#, DOB

Date: / / Time:
MM DD YY

This instrument may be used to assist in evaluating a patient's decisional capacity. • The primary team may deem a patient to have capacity or to lack capacity. More complicated cases may require Psychiatry consultation. • Activities of daily living (ADL's), cognition, and executive function skills may also be considered. • It is possible for a patient to lack capacity to make some decisions, but to have capacity to make other decisions. Also, capacity may wax and wane over time. Therefore, capacity should be re-evaluated as the patient's condition changes and/or the care plan changes. • The greater the risk of harm from a patient's decision, the greater the burden for the provider to be certain that the patient has capacity. For a life-threatening condition, the failure to meet any one criterion might be sufficient to deem the patient to lack capacity, while for less serious decisions, more evidence might be required.

Indication for assessment of decision making capacity:
 Refusing treatment Refusing discharge disposition Decisional capacity in question
 Other: _____

Possible impediments that may affect the assessment of this patient's decision making capacity:
 Language barrier Yes No (Specify): _____ Hearing/speech impairment Yes No
 Cultural Issues Yes No (Specify): _____ Other: _____

Does patient wish to have a free interpreter provided? Yes No N/A
 In-person used Telephone interpreter used Patient declined interpreter services & requested friend/family interpret.
 Interpreter name and number: _____

Evaluation completed by: Attending Physician Psychologist Resident Physician Psychology Resident

Assessment and documentation of decision making (answer of "no" or "unsure" indicates likely incapacity):

- The patient is 18-years old or older and does not have a guardian: Yes No Unsure
- The patient is capable of communicating a choice regarding his or her care: Yes No Unsure
 Please document: _____

- Does the patient understand:

| | |
|--|--|
| (a) The essential features of his or her medical problem | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure |
| (b) The proposed treatment/disposition plan, and the alternatives | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure |
| (c) The risks and benefits of the treatment options | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure |
| (d) The option of refusing treatment, and what may happen if the patient refuses | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure |
| (e) Is the patient able to communicate the above in his/her own words | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure |

 Please document: _____

- Is the patient able to assign personal value to the risks and benefits of the recommended plan? That is, patient believes that recommended treatment and its risks and benefits apply to him or her? The patient can tell you his/her reason for the decision and how he/she arrived at that decision? Yes No Unsure
 Please document: _____

- Is the patient able to manipulate information rationally and logically? Is there an *absence* of altered mental status or disrupted awareness? Is the decision that the patient is making not likely influenced by severe mental illness (such as delusions or suicidal thinking), developmental delay, or cognitive dysfunction? Yes No Unsure
 Please document: _____

- Has the patient's decision remained consistent over time? Is it consistent with prior choices? Yes No Unsure
 Please document: _____



DENVER HEALTH MEDICAL CENTER MEDICAL DECISION-MAKING CAPACITY INSTRUMENT

Name, MR#, Pat#, DOB

Date: ____/____/____ Time: _____
MM DD YY

Conclusions:

The patient's capacity to make medical decisions is:

- Intact** – patient presents as being capable of making informed medical decisions
- Unclear** – further evaluation needed (specify): _____
- Impaired** – patient's decision making capacity is impaired and he/she cannot (check all that apply):
 - Consent to treatment
 - Refuse life-saving treatment
 - Leave against medical advice

Checking this box would indicate that the patient may be detained over his/her objections. If the patient is an elopement risk and serious or life threatening medical risk requires that we prevent the patient from leaving, the patient is considered "At Risk" and an "At-Risk" status order needs to be entered in CPOE. Security should be called if patient physically attempts to leave the hospital. (A 72-hour mental health hold is not required for this purpose. The finding of impaired capacity is sufficient.)

- Other (specify): _____

If impaired, the etiology of the incapacity is presumed to be: (check all that apply)

- altered level of responsiveness
 - centrally acting medications
 - critical illness
 - delirium
 - other: _____
 - dementia
 - developmental delay
 - intubated and sedated
 - psychiatric disorder
- Check here if impairment of decision making capacity may be reversible.
If reversible, re-evaluation is recommended in _____ days or upon patient request.

Care Provider Signature/Title Date (mm/dd/yy) Time (00:00) (Pager & Provider #)

Attending Signature/Title Date (mm/dd/yy) Time (00:00) (Pager & Provider #)

Note: If the patient lacks medical decision making capacity and has previously designated a Medical Durable Power of Attorney ("MDPOA") to make decisions on his/her behalf, the MDPOA should be contacted. If no MDPOA was previously designated, a Proxy Decision-Maker or Guardian should be appointed. Appointment of Proxy may be documented below.

Selection of proxy decision-maker: Denver Health has made reasonable efforts to locate as many interested persons as possible, has notified the interested persons that the patient lacks decisional capacity, and has requested that the interested persons designate a proxy decision-maker. An Ethics Committee consult has been offered to the interested persons.

(a) Interested parties contacted (name and relationship):

- | | |
|----------|----------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. _____ |
| 3. _____ | 6. _____ |

(b) The interested persons have reached a consensus and have designated the proxy decision-maker as:

(name) / (relationship to patient) / (contact number)

(c) I have advised the patient about his/her lack of decisional capacity, the identity of the chosen proxy decision-maker, and his/her right to object to the chosen proxy decision-maker.

Physician's Signature/Title Date (mm/dd/yy) Time (00:00) (Pager & Provider #)

Attending Signature/Title Date (mm/dd/yy) Time (00:00) (Pager & Provider #)

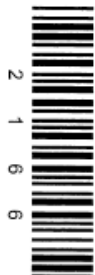


Figure 1. Denver Health Medical Decision-Making Capacity Instrument

Results

In 2010, the BHS CL team saw 1364 new patients and performed 2590 follow-up visits, totaling 3954 patient contacts. Those numbers increased slightly in 2014, when there were 1380 new patient evaluations and 2703 follow-up visits (4083 total patient contacts). Figure 2 shows the requests for BHS CL services by requesting hospital service.

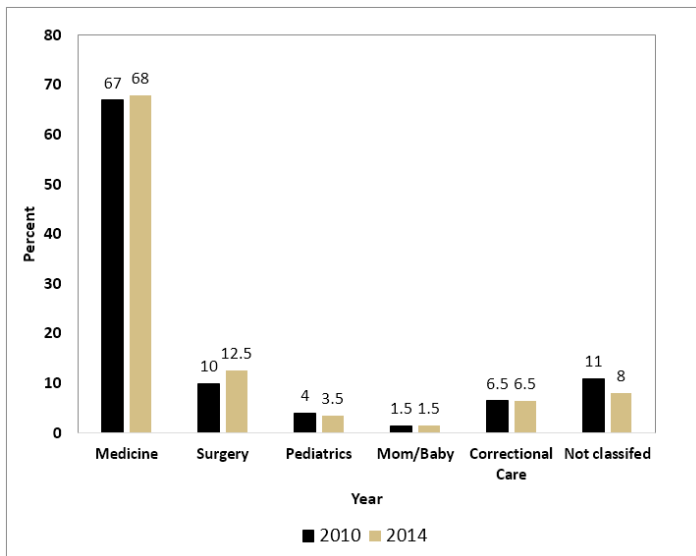


Figure 2. Percent of consults requested by hospital service

Note: Surgery category includes general surgery, orthopedics, neurosurgery, and physical medicine and rehabilitation. Medicine includes neurology and the ACUTE eating disorder unit.

Figure 3 shows the number of DMC consults performed before and after the implementation of the DMC tool. There was a reduction in the number of DMC consults, with the number in 2014 less than half of that in 2010.

In order to rule out chance as accounting for such a difference, continuous data were created by calculating average number of monthly requests for DMC for 2010 and 2014 (see Table 1). This calculation permitted a test for significance using an independent sample t-test. As shown in Table 1, there were significantly fewer consults in 2014 than 2010. A Cohen’s *d* statistic indicated a large effect size.

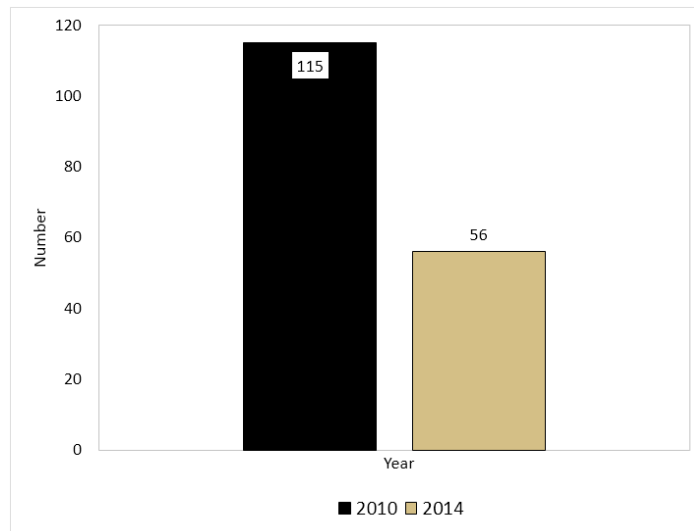


Figure 3. Number of medical decision-making capacity evaluations by year

Table 2 lists the total number of general hospital patients on MHHs by year seen by the service, and the percentage that were discontinued. There were 7% fewer MHHs dropped by the CL team in 2014 than 2010. An χ^2 analysis indicated this difference is significant; however, the effect size is small.

Discussion

We sought to improve the ability of treatment teams to conduct their own medical DMC consults and eliminate MHHs from being used to prevent patients lacking DMC to leave the hospital. The resulting DMC instrument serves 2 purposes: (1) guiding clinicians in the assessment of medical decision-making capacity, and (2) serving as an easily identifiable document that indicates to nursing and security that the patient is not permitted to leave.

Introduction of the DMC instrument convincingly decreased the number of DMC consults: there was a 52% reduction in capacity evaluations. It is possible that an unknown variable confounds our data. However, since requests for consults increased by the study period, this change cannot be explained by a dip in patient contacts. It is important to note that the BHS CL service still performs an average of 1 DMC evaluation a week. This pattern suggests we are striking the right balance of empowering other services to do their own evaluations, while still involving our own trainees in enough complicated DMC cases that they develop proficiency in this domain. Indeed, some

patient presentations are sufficiently complicated that input by a psychiatrist and/or clinical psychologist is required. For example, a patient with strong religious beliefs and a history of bipolar I disorder refusing below the knee amputation based on religious grounds may need expert consultation. In this situation, an appropriate consultation question might be whether hyper-religiosity that commonly accompanies a manic episode may be contributing to the patient refusing treatment.

While there was also a significant reduction in MHHs that were discontinued during the study period, these data are less convincing. The overall reduction was less than 10%, and interpretation of this finding is limited by our lack of knowledge as to *why* an MHH was dropped. Certainly, it is possible that patients were evaluated and deemed to no longer need involuntary treatment, rather than the belief that the MHH was used instead of the DMC form. This limitation presents a shortcoming to this analysis. It is not clear why there was not as robust an effect with mental health holds. It may be possible that informal efforts to educate hospital staff and physicians about the legality of MHHs was effective before the study period began. It is also possible that our perceptions that MHHs were being used inappropriately were incorrect. Finally, this analysis was undertaken as a program evaluation project, without the benefit of experimental design, and the generalizability of these findings is limited.

Formal assessment of medical DMC can be a complicated process, typically performed when there is a question of whether a patient can make informed choices in guiding their treatment and there is concern about the patient's safety.¹⁹ By creating an instrument that helps guide the physician when performing such an evaluation, we found we could help reduce the unease that assessments of DMC often create.²⁰ Our instrument for assessment includes a narrative about common pitfalls when assessing DMC,²¹ as well as directions to the treatment team about the selection of a proxy decision-maker. Questions often arise in clinical settings regarding patient's medical DMC and access to a behavioral health provider is not always available; therefore, adoption of such forms should be considered. Since its introduction in late 2011, this instrument has been made available to clinicians in facilities outside of our own.

To our knowledge, this analysis is the first to evaluate the use of a DMC instrument to simplify assessment of medical DMC as well as reduce use of mental health law for involuntary medical treatment. While other assessments of DMC exist, this instrument has the added benefit of also identifying patients who are not permitted to leave against medical advice and assure security and nursing that detention over the objections of the patient is permitted.

Tables

Table 1. Average number of capacity evaluations per month by year and statistical analysis

| | 2010 | 2014 | t | df | p= | d |
|--------------------|------|------|------|----|-------|------|
| Monthly Average | 9.58 | 5.60 | 4.41 | 22 | .0002 | 1.88 |
| Standard Deviation | 3.48 | 1.83 | | | | |

Table 2. Mental health holds dropped by year and statistical analysis

| | 2010 | 2014 | χ^2 | df | p= | ϕ |
|---------------------------|----------|----------|----------|----|------|--------|
| Total Mental Health Holds | 121 | 136 | 3.96 | 2 | .047 | .12 |
| Number (%) Dropped | 66 (55%) | 65 (48%) | | | | |

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Using the Behavioural Activity Rating Scale as a Vital Sign in the Psychiatric Emergency Service

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Abstract

Introduction: Psychiatric emergencies constitute over 12% of emergency department visits. Standardized measures like the Behavioural Activity Rating Scale (BARS) assist clinicians in more quickly identifying and treating agitation. We anticipated that introducing the BARS in a psychiatric emergency service (PES) would help staff assess patient agitation, initiate treatment, and feel safer in their workplace.

Methods: Staff, behavioral health technicians, nurses, and physicians were trained on the use of the BARS and encouraged to use it when reporting vital signs. The team was encouraged to initiate treatment if a patient's BARS suggested increased hyperactivity (score >4). Ongoing education reinforced use of the BARS. Before and 1 year after the introduction of this program, all PES staff were surveyed as to their use of the scale and perceptions of unit safety.

Results: Twenty staff completed the pre-survey, and 21 staff completed the post-survey. All respondents felt familiar with the BARS, and the use of the BARS was common both before and after implementation (55% versus 75%, $p=.13$). After implementation, more staff felt that the PES was a safe unit (85% versus 100%, $p=.03$). Staff's reported use of the scale correlated with their understanding the scale ($p=.004$) and finding it helpful ($p=.003$).

Discussion: This education and training intervention was associated with improved perceptions of safety in a PES. Use of the BARS was feasible in this emergency department setting, and staff found the measure helpful for patient care. We advocate for wider use of behavioral assessments in emergency settings.

Introduction

Improving mental health care in the emergency department (ED) is an increasingly urgent issue. With a decline in inpatient psychiatric capacity and the outpatient mental health system "in tatters," emergency rooms have become "epicenters for psychiatric and behavioral emergencies."¹ More than 12% of annual emergency department visits are for psychiatric reasons.¹ Moreover, psychiatric diagnoses are disproportionately represented among patients with frequent ED utilization. Lengths of psychiatric stays in the ED have increased, and specialized emergency psychiatric staff are often lacking.¹

Standardized behavioral health scales improve the treatment of patients with psychiatric emergencies.² By allowing the rapid assessment of behavioral health emergencies, including by general medical providers, scales improve diagnosis and hasten appropriate

treatment.³ However, the lack of agreement as to particular scales or implementation strategies has hindered wide adoption among emergency departments.⁴ Implementation has also been slowed by sensitivity to the risk of demoralization among ED staff who grow frustrated by trouble-shooting new initiatives and accommodating new protocols in fast-paced ED workspaces.⁵

The increasing volume and acuity of behavioral emergencies in EDs increase the risks of working in an already dangerous environment. Almost 25% of emergency room nurses have experienced physical violence.⁶ Experiencing aggression and verbal abuse is even more common.⁷ Perceptions of safety among staff are less correlated with rates of occupational injury than the adequacy of environmental precautions and team communication.⁸ Despite their dangerous jobs, staff who feel their safety concerns are acknowl-

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edged and are confident in managing behavioral emergencies feel safer at work.⁸

We anticipated that a standardized behavioral health measure would help staff feel more capable in assessing patient agitation and initiate treatment more quickly. Better recognition of patient agitation might also help staff feel safer in the workplace.

The conceptual model for this program is illustrated in Figure 1. This quality improvement project introduced the use of the Behavioural Activity Rating Scale (BARS) as a vital sign in a psychiatric emergency service. We evaluated both the BARS' acceptability among staff, and improvements in perceived unit safety.

Methods

Setting

This quality improvement project was conducted in a psychiatric emergency service (PES) at a county hospital with a level 1 trauma designation and an emergency department with approximately 60,000 annual patient visits. The PES is a physically separate, secure space adjacent to the emergency department; all patient rooms may be used for restraint or seclusion if necessary. The nursing station is separated from the patient milieu by glass and lockable doors. PES staff include behavioral health technicians, nurses, physi-

cian assistants, social workers, students and residents, and attending psychiatrists.¹ Attending psychiatrists are present 24 hours a day.

Behavioural Activity Rating Scale

Shown in Table 1, the BARS is a single item, clinician-administered measure to assess agitation.⁹ A clinician score of 4 reflects a "normal level of activity." Higher scores (5-7) reflect increasing hyperactivity, while lower scores (1-3) reflect lower levels of activity or sedation. The BARS was developed for clinical trials assessing the efficacy of intramuscular antipsychotics for acute agitation. The BARS has almost perfect interrater reliability (.99) and is moderately correlated with scores on both the Clinical Global Impression of Severity and the Positive and Negative Syndrome Scale agitation cluster.¹⁰ However, the BARS is faster to administer and more sensitive to rapid changes in behavioral agitation than those scales.¹⁰

Program Intervention

All PES staff were trained on the use of the BARS, which was posted prominently throughout the PES. Training included journal clubs for staff and trainees. Attending physicians emphasized use of the BARS when inquiring about patients' status. BARS scores were charted every time vital signs were checked—typically, on admission, every 4 hours, and on discharge. In the chart, BARS scores were recorded adjacent to the vital signs. Nurses alerted physicians to any routine BARS scores of 5 or greater that treatment may be considered. Subsequent to treatment, including verbal de-escalation or medication administration, nurses reported changes in BARS scores. Charge nurses reported scores during team huddles and reinforced their use among nurses for patient hand-offs. The intervention was limited to the PES and did not include the medical service.

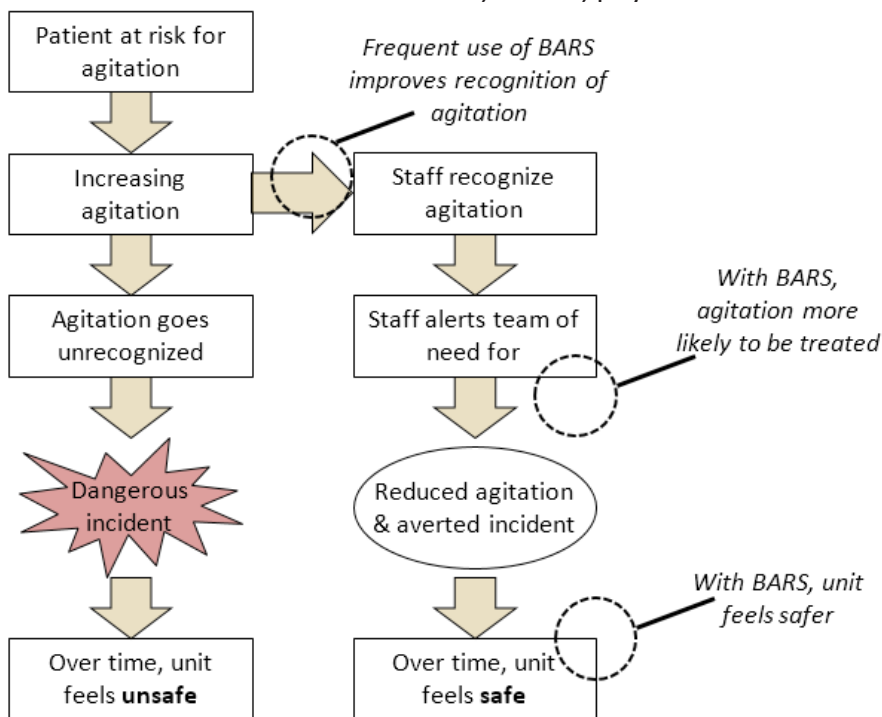


Figure 1. Conceptual model for using BARS as a vital sign

Program Assessment

Prior to implementation, the authors (MP and KN) developed a 10-question staff survey to assess the benefit of this program change. The survey was emailed to all PES staff through SurveyMonkey immediately after initial training. Survey questions are listed in Table 2. Respondents were asked their agreement with statements using a 4-point rating measure: (1) "Strongly disagree," (2) "Disagree," (3) "Agree," and (4) "Strongly agree." The BARS was then applied in clinical practice. One year later, the same survey questions were emailed to all PES staff as a post-implementation survey. All responses were anonymous. This activity was an approved quality improvement project.

Analyses

Responses were analyzed as ordinal variables, and choice of correlative tests was based on a published algorithm.¹¹ Wilcoxon rank-sum tests (z) were used to compare pre- and post-intervention responses from related groups. As a quality improvement project, there were no a priori power calculations, and these analyses were not adjusted for multiple comparisons. Kendall's rank correlation efficient (r_{τ}) was used to assess for correlation among responses and adjusted for multiple comparisons. Because there were so few responses, pre- and post-responses were grouped for correlations. All statistical analyses were applied using the 4-point response scale. For clarity, we report the percentage of respondents answering "Agree" or "Strongly agree" to statements. Analyses were conducted using StataSE 14.0 (StataCorp, College Station, TX).

Results

Twenty staff members responded to the pre-implementation survey (49% response rate from 41 staff). Twenty-one staff members responded to the post-intervention survey (51%). Data regarding respondents' roles and demographics were not collected. Among all received surveys, only 3 items (0.7%) were incomplete.

After 1 year of using BARS as a vital sign, more staff agreed with the statement, "I feel the PES is a safe unit" than prior to implementation (100% versus 85%, respectively, $z=-2.22$, $p=.03$). There was no statistically-significant change from pre-implementation to

post-implementation in staff feeling that their concerns regarding agitation were being acknowledged, that the team addressed agitation rapidly, or that patients were appropriately medicated for agitation.

Prior to implementation of the quality improvement initiative, 100% of respondents reported understanding the BARS, 55% reported using the scale to assess agitation, and 55% reported communicating BARS scores to other staff. There was not a statistically-significant increase in reported use or communication of BARS scores. Table 2 describes the survey content, responses, and statistical differences between the pre-and post-surveys.

Agreement with "I feel PES is a safe unit" was correlated with responses to, "My concerns, regarding patient agitation, are acknowledged by the team" ($r_{\tau}=.34$, $p=.005$). In turn, feeling acknowledged was correlated with feeling that the team "addresses agitation rapidly" ($r_{\tau}=.35$, $p=.003$) and "patients get appropriately medicated" ($r_{\tau}=.32$, $p=.02$).

Use of the BARS was correlated with staff understanding the scale (statement 8, $r_{\tau}=.33$, $p=.004$) and finding it helpful (statement 7, $r_{\tau}=.40$, $p=.003$).

Discussion

After using the BARS as a vital sign for 1 year, more PES staff felt their unit was safe. Most staff found the BARS helpful and used it for communicating the severity of patient agitation. When survey results from the pre- and post-implementation assessments were combined, staff perception of unit safety was greater when staff felt patient agitation was acknowledged through provision of rapid treatment including medications.

This project demonstrates the integration of frequent, standardized behavioral assessments into emergency care. Agitated behavior is dynamic, changing throughout the course of an ED stay and requiring repeated re-evaluation. Early identification of patients at risk for behavioral decompensation provides opportunities for early de-escalation before adverse outcomes, including restraint and seclusion.^{12,13} That the use of the BARS as a vital sign was well-accepted by staff in this study demonstrates how this strategy is feasible for busy, high-risk clinical environments.

There are probably multiple mechanisms by which this program inculcated a sense of safety. Concerns

regarding agitation were recognized by leadership's implementation of a program for ongoing assessment. Staff also felt they could quickly and readily communicate a patient's increased activity level. An expectation that the BARS would be frequently reported encouraged increased dialogue with physicians about the need for pre-emptive assessment and treatment.

For most items, responses were not different after implementation. There are several possible reasons for this lack of change. At baseline, all respondents reported feeling comfortable with the BARS and de-escalation. Most respondents also felt that the unit was safe and that agitation was quickly addressed. Thus, it was difficult to detect improvement from these baseline scores. In addition, respondents may have already been perceiving the benefits of using the BARS by the time of the pre-survey as they had already been trained in its use. Because participation was voluntary, respondents may have largely been comprised of staff who are motivated to improve agitation treatment or participate in educational programming. These staff might report greater comfort with de-escalation, feel safer in the milieu than non-respondents, and be less likely to experience improvement in these measures—thereby biasing results towards the null. Repeated measurements may have shown a greater effect size by reinforcing the use of the BARS (through reminders to staff), encouraging higher participation rates, and reducing the risk of experimental mortality. That our response rate was only modest increases the risk of type II error.

This project has several limitations. Responses may vary by respondents' roles, which were not collected.

We can only report staff's reported perceptions; clinical outcomes such as the frequency of medication administration or restraint episodes were not available. Finally, the pre- and post-intervention design may not account for other variables affecting responses, including changes in personnel, staff experience, and external trainings. There were no other major changes to educational programming during the project period that might have affected our outcomes. As a quality report on the implementation of one program, these results are not generalizable.

Frequent behavioral assessment in the emergency department holds promise for future clinical practice and research. Applying the BARS or similar measures regularly in the emergency department will allow a better appraisal of the benefits of medications, environmental enhancements, and verbal de-escalation strategies. Furthermore, standardized assessments better enable non-psychiatric providers to recognize behavioral emergencies. By making it simpler to describe complex psychiatric presentations, standardized measures like the BARS may reduce errors and improve patient and staff safety.¹⁴

Acknowledgements

Previous Presentations

Some of this work was presented at the National Update on Behavioral Emergencies conference in Las Vegas, NV, December 2-4, 2015.

Tables

Table 1. Behavioural Activity Rating Scale (BARS)⁹

| | |
|---|--|
| 1 | Difficult or unable to arouse |
| 2 | Asleep but response normally to verbal or physical contact |
| 3 | Drowsy, appears sedated |
| 4 | Quiet and awake (normal level of activity) |
| 5 | Signs of overt (physical or verbal) activity, calms down with instructions |
| 6 | Extremely or continuously active, not requiring restraint |
| 7 | Violent, requires restraint |

Table 2. Differences in responses to pre- and post-intervention surveys

| Statement | Pre-survey (% agree or strongly agree) (n=20) | Post-survey (% agree or strongly agree) (n=21) | z | p |
|---|---|--|-------|-----|
| S1. I feel, as a staff member, safe on the unit. | 80 | 90 | -1.28 | .20 |
| S2. I feel PES is a safe unit. | 85 | 100 | -2.23 | .03 |
| S3. My concerns, regarding patient agitation, are acknowledged by the team. | 84 ^B | 90 | -1.63 | .10 |
| S4. The team addresses agitation rapidly. | 80 | 95 | -1.44 | .15 |
| S5. I feel comfortable using de-escalation techniques. | 100 | 100 | -1.07 | .28 |
| S6. I feel agitated patients get appropriately medicated. | 79 ^B | 62 | 0.16 | .87 |
| S7. A uniform agitation scale (such as the BARS) is helpful. | 5 | 76 | -1.09 | .28 |
| S8. I understand the BARS scale. | 100 | 100 | -0.54 | .59 |
| S9. I use the BARS scale to assess agitation | 55 | 75 ^C | -1.51 | .13 |
| S10. I communicate BARS scores to the team. | 55 | 71 | -1.22 | .22 |

^A Respondents were asked to rate their agreement with statements:

1—Strongly disagree, 2—Disagree, 3—Agree, 4—Strongly Agree

^B Due to missing data, n=19

^C Due to missing data, n=20

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Psychology in White Coats: Training and Practice Opportunities in Consult Liaison Psychiatry

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Abstract

Introduction: The psychiatric Consult Liaison (CL) service in a general hospital setting provides a fertile environment for psychological service and training. There is significant potential for future growth, both in terms of including psychology on CL teams and in training future psychologists in this setting, due to increased health care demands coupled with anticipated shortages in medicine and psychiatry. We expand upon the previous literature on psychology practice and training in medical settings with a specific focus on a CL service.

Methods: We evaluated the role of psychology and the structure of psychology training on a CL service at Denver Health Medical Center. We assessed the type and frequency of referrals, along with actual case examples that demonstrate the benefit of psychology on a CL team. We further outlined training elements to teach psychologists to be important contributors to CL teams.

Results: Between 2008 and 2015 there were 1,462 (SD=221.0) cases referred to the CL team annually on average, including a wide range of presenting concerns and psychopathology. CL cases provided numerous opportunities to use and build upon skills in evaluation and diagnostic assessment, risk assessment and suicidality, capacity assessment, neuropsychological testing, and brief psychotherapy and interventions. Program evaluation data indicated high opinions of the training experience among current and former psychology interns.

Discussion: Findings demonstrate that including psychology on the CL team has been beneficial for both training and clinical service.

Introduction

An effective psychiatric Consult Liaison (CL) service is crucial for inpatient medical facilities. There are high rates of mental and substance abuse disorders among hospital patients,¹ which can exacerbate medical conditions and lead to more frequent or prolonged admissions.² Numerous patients also present with cognitive impairments that complicate or delay treatment and discharge planning, and timely access to CL services has been demonstrated to reduce patient length of stay.³⁻⁵ While CL has historically been considered a subspecialty of psychiatry, a CL team that includes psychology may strengthen the ability of these teams to improve outcomes in hospital settings. Including psychologists and psychology trainees on CL teams is also important to meet clinical needs by drawing on the growth in the psychology workforce,⁶

particularly given the shortage of psychiatrists.⁷

The available literature generally describes and provides guidance for the practice of psychology in medical settings.⁸⁻¹² However, literature regarding the role of psychologists and psychology trainees on CL teams is sparse. In the earliest report we found, Gabinet and Friedson reported that psychologists' knowledge of psychological testing and ability to facilitate communication between the patient and the hospital team offered distinct advantages to a CL service.¹³ Schenkenberg et al noted at that time there were relatively few psychologists working in non-psychiatric medical settings and reported their experience on a CL team at a VA medical center.¹⁴ The authors noted strong support by physicians for the expertise of clinicians skilled at managing psychological factors in the etiology and treatment of medical disease. Schmalzing and

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colleagues reported that the addition of psychology trainees can significantly increase the capacity of a CL team, with psychology trainees capable of seeing as many patients as a psychiatry resident.¹⁵ Finally, a review of 48 CL teams in pediatric settings indicated that the average full-time equivalent (FTE) for attending psychologists is .27 versus an average FTE for attending psychiatrists at .44.¹⁶ A similar finding was observed with pre-doctoral psychology trainees having an average FTE of .18 compared to an average FTE of .44 for a child psychiatry fellow. This suggests increased psychologist time on CL teams may be warranted.

We expand upon the previous literature on psychology practice and training in medical settings with a specific focus on a CL service. First, we describe the range and frequency of conditions seen by the CL service. We then illustrate the contributions of psychology in the assessment and treatment of referred patients. We further highlight teaching points through case examples. Finally, we provide a framework for incorporating psychology training into a CL service.

Methods

We examined the role of psychology and training considerations on the Behavioral Health Services' CL team at Denver Health Medical Center, an urban teaching hospital serving as a safety net facility for the region's underserved and underinsured populations. The CL service operates by request from other hospital teams, such as intensive care, obstetrics, neurology, orthopedics, and rehabilitation, to meet the needs of patients with a concurrent behavioral health concern.

The multidisciplinary CL team is comprised of a clinical nurse specialist who addresses substance use disorders, 3 rotating attending psychiatrists, a part-time attending psychologist, a second-year psychiatry resident, and a pre-doctoral psychology intern. The team also regularly has students from physician assistant and medical school programs. Cases are equally divided among trainees. The psychology intern regularly staffs cases with the psychiatrist. Psychiatry residents also receive supervision on topics falling within the scope of practice of the attending psychologist.

Psychology trainees were first included on the CL service in 2006. The training experience is currently structured as a 3-month, full-time rotation, with an

additional part-time elective available 1 day per week. Thus, there are 1 to 2 psychology interns serving on the CL service at a time. Thirty-five psychology trainees have completed the rotation as of December, 2015. Trainees develop skills performing CL services through graded supervision by psychology, psychiatry, and neuropsychology faculty. Interns become increasingly independent with demonstrated skill while receiving ongoing supervision and having their notes reviewed, edited, and co-signed. Formal didactic instruction further assists psychology trainees in acquiring necessary base knowledge for working in health care settings.

We focused on describing and assessing functional areas needed on a CL service that are within psychology's scope of practice,¹⁷ including evaluation and diagnostic assessment, risk assessment and suicidality, capacity assessment, neuropsychological testing, and brief psychotherapy and interventions. We assessed the frequency and type of primary presenting concerns among referred cases, which are tracked daily by CL team members in a Microsoft Access database. To provide relevant case examples, we conducted chart reviews and gathered additional information from the treating clinicians. We determined key components of training psychology interns on the CL service by reviewing and summarizing the trainee curriculum and supervision protocols, in addition to gathering qualitative themes from oral and written feedback from interns, psychologist supervisors, and other CL team members. We specifically evaluated perceptions of training quality among interns with a year-end program evaluation completed between 2010 and 2014. For program evaluation purposes, we also compiled responses from a post-internship survey, which was completed for training years 2010 through 2013.

Results

Evaluation and Diagnostic Assessment

Diagnostic assessment was provided for all referred cases. Between 2008 and 2015 there were 11,694 unique cases referred to the CL team, with an average of 1,462 cases annually (SD=221.0). There was a wide range of presenting concerns and psychopathology among referred patients, as seen in Table 1.

Training Experience: Psychology interns honed di-

agnostic skills while learning to provide quick and accurate assessment on the CL service. Trainees also had the opportunity to observe greater acuity of comorbid psychiatric and medical pathology than in many common internship settings such as outpatient mental health clinics, primary care medical clinics, or university counseling centers. Measures used in making diagnostic determinations included structured mental status examinations (eg, Montreal Cognitive Assessment¹⁸) and other self-report measures (eg, Beck Depression Inventory-II [BDI]¹⁹; Beck Anxiety Inventory [BAI]²⁰). Teaching points included the importance of ruling out delirium or other medical disorders that may falsely present as psychiatric symptoms.²¹ Trainees also learned to adapt their interview style to a hospital environment. For example, patients may be intubated and unable to engage in verbal interviewing, requiring adjustments such as using pen and paper and asking primarily yes/no questions, instead of psychology's usual emphasis on open-ended queries.

Risk Assessment And Suicidality

Suicidality was present in 19.5% (n=2,284) of cases between 2008 and 2015. High acuity presentations included survived self-inflicted gunshot and puncture wounds, overdosed medication ingestions, motor vehicle collisions, and jumping from heights. Psychological evaluation was concurrent with medical care. Psychologists and psychology interns provided assessment and short-term psychotherapy, which is essential when a patient's medical course requires lengthy hospitalization. We have found psychologists and psychology interns are well-suited to provide dual assessment and treatment. In contrast, attending psychiatrists and psychiatry residents have at times preferred to focus on much-needed medication management considerations rather than psychotherapy needs.

Training Experience: Psychology interns were instructed to verify whether a patient has been detained involuntarily, clarify history of mental illness, and gather collateral information. The focus was on assessing safety for discharge back to the community and identifying patients who require transfer to an inpatient psychiatric unit when medically cleared. Teaching points included assessment of risk factors for suicidal behavior after discharge, including whether the patient has a substance abuse problem, history of self-harm, chronic medical condition, major psy-

chiatric diagnosis, or is experiencing hopelessness or despondency. Risk assessment also considered whether the patient is male, single, adolescent, or elderly.²²⁻²³ Psychology interns were further expected to understand the medical complexities following suicide attempts. For example, interns were instructed in interpreting toxicology studies following overdose and understanding rehabilitation prognoses for other self-injuries.

Capacity Assessment

Numerous referrals to the CL service were to evaluate capacity to make medical decisions, with 730 (6.2%) total consultation requests from 2008 to 2015. Capacity assessments began with reviewing the patient's chart and speaking with the primary hospital team regarding the patient's medical condition and recommended treatment. Patients were then interviewed to determine their ability to: (1) state a preference regarding treatment, (2) understand pertinent information, (3) acknowledge potential consequences of their diagnosis and resulting decision for care, and (4) engage in reasoning about different care options. Gathering collateral information from family, friends, and outpatient providers has also been helpful to identify the patient's thinking and behavior in other settings.

In our experience, many referred patients had intact decision-making capacity, but rather there was discord between the patient and their primary team that resulted in a patient's resistance to medical recommendations. In many cases, patients have risked poor health outcomes by refusing recommended treatment, primarily due to dissatisfaction with their providers. Psychology interns and psychologists have been particularly adept in gaining resolution with expertise in rapport-building and motivational interviewing. They have identified patient needs and provided suggestions to the medical team to facilitate optimal patient care. Concurrently, they have worked to build the patient's trust and satisfaction in their medical team and worked toward an agreement between them.

Training Experience: Interns receive training on the conceptual background and structure of capacity evaluations based on the handbook on assessment of capacity co-published by the American Bar Association and American Psychological Association,²⁴ as well as

Appelbaum's capacity determination model.²⁵ Training emphasizes the patient's "right to folly" or make a contraindicated treatment decision, barring lack of decision-making capacity due to cognitive dysfunction or psychiatric condition. To understand whether the patient fully appreciates their condition and recommended treatment, interns must become well-versed in pathophysiology of presenting medical conditions and risks of refusing care. Key distinctions between global intellectual functioning and specific capacity for medical decision making are discussed so that the intern has an understanding of the nuances of such assessments, as illustrated in Case Example 1. Interns are also exposed to applicable local laws regarding determination of capacity. Psychology interns receive direct supervision on their capacity evaluation cases by attending psychiatrists and psychologists on the CL service as they work toward becoming independent evaluators.

Case Example 1. Capacity Assessment

Mr A was an African-American male in his thirties who was admitted for severe congestive heart failure exacerbation. Mr A requested discharge against medical advice, prompting referral for a capacity assessment. Evaluation by a psychology intern revealed he did not lack capacity to make his own medical decisions, but rather felt mistreated by the medical team. The patient had been instructed to capture his fluid output when voiding; however, he was placed in a 4-person room that offered little privacy. Subsequent chaffing with hospital staff over his noncompliance left him feeling disrespected and thus desiring discharge. By recognizing these solvable impediments to his care, the psychology intern was able to affirm his decisional capacity, convey his biopsychosocial needs, and advocate for moving the patient to a private room, leading to a safer outcome.

Neuropsychological Testing

Psychology interns further contributed on the CL team by providing neuropsychological assessment, which is often required to finalize capacity determinations regarding ability to make medical decisions or live independently. Neuropsychological assessment has been performed exclusively by psychology interns and

the attending neuropsychologist on the CL service. Between 2008 and 2015, the yearly number of patients referred for neuropsychological assessment, who did not refuse to participate, ranged from 8 to 35. With the exception of 2008, the majority of neuropsychological evaluations were completed by the psychology interns, ranging from 42% in 2008 to 81% in 2014.

In addition to a clinical interview, a standard inpatient battery included the Repeatable Battery for the Assessment of Neuropsychological Status,²⁶ a screening tool covering cognitive domains of attention, immediate and delayed memory, language, and visuospatial/construction skills. Executive functioning was assessed with subtests of the Delis-Kaplan Executive Function System,²⁷ practical problem solving was evaluated with the Independent Living Scale,²⁸ and premorbid intellectual ability was estimated with the Test of Premorbid Functioning.²⁹ Common psychological symptoms were assessed with the BDI,¹⁹ BAI,²⁰ and Beck Hopelessness Scale.³⁰ Other tests were added to the core battery as necessary to competently evaluate the patient and render a diagnosis and recommendations. For example, effort was assessed with the Dot Counting Test³¹ or Test of Memory Malingering.³²

Training Experience: Training consisted of didactic instruction, observation, supervision, and direct patient contact. Seminars were presented on neuropsychology in the medical setting, testing batteries, and common neurocognitive disorders. Psychology interns were trained to use a time-sensitive, semi-flexible battery of tests to best address the referral question.³³ Interns initially observed a neuropsychologist perform a complete evaluation. Test administration and scoring were supervised by a staff neuropsychologist, with interns first required to complete at least 1 evaluation under direct, live supervision. Trainees similarly drafted reports and chart notes that were edited by a supervisor, with increasingly independent authorship over time. See Case Example 2 for a case example of neuropsychological testing.

Case Example 2. Neuropsychological Testing

Mr B was a college-educated, Latino man in his sixties who presented with subdural and intraparenchymal hemorrhages after being found unconscious. Medical treatment was complicated by alcohol withdrawal, seizures, hyponatremia, aspiration pneumonia, and delirium. His delirium cleared sufficiently for evaluation

a month into admission. Although Mr B was alert and cooperative, he lacked insight into his medical condition or the circumstances of his hospital admission. Neuropsychological assessment was required after determining that Mr B lacked medical decision-making capacity. Evaluation revealed severely impaired attention and executive function despite relatively intact language skills, which confirmed he lacked capacity for medical decision-making and independent living. He remained hospitalized for over a month due to behavioral issues that hindered placement. The CL service was again consulted to determine if he had improved sufficiently for discharge to independent living. Mr B demonstrated little improvement in his cognitive abilities on the repeat evaluation, again indicating lack of capacity for independent living. The intern was able to clarify his deficits to the medical staff, belying his relatively improved presentation, and avoid a potentially unsafe discharge plan.

Brief Psychotherapy and Interventions

Other cases referred to the CL service have warranted brief psychotherapy or other psychological interventions. Although there is no data on the exact frequency of cases necessitating psychotherapy, we anecdotally concluded that therapeutic interventions have been indicated in many cases. We have found there are multiple stressors for hospitalized patients for which therapy can be beneficial, including lengthy stays; inactivity; limited functioning; confinement; acute health crises; inadequate patient-physician communication; and large, frequently-changing treatment teams. In addition, many medical patients have presented with psychopathology that is pre-existing or results from the stress of physical illness and hospitalization. We found psychologists and psychology trainees on the CL team have served a valuable role to ameliorate patient distress and promote recovery with an emphasis on stress-coping interventions, promoting health behavior change, improving communication, and overall empathic style.

Training Experience: Providing psychotherapy and other interventions for medical patients in turn affords valuable health psychology experience for interns. The hospital setting requires interns adjust to

factors like frequent interruptions, inability to have a pre-planned number of treatment sessions, unanticipated discharge timing, variable caseloads, and unscheduled sessions. Trainees build upon previous therapy skills, which they are encouraged to adapt to the medical setting. For an example of Brief Psychotherapy, see Case Example 3.

Case Example 3. Case example of Brief Psychotherapy

Ms C was a Caucasian woman in her forties who was admitted for an anticipated year-long stay to repair wounds from past gastro-intestinal surgeries. The patient's pre-existing depression quickly worsened, which her primary medical team initially treated with an antidepressant patch. The primary medical team also placed Ms C on water restrictions, which led to intense cravings, fears of dehydration, non-compliance, and chaffing with medical staff. Counseling with a psychology intern consisted of (1) reducing distress around poor health and uncertain prognosis, (2) behavioral activation to increase pleasurable activities, and (3) structured interventions to improve compliance with treatment recommendations and patient-provider communication. Cognitive restructuring reduced cravings and feelings of punishment when confronted. Anticipating future cravings, Ms C implemented a behavior plan to ask nurses for extra support and to verify her hydration level. The intern reinforced high self-efficacy behaviors, including Ms C keeping her own progress chart and managing wound care after nurse instruction. Ms C further worked with the psychology intern to communicate assertively and prepare questions in advance of provider visits. In working with the medical team, the psychology intern helped foster increased empathy and understanding of Ms C's psychosocial needs. Ms C was sufficiently healed to transfer to a lower-acuity care center months earlier than expected. Brief counseling appeared to improve Ms C's depression and overall health, contributing to a shortened hospitalization and a more satisfactory experience for both the patient and medical team.

Other Training Considerations

Formal didactic instruction has assisted psychology trainees in acquiring necessary base knowledge for working in health care settings and on CL teams. Interns have participated in seminars on legal issues in mental health (eg, mental health holds and certifications, emergency or involuntary medications, and use of restraints), use of interpreters, and community resources to support patients after discharge. Essential special topics have further included psychopharmacology, substance use issues, and communication in health care settings.

Psychopharmacology

Psychology interns were required to become familiar with general psychopharmacology. Psychology trainees received didactic instruction on psychopharmacology from psychiatrists, advanced psychiatry residents, and psychiatric pharmacists, including recommended treatments, common adverse effects, and contraindications. Interns increased their knowledge of medications that cause delirium. Professional and ethical issues of dialoging with patients and medical staff about medications as non-prescribers were also addressed.³⁴

Drugs of Abuse

Interns participated in a series of didactic seminars on drugs of abuse—essential as substance use was the most frequent reason for consult. Substance-related disorders were present in 52.1% ($n=6,089$) of cases between 2008 and 2015. Interns familiarized themselves with drug classes and frequently-used substances. They received instruction on physiological underpinnings of substance abuse and dependence, including pharmacokinetics, neuroanatomy, and neurotransmitter involvement. Seminars presented screening tools that can be used in hospital settings to detect substance abuse or dependence. For example, brief alcohol screening tools include the Alcohol Use Disorders Identification Test³⁵ and the Brief Michigan Alcoholism Screening Test.³⁶ Substance abuse treatment models were discussed, including both psychological and pharmacological interventions.

Roles and Communication in Health Care Settings

Interns learned that primary medical teams retain authority for care management decisions. The CL team acts as consultants and makes most recommendations to medical teams rather than directly to

patients. Whether recommendations can be made directly to patients or their families should be clarified in advance. Psychology and psychiatry attendings educated interns about the concise and quick delivery needed for all communication to the referring team.

Psychology interns often reported limited confidence upon immersion into a medical culture, often for the first time. Hospital staff and patients may be unfamiliar with the role and skills of psychology interns or moreover lack understanding of the psychology field. Psychology interns may be uncomfortable declining requests for medical information or procedures by other staff who assume they are physicians or have extensive medicine training. Interns were encouraged to teach interdisciplinary providers about psychology and its utility. In addition to developing working relationships with hospital staff, the interns were given structured opportunities to train medical and physician assistant students rotating through the CL service. Adapting to a hospital culture also involves quickly learning medical terminology and common abbreviations, which was accomplished through didactics, supervised chart reviews, and consultation with CL attendings and other medical teams.

Psychology interns on the CL team were also referred to as “psychology residents” to reflect their extensive prior clinical training and encourage greater recognition in a medical setting. Furthermore, psychologists and interns have worn a white coat alongside their physician counterparts to show equivalent stature and competency. In 2015 psychologists at Denver Health were granted hospital medical staff membership and privileges, which further supports psychology’s value in health care practice.³⁷

Evaluation of the Training Experience

Program evaluation data at internship year-end found an average rating of 4.67 on a 5-point Likert scale (4=Very Good, 5=Exceptional) on an item for “understanding the consultative role” and the provision of coaching for this service. On the later post-internship survey, over 91% of former interns who participated in the CL rotation noted it was among “clinical experiences or rotations that were especially helpful.” Interns frequently cited their CL rotation as providing a wealth of new learning that supports their future clinical endeavors. In turn, psychiatry attendings reported in annual evaluations of psychology interns that they are of significant value in managing CL refer-

als and have a skillset that enhances patient care. Furthermore, consultations were able to be provided in a timely manner that is appreciated by the medical teams and may be associated with beneficial outcomes for patient care.⁴

Discussion

Our results demonstrate the importance of the CL service for providing care for medical inpatients, and including psychologists and psychology trainees to meet this aim. Psychology's scope of practice appears appropriate for addressing many CL referrals, including determining capacity to participate in treatment decisions, assessing danger to self or others, aiding differential diagnosis, evaluating certification status, improving treatment compliance, and treating psychopathology through counseling. The need for psychological interventions to be delivered by CL teams is further highlighted at inpatient hospitals where patient needs are critical and health care costs are high.

Our results also illustrate how a CL rotation can enhance the psychology internship experience. Psychology students who receive training on psychiatric CL services are well-prepared to improve patient care in a range of settings. We recommend psychology training programs develop internship opportunities on psychiatry CL services, including partnering with local hospitals if needed. We hope our overview of psychology practice and guidelines for psychology trainees on Denver Health's CL team can facilitate establishing future training opportunities.

Future directions for our CL service include continuing to promote recognition of behavioral health needs of hospitalized patients by their medical providers. We recommend to our medical and surgical colleagues instituting automatic referrals based on new, life-altering medical diagnoses and pre-existing mental health conditions, as well as adopting routine screening protocols. We further need to substantiate the value of psychology services in hospital settings with data on patient health, patient and provider satisfaction, outcomes, and cost-effectiveness. Resulting evidence may serve to increase hiring of psychology personnel to address patient needs, promoting both future growth of the field and better integration of mental and physical health care.

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Additional Contribution

Authors would like to thank Jim Bartsch, PhD, for his additional contributions to our training curriculum.

Tables

Table 1. Presenting concerns among psychiatric consult liaison service cases, 2008-2015

| Presenting Concern | <i>n</i> | % |
|------------------------------------|----------|------|
| Mood Disorders | | |
| Depression | 2,196 | 18.8 |
| Bipolar | 984 | 8.4 |
| Unspecified Mood Disorder | 340 | 2.9 |
| Anxiety Disorders | | |
| Anxiety | 701 | 6.0 |
| Post-Traumatic Stress Disorder | 421 | 3.6 |
| Psychotic Disorders | | |
| Schizoaffective Disorder | 425 | 3.6 |
| Schizophrenia | 409 | 3.5 |
| Psychosis | 797 | 6.8 |
| Substance-Related Disorders | | |
| Alcohol Abuse/Dependence | 4,539 | 38.8 |
| Other Substance Abuse/Dependence | 1,550 | 13.3 |
| Cognitive Disorders | | |
| Delirium | 652 | 5.6 |
| Dementia | 321 | 2.7 |
| Capacity Evaluation | 730 | 6.2 |
| Danger to Self/Others | | |
| Suicidal Ideation | 1,070 | 9.1 |
| Suicide Attempt | 1,214 | 10.4 |
| Aggression/Violence | 179 | 1.5 |
| Homicidal Ideation | 72 | 0.6 |
| Other | | |
| | 1,413 | 12.1 |

Note: N=11,694. Yearly percentages total more than 100% as multiple consult reasons may be indicated for individual patients.

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Trauma-Informed Program Development on an Acute Inpatient Psychiatric Unit

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Abstract

Introduction: Trauma-Informed Care holds promise for improving inpatient psychiatric care through a number of mechanisms, including increasing patient satisfaction and reducing seclusion/restraint episodes and patient assaults.

Methods: We developed a multidisciplinary, multimodal quality improvement program to implement Trauma-Informed Care-related interventions on adult inpatient psychiatry units that previously lacked a formal treatment philosophy. Implementing a Trauma-Informed Care model required staff education/training, environmental changes, a unit-wide coping skills and sensory modulation framework, promotion of less-restrictive interventions for high-risk patients, access to unit programming/non-pharmacological treatment, and increased patient input and involvement in guiding their own care.

Results: Preliminary results indicate initial successes in helping patients better utilize coping skills and sensory modulation tools as well as in improving patient engagement in non-pharmacological interventions like group and individual therapy. Repetition, consistency, oversight, and administration support/funding were important factors in assuring consistent and high-quality services.

Conclusion: Trauma-Informed Care can be implemented on inpatient units through coordinated and ongoing program development. Further research is necessary to determine its formal effects on patient outcomes.

Introduction

Since they serve a vulnerable patient population, inpatient psychiatry units must continually incorporate new care models to improve patient care. However, since conducting controlled trials is challenging in this population, few inpatient psychiatry units formally study how to develop and implement evidence-based treatment programs. Given the limited research, we describe the development and implementation of a multidimensional, multidisciplinary Trauma-Informed Care model in pursuit of improving seclusion/restraint events, patient assault rates, and patient satisfaction scores on an inpatient psychiatry unit.

What is Trauma-Informed Care?

Trauma-Informed Care (TIC) is a treatment approach that recognizes the harmful consequences of trauma

on the health and well-being of individuals.¹ While not a treatment model per se, TIC provides a supportive framework to help patients access and obtain greater benefit from their treatment. Core components of this framework include an emphasis on empowering patients, fostering patient-clinician collaboration, and minimizing practices that might re-traumatize patients, including coercive approaches to care.² As a comprehensive, systems-wide model, TIC encourages a consistent yet flexible approach and fills some of the gaps left by less comprehensive treatment models.

TIC emphasizes understanding patients and their symptoms in the context of trauma and other biopsychosocial influences. For example, a TIC-trained clinician can understand a patient's self-harming behaviors as coping mechanisms that developed and were reinforced in the context of past traumas or environ-

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ments. After recognizing that these self-harm behaviors failed to support the development of more appropriate coping skills, a TIC-trained clinician may then address these behaviors through a variety of therapeutic and trauma-informed interventions, including building and reinforcing coping skills while developing insight. This approach enhances the traditional medical model, which has historically emphasized symptom management and biological/pharmacological treatments.² The National Association of State Mental Health Program Directors (NASMHPD) identified 6 critical ingredients to implementing TIC.³ These include (1) active leadership support, (2) data collection, (3) debriefing and prevention-focused analysis of critical incidents, (4) trauma-informed education and staff skill development, (5) use of a range of assessments and tools to teach self-management of illness and emotional regulation, and (6) involvement and inclusion of patients/consumers at all levels of care.³⁻⁴ We review available evidence that suggests the TIC model yields positive benefits to common challenges in acute inpatient psychiatry.

Primary Reasons for TIC Program Development

The TIC model stands to improve inpatient outcomes in seclusion/restraint, patient assaults, and patient satisfaction. We sought to first examine the current understanding of the appropriateness and effectiveness of TIC and related methods in addressing these areas.

Prevention and Reduction of Patient Assaults

Violence by inpatients in acute psychiatric settings continues to be a worldwide problem,⁵⁻⁷ and violent incidents have not declined since 2007.⁸ While there is some evidence for the effectiveness of behavioral programs such as a token economy⁹⁻¹⁰ and regular violence-prevention community meetings,¹¹ other commonly-used interventions—such as verbal de-escalation and staff education and training—often fail to reduce rates of patient assaults.¹²⁻¹⁴ Since TIC encourages a consistent and comprehensive model of care, into which behavioral interventions and other successful programs may be incorporated, it is a promising framework for reducing patient assaults. Indeed, implementation of TIC has been found to reduce assaults in some inpatient settings.¹⁵

Prevention and Reduction of Seclusion/Restraint

Violent acts against fellow patients and staff are not only dangerous, but also often result in seclusion or restraint (S/R) episodes, another undesirable outcome.¹⁶ Seclusion and restraint events are often perceived as traumatic for both patients and unit staff, for whom they often represent a “treatment failure.”¹⁷ Behavioral interventions can reduce S/R episodes on inpatient psychiatric units.¹⁸ In the literature, the specific interventions with the best evidence base include: individualized crisis management plans,¹⁹ coping questionnaires coupled with early intervention techniques,²⁰ cultivation of a more warm and welcoming environment,²¹ and sensory modulation programs.²² Since these interventions are consistent with a TIC approach, they can be readily incorporated into a TIC model.³ Overall, promising results suggest that TIC implementation in inpatient settings may reduce or eliminate the need for restraints and decreases the use of emergency medications.^{15,17} The relevance of TIC for those patients at risk of assaults and S/R is further supported by a recent study indicating that inpatients experiencing high rates of S/R are more likely to have experienced childhood abuse.²³

Patient Satisfaction

Reducing patient distress and improving positive perceptions of care are worthwhile goals in their own right. There are also financial and clinical advantages of providing patient-centered care; in addition to increased patient satisfaction, advantages include increased staff retention, enhanced staff recruitment, decreased length of stay, decreased ED return visits, fewer medication errors, and improved liability claims experience.²⁴ Patient satisfaction is associated with multiple factors that are closely associated with TIC, including availability of staff for communication regarding needs and concerns;²⁵⁻²⁶ availability of psychoeducation and skills training;²⁵ and staff attitudes, interpersonal skills, and consistency.²⁷ Individuals involved in structured activities also tend to be more satisfied patients.²⁸ Given that up to 90% of individuals accessing treatment for severe mental illness have had exposure to significant emotional, physical, and/or sexual abuse, the vast majority of psychiatric inpatients stand to benefit from TIC.⁴ Studies have demonstrated that increased availability of inpatient programming improves patient satisfaction.^{25,28}

Based on this literature review, TIC is a promising framework from which to approach treatment and the overall patient experience. We describe the implementation of a multidimensional, multidisciplinary TIC model on an inpatient psychiatry unit and its implications for improving seclusion/restraint rates, patient assault rates, and patient satisfaction. Process outcomes are described, and recommendations are made for future program development.

Methods

The development and implementation of a Trauma-Informed Care model began in August 2013 with the selection of this model by staff on the adult inpatient psychiatric unit with a total of 41 beds, in an academic safety net hospital and health care system in Denver, Colorado. The unit is divided into a higher acuity area for potentially violent patients (19 beds), and a lower acuity area (22 beds). Unit staff includes nurses, behavioral health technicians, psychiatrists, advanced practice providers, psychologists, licensed professional counselors, and occupational therapists—over 100 staff in all that work in both areas. Soliciting staff input on selecting a model provided staff a stake in the culture and programmatic changes to follow, which remain ongoing.

Original State

Prior to implementation of a TIC model, the unit was generally run on a biomedical model. Two groups were conducted per day and were run by either occupational therapy or nursing floor staff. Groups run by nursing floor staff were inconsistently facilitated due to lack of resources, training, and support. The majority of unit programming was unstructured and left excessive idle time for patients. Annual training was limited to 1 session on verbal de-escalation and physical management of agitated patients. No self-regulation interventions were taught nor were there sensory tools available on the unit.

The primary forms of de-escalation of patients included verbal de-escalation and pharmacological interventions.

Quality Improvement Monitoring

Descriptive data were collected regarding the implementation of Trauma-Informed Care. Beginning in October 2014, the number of patients attending each

psychotherapy and occupational therapy group was tracked in a log by group leaders after each group. For high-risk patients, the psychology team recorded the number of behavioral program referrals/interventions starting in March 2015. Psychologists also tracked the provision of individual psychotherapy. Each case was counted as 1 referral/intervention. Every week, clerical staff recorded the presence or absence of coping skills checklists in charts. Occupational therapy recorded the number of patient contacts starting in July 2015. Data are reported through December 2015. Data were collected as part of an approved quality improvement project to guide program development.

Results

After the model of care was selected, we conducted a literature review and consulted with other programs in the area that had implemented a TIC model and interventions, in order to develop a blueprint for our own TIC quality improvement program. Major changes for this project can be categorized as follows: the development of a structural framework for implementation of TIC, staff education, environmental changes, use of a unit-wide coping skills and sensory modulation framework, availability of less-restrictive interventions for high-risk patients, access to unit programming/non-pharmacological treatment, and patient input and involvement.

Structural Framework

The unit's initial approach included setting up a framework for consistent, ongoing implementation of TIC, in coordination with the unit's leadership and hospital administration. All unit staff members were invited to participate on a multidisciplinary TIC committee. The committee met regularly to monitor ongoing interventions, discuss new programming, coordinate with leadership/administration, and consult with unit staff. The majority of interventions described in this paper were implemented via the TIC committee, which included representation from stakeholders trained in nursing, pharmacy, psychiatry, occupational therapy, and psychology. The TIC committee incorporated relevant scientific literature, recommendations from Substance Abuse and Mental Health Services Administration (SAMHSA), and feedback from local staff as well as mental health facilities already utilizing TIC models.²⁹ Other structural changes to facilitate imple-

mentation of TIC interventions included the development of a part-time position (TIC outreach coordinator) to assist with and follow up on projects consistent with TIC and a “champion nurses” committee to help roll out interventions, support colleagues, develop trainings, and provide feedback.

Staff Education

In order to develop a culture of ongoing trainings and consistency in application of the TIC model, mandatory quarterly trainings were introduced for floor staff. Efforts were made to make the trainings accessible to various shifts. The curriculum trained staff on principles of TIC as well as specific unit initiatives. Trainings included introduction to TIC and its benefits, role play simulations that highlighted TIC-specific interventions with patients, discussion on daily TIC decision-making, training on various interventions including the use of comfort carts and sensory modulation tools, and a presentation by a peer recovery specialist regarding his experience with hospitalization and recovery. We made additional trainings available to staff on a voluntary basis. For example, a TIC consultant provided a 2-day consultation to the unit including a presentation and training to interested staff. Staff were expected to attend the required trainings outside of their dedicated work hours on the unit; these trainings became part of their annual departmental educational requirements. Provided in this way, these trainings created additional expense but did not interfere with patient care or staff scheduling.

Environmental Changes

We improved the physical environment in ways that might benefit patients.²¹ We added new décor, paint, carpets, and a patient art gallery to create a warmer and more inviting environment. We also replaced furniture to improve the function and appearance of the unit.

Unit-Wide Coping Skills and Sensory Modulation Framework

Upon admission to the inpatient unit, each patient completed a coping checklist (Appendix 1) and was oriented to the “comfort cart” available in the day-room.

The comfort cart made available many of the tools for coping described in the coping checklist, including

items such as stress balls, humor books, photography books, aromatherapy oils, lotions, and journals. Some tools were available upon request from nursing (eg, food). Many tools fit within the sensory modulation framework developed in conjunction with the occupational therapy department (eg, weighted blankets). Occupational therapists provided 32 individual sensory interventions/trainings for patients over a 6-month period (July-December 2015) as a part of the new TIC framework (whereas previously none had been offered).

To increase likelihood of use, we placed patients’ coping checklists near their beds in a durable clear plastic sheet protector attached to the wall. Other copies were available in patients’ charts and in a binder available to staff. Patients who did not complete a coping checklist on admission were referred to the psychology team for additional support in identifying and practicing coping skills. Occupational therapists were also available for consultation and 1:1 training with patients.

In the first month (December 2015–January 2016) of implementation, coping skills checklists were completed by and available for 62% of patients on the less acute area and 55% of patients on the more acute area. In response to these initial audits, we simplified the use of checklists by discontinuing their placement in patient rooms; instead, they were only placed in patient charts.

Less-Restrictive Interventions for High-Risk Patients

For high-risk patients whose difficulty managing distress resulted in danger to self or others, individualized behavioral interventions were designed and implemented collaboratively by the patient and a member of the unit’s psychology team. Principles of learning and behavior were applied systematically to reinforce and increase more appropriate and safe behaviors, consistent with NASMHPD’s fifth principle of TIC.³ Referrals for behavioral plans/interventions for high-risk patients became a regular referral question (mean 2.8 referrals per month, March-December 2015). The psychology team provided individual therapy services to 329 patients for a total of 741 sessions during this period.

Access to Unit Programming

To enhance unit programming, additional clinical staff were hired (300% increase in FTE hours for psychology staff) to provide regular group programming and individual therapy. Evidence-based approaches to short-term treatment (eg, acceptance and commitment therapy, cognitive-behavioral therapy, psychoeducation) were tailored for implementation on the unit, thereby providing a greater variety of groups and individual programming. Concurrent to the increased availability of clinical staff, additional weekend programming was made available. Working with Volunteer Services, the unit also incorporated pet therapy and yoga. Four to 7 groups daily were offered Monday through Saturday on each sub-unit; fewer groups were offered on Sundays.

Since October 2014, a mean of 7.9 patients ($SD=2.3$) attended each psychotherapy group on the less acute sub-unit. A mean of 6.4 patients ($SD=2.2$) attended each psychotherapy group on the more acute sub-unit. Since July 2015, occupational therapy groups averaged 5.5 patients ($SD=0.6$) and 4.9 patients ($SD=0.7$) on the less and more acute sub-units, respectively.

Patient Input and Involvement

Finally, the unit increased efforts to garner patient input and the involvement of peers from the community. The local chapter of the National Alliance on Mental Illness provided volunteers twice a month to make presentations, share resources, and discuss their own recovery. In addition, a peer recovery specialist visited the unit once a week to co-facilitate groups with licensed mental health professionals. These groups were designed to teach and discuss recovery, treatment, and tools, in the context of the peer's lived experience. Nursing staff developed a strengths-based community recognition award group for the more acutely-ill patients, in order to recognize patients and empower them to recognize each other.

Adaptations in the Model

Implementing a multifaceted TIC model on the unit required frequent adjustments. Table 1 summarizes the observed benefits, challenges, and adjustments for specific interventions. A variety of new modalities were introduced to decrease milieu stimulation and help patients self-manage their behaviors.

Implementing TIC on an acute inpatient psychiatric

unit reinforced the importance of consistent administrative oversight to expand on successes and gradually shift the unit culture from a biomedical model to a TIC model. When practices inconsistent with TIC were observed, they were modified or additional education was provided to staff through multiple modes of communication—eg, all-staff emails, flyers, presentations in the daily nursing huddle, and additional on-the-job trainings. Modifications to practice were generally designed to facilitate more widespread use and/or reduce the burden to staff. For example, when the comfort carts were introduced to the units, regular education regarding the purpose of the carts and the necessity of ease of access for patients resulted in improved adherence to the intervention. With ongoing education and consistent reminders, the carts were no longer observed to be pulled inside the nurses' station (rather than accessible in the dayroom). Some adjustments capitalized on incorporating TIC practices into well-established processes, such as including the coping skills checklist in the admissions packet. And based on later feedback, a simpler visual coping checklist was added as an alternative for patients with cognitive deficits or difficulty reading. However, at times, it was necessary to modify the TIC intervention in response to staff feedback regarding concerns, for example, modifying patient access to some coping items. The auditing and oversight process (eg, coping checklist completion rates) also allowed us to identify areas for future intervention.

There was no central funding source for TIC programs and interventions. Programs and intervention-related purchases were made with the assistance of small grants or donations from unit staff members and the hospital's volunteer services program.

Discussion

Trauma-Informed Care provides a framework to improve treatment consistency while introducing evidence-based interventions to improve a patient's experience and treatment engagement. This project demonstrates the utility, acceptance, and challenges of implementing a TIC model on both high and low acuity inpatient psychiatry services. Using a structured, overarching model facilitated more consistent and successful implementation than would have been achievable if program components were introduced as separate activities. Many individual interventions

required adjustment, and the TIC framework provided both a feedback mechanism to identify problems and also a mechanism to introduce changes.

These successes provide the opportunity for additional ongoing improvements: environmental enhancements, ongoing trainings and support to encourage utilization of coping skills, and the benefits of more time to solidify culture change. For example, we continue to add resources to the coping cart and have subsequently allocated a dedicated space for patients to use these resources. Ongoing challenges include securing sustainable funding for the program and garnering support from hospital administration to make TIC a standard component of inpatient psychiatric care. Systemic issues, including staffing, time management, and funding will need to be addressed in the future. Finally, pacing interventions and allowing time for culture change and acceptance of this framework are essential to achieving lasting results.

Our evaluation is limited by the lack of quantitative data available at this early stage of program development. Some limited descriptive data were available regarding the utilization of some services. However, because data were not regularly collected prior to the implementation of the TIC framework, we were unable to compare unit practices before and after TIC implementation. At present, we are unable to formally assess the impact of the TIC framework on S/R, assaults, and patient satisfaction.

Generally, limitations remain in our understanding of TIC and its application in inpatient psychiatry, and we recommend further multidisciplinary research to clarify the overall impact of this approach, particularly in comparison with viable alternatives. Component studies may be particularly useful to identify successful TIC interventions and their mechanisms.

Although it is clear that our work is not done, this Trauma-Informed Care model sets the stage for continued program development and improvement.

Tables

Table 1. Observed benefits, challenges, and adjustments for specific interventions

| Intervention | Intervention Category | Benefits and Successes | Challenges | Adjustments and Recommendations |
|---|--|---|---|--|
| Development of TIC committee | Structural framework | Allowed motivated employees to stay involved in TIC development and interventions | Limited availability of committee members who hold full-time clinical positions | Recommend allowing a slower pace to accomplish change Recommend the hire of a dedicated 0.5-1.0 FTE TIC position |
| TIC outreach coordinator part-time position (0.2 FTE) | Structural framework | Protected 0.2 FTE for TIC coordination | 0.2 FTE remained insufficient to manage all projects and interventions | Recommend the hire of a dedicated 0.5-1.0 FTE TIC position |
| Champion nurses committee | Structural framework | Educated other staff Members served as role models for both patients and providers | Staff turnover | No adjustments recommended. Committee becomes more essential in the context of staff turnover |
| Required ongoing TIC trainings | Structural framework and staff education | Trained new staff and reinforced exposure to TIC interventions | Required staff accountability and management support Ensuring staff buy-in required specific applicable topics | Tracked attendance to ensure participation Provided feedback forms at each training TIC committee developed applicable trainings and incorporated staff feedback |
| New paint, carpets, and décor; and replacing furniture as needed | Environmental changes | Created more welcoming environment | Cost | Recommend incorporating in budget |
| Creation of patient art gallery | Environmental changes | Allowed patient ownership of décor Brighter space | Torn down shortly after implementation by a patient on the more acute sub-unit | Have continued only on the less acute sub-unit Recommend incorporating a more permanent and inpatient unit-safe gallery into design plans in new units serving very acute patient populations |

| Intervention | Intervention Category | Benefits and Successes | Challenges | Adjustments and Recommendations |
|---|--|--|--|--|
| Coping checklist | Unit-wide coping skills and sensory modulation framework | Increased completion rate following adjustments | <p>Difficult to ensure completion of checklists on or shortly after patient's admission</p> <p>Checklists were not placed in identified location in patient room.</p> <p>Plastic sheet protectors allowing placement of checklist were torn down or used to display other materials.</p> | <p>Incorporated checklist in admission packet which increased rate of completion</p> <p>Discontinued posting of checklist in room</p> |
| Comfort cart and tools | Unit-wide coping skills and sensory modulation framework | <p>Offered greater availability of coping tools and materials</p> <p>Consistency with coping checklist</p> | <p>Some staff resistance to keeping cart in public location (day-room) due to safety concerns</p> <p>Restocking cart and ordering materials is time-consuming</p> <p>Periodic patient hoarding of materials</p> | <p>Reminded staff of the rationale for cart and the importance of easy access to materials</p> <p>Prepared labels with directions on the items or on the corresponding drawer to the cart (eg, whether a patient should return or keep an item)</p> <p>Removed some items (eg, food) from cart, per staff feedback (items now available by request)</p> <p>Removed cart from milieu to better track inventory of items</p> <p>Recommend additional TIC staff</p> |
| Sensory modulation trainings (eg, weighted blanket trainings and tools provided to patients) | Unit-wide coping skills and sensory modulation framework | <p>Patient utilization of services</p> <p>Positive feedback from patients</p> | Staff unfamiliarity with interventions and applicability for patient populations | <p>Continued in-services and individualized training provided by occupational therapists to nursing staff and providers</p> <p>Developed handout for nurses and providers that summarizes intervention referral, use, and safety guidelines</p> |

| Intervention | Intervention Category | Benefits and Successes | Challenges | Adjustments and Recommendations |
|--|---|--|--|--|
| Sensory modulation groups | Unit-wide coping skills and sensory modulation and unit programming | More frequent, repeated exposure to sensory modulation skills and training | | |
| Individualized behavioral interventions for high-risk patients | Less restrictive interventions | Positive results with challenging patients Became a regular referral question | Time involved Staff not always aware of or not implementing behavioral program and interventions | Prioritized needs of the most high-risk patients to manage caseload Communicated frequently with staff involved in the patient's care |
| Additional hiring of clinical staff to provide individual and group psychotherapy | Unit programming | 4-7 groups provided daily Less down time on unit | Expense | |
| Additional weekend programming available | Unit programming | Less down time on unit | Expense | |
| Accessing volunteer services (pet therapy, yoga therapy) | Unit programming | Greater variety of unit programming available | Limited and varying availability of resources (frequent turnover of volunteers means that periodically none of these services are available) | Communicated regularly with Volunteer Services department to advocate for unit and express appreciation for services Recommend budgeting for beneficial services rather than relying upon intermittently-available volunteers |
| NAMI peer-led presentations on recovery twice monthly | Patient/peer input/involvement | Positive feedback from patients | | |
| Peer recovery specialist co-facilitated recovery group once weekly | Patient/peer input/involvement | Positive feedback from patients | Variability in peer training and familiarity with group leadership | Recommend in-house training in addition to peer's external training and certifications |

| Intervention | Intervention Category | Benefits and Successes | Challenges | Adjustments and Recommendations |
|--|--------------------------------|---------------------------------|-----------------------------|--|
| Strengths-based community recognition award group | Patient/peer input/involvement | Positive feedback from patients | Inconsistent implementation | Developed TIC sub-committee devoted to this group Provided reminders and encouragement to staff |

Abbreviations: National Alliance for Mental Illness (NAMI); Trauma-Informed Care (TIC); full-time equivalent (FTE)

Appendix

Appendix 1. Coping strategies checklist

Coping Strategies

Instructions: Please check any boxes that have been useful to you in helping you cope with stressful situations or in calming you when you are becoming agitated/noticing warning signs.

- | | |
|---|---|
| <ul style="list-style-type: none"> <input type="checkbox"/> Jumping up and down <input type="checkbox"/> Walking/pacing <input type="checkbox"/> Dancing <input type="checkbox"/> Stretching <input type="checkbox"/> Yoga or tai chi <input type="checkbox"/> Push ups <input type="checkbox"/> Sit ups <input type="checkbox"/> Rocking (e.g., in a chair) <input type="checkbox"/> Taking a hot shower <input type="checkbox"/> Taking a cold shower <input type="checkbox"/> Warm or cold cloth to head/face <input type="checkbox"/> Putting hands in cold water <input type="checkbox"/> Holding/chewing ice <input type="checkbox"/> Blanket wrap or use of weighted blanket <input type="checkbox"/> Hugging a pillow or stuffed animal <input type="checkbox"/> Coloring or other arts & crafts activity <input type="checkbox"/> Petting a dog/cat/other pet <input type="checkbox"/> Using a stress ball <input type="checkbox"/> Fidgeting with something <input type="checkbox"/> Applying scented lotion <input type="checkbox"/> Listening to people talking <input type="checkbox"/> Listening to white noise <input type="checkbox"/> Listening to music <input type="checkbox"/> Listening to a relaxation or meditation CD <input type="checkbox"/> Listening to ocean sounds <input type="checkbox"/> Singing <input type="checkbox"/> Humming <input type="checkbox"/> Whistling | <ul style="list-style-type: none"> <input type="checkbox"/> Deep breathing (square breathing, nostril breathing) <input type="checkbox"/> Writing in a journal <input type="checkbox"/> Doodling <input type="checkbox"/> Reading <input type="checkbox"/> Humor (e.g., reading joke books) <input type="checkbox"/> Looking through picture books <input type="checkbox"/> Watching television <input type="checkbox"/> Playing a game (e.g., card game or board game) <input type="checkbox"/> Talking with peers <input type="checkbox"/> Talking to staff (please list some names): _____ <input type="checkbox"/> Doing hair <input type="checkbox"/> Cleaning <input type="checkbox"/> Using essential oils or aromatherapy <input type="checkbox"/> Chewing gum <input type="checkbox"/> Crunchy foods <input type="checkbox"/> Sour foods <input type="checkbox"/> Doing Nails <input type="checkbox"/> Drinking coffee or cocoa <input type="checkbox"/> Drinking herbal tea <input type="checkbox"/> Drinking something carbonated <input type="checkbox"/> Resistance exercises <input type="checkbox"/> Blowing bubbles <input type="checkbox"/> Eating chocolate <input type="checkbox"/> Progressive Muscle Relaxation <input type="checkbox"/> Crocheting |
|---|---|

My top 5 coping strategies:

1. _____
2. _____
3. _____
4. _____
5. _____



Stretch or Movement



Music



Stress Ball



Aromatherapy



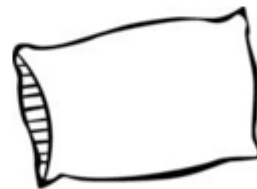
Journaling



Talking to staff/friend



Eating Chocolate



Hugging a pillow or using weighted supplies



Taking a Shower



Coloring

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Factors Predicting Length of Stay on an Inpatient Psychiatry Unit in an Urban Safety Net Hospital

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Abstract

Introduction: Inpatient length of stay (LOS) has been used as a proxy for efficiency of health care delivery and overall quality. The purpose of this study was to identify modifiable factors that contribute to increased length of stays on an inpatient psychiatry unit within an urban safety net hospital.

Methods: This was a retrospective chart review of 693 patients admitted from July 2012 through February 2013 conducted at Denver Health Medical Center to determine factors on admission, discharge, or through the hospitalization course associated with a decreased and extended length of stay using linear and logistical regression models.

Results: Modifiable factors associated with longer length of stay included medications dispensed during hospitalization (OR 1.4, 95% CI 1.3, 1.4) and medication changes during hospitalization (OR 1.4, 95% CI 1.2, 1.7). Non-modifiable factors associated with longer length of stay included involuntary legal status (OR 3.4, 95% CI 1.9, 5.9) and a diagnosis of schizophrenia (OR 2.6, 95% CI 1.5, 4.7). Modifiable factors associated with a shorter length of stay were use of as-needed medications (OR 0.4, 95% CI 0.2, 0.7), medication changes within 48 hours of discharge (OR 0.5, 95% CI 0.3, 0.8), and total prescriptions on discharge (OR 0.8, 95% CI 0.7, 0.9). Non-modifiable factors associated with a shorter length of stay included having an established outpatient provider on admission (OR 0.5, 95% CI 0.3, 0.9), comorbid substance use (OR 0.5, 95% CI 0.3, 0.9), and the presence of suicidal ideations on admission (OR 0.4, 95% CI 0.2, 0.7).

Discussion: While several modifiable factors were associated with prolonged length of stay, these factors are likely confounded by unmeasured clinical variables, particularly illness severity, or may be artifacts of time itself. This analysis identified only limited opportunities for targeted interventions to reduce LOS on the inpatient unit itself but suggests ways to identify patients at high risk for prolonged hospitalization.

Introduction

The Patient Protection and Affordable Care Act, commonly called the Affordable Care Act (ACA), promised to expand health care coverage to 60 million previously uninsured Americans.¹ In expanding health care coverage, the ACA, in conjunction with the Mental Health Parity and Addiction Equity Act (MHPAEA) of 2008, legislated parity for treatment of psychiatric and substance use disorders.¹ These policy changes are expected to increase service utilization and health care expenditures. Historically, increased utilization of mental health services has been met with strategies

by payers to reduce payments, limit access, or streamline care into less costly avenues.²⁻⁵

Thus, concern has arisen about reduced financial support for high intensity behavioral health services in order to meet the ACA's provisions that ensure patients' access to care.¹ Traditionally, inpatient services have been the first to be reduced when attempting to contain mental health expenditures.^{2,3} In 1950, there were over 500,000 inpatient psychiatric beds in the United States. By 2000 the number had been reduced to 200,000.⁴ This drastic reduction in bed capacity has also been accompanied by a decrease in length of

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stay.^{2,6} As of 2006, inpatient costs accounted for 16% of total mental health expenditures.⁶ Insurers have deployed a variety of mechanisms to reduce length of stay (LOS), with the implication that length of stay is a marker for resource utilization and facility efficiency.⁸ These efforts include use of diagnosis related groups (DRGs), per diem payments, more frequent reviews, prior authorizations, and strict documentation requirements.⁵ No data support that these strategies reduce length of stay.⁷ Although pressure to reduce length of stays have raised concern about possible premature discharges, frequent re-admissions, and adverse outcomes,^{2,9} no compelling data support this concern.⁷

Several studies that have examined predictive models of length of stay show inconsistent findings.⁹⁻¹⁴ The most recent review article, published in 2011, highlighted the lack of research in this area.⁶ The need for research is critical as the majority of studies examining predictors of length of stay were done prior to 2005 and the current era of health care reform. For example, with the expansion of mental health services, many payers are minimizing inpatient utilization in favor of less expensive outpatient alternatives. Inpatient facilities and their providers are increasingly pressured to streamline treatments and maximize workflows by identifying modifiable factors that predict longer lengths of stay. However, if research determines that length of stay is determined largely by factors that cannot be modified on an inpatient unit, financial incentives to reduce length of stay may not yield strong results and health care reform might be better directed to preventing hospitalization for patients at high risk of hospitalization, especially extended hospitalization.

The purpose of this quality improvement project was to identify factors that contribute to increased length of stays in an urban safety net hospital. Factors that are modifiable may serve as targets for improvements in efficiency in care.

Methods

Administrative and clinical data were obtained for all patients 18 to 65 years of age who were hospitalized in the adult inpatient behavioral health unit of Denver Health Medical Center (DH), a university-affiliated public safety net hospital with 525 licensed beds, of which 36 were psychiatric beds, from July 1, 2012 to

February 28, 2013 using an electronic query of the DH data warehouse. This quality improvement project was approved by the hospital.

There were a total of 1,202 inpatient psychiatric hospitalizations during the study period. When patients had more than 1 hospitalization, only data pertaining to the first hospitalization were analyzed.

Measures

The dependent variable was length of stay measured in days. Independent variables examined are listed in Table 1. Variables were identified as modifiable or non-modifiable in Table 1 based on whether or not they could be changed during an inpatient admission. In general, factors present on admission were considered non-modifiable.

Analytic Plan

After results of normality tests indicating a non-normal distribution for length of stay, Wilcoxon Rank Sum test or Spearman Correlation Coefficients were first used to assess unadjusted univariate associations between length of stay and the above independent variables.

A linear regression model utilized variables associated with length of stay ($p < .20$ in the unadjusted analyses). Length of stay was normalized for multivariable linear regression after base- e log transformation. The final linear regression model was constructed using forward variable selection of the most significant predictors, based on univariate analyses, using improved adjusted R^2 to determine variable retention. Interactions selected a priori were also included: comorbid personality disorder and depression admitting diagnosis, comorbid personality disorder and suicidal ideation, comorbid personality disorder and number of prior psychiatric admissions, homicidal ideation and number of prior psychiatric admissions, legal status on admission and number of prior psychiatric admissions, schizophrenic admitting diagnosis and homelessness, suicidal ideation and homelessness, initiation of long acting injectable antipsychotic during hospitalization and number of prior psychiatric admissions, legal status on admission and number of medications dispensed during inpatient hospitalization, legal status on admission and use of restraints during hospitalization, documented adverse drug effects during admission and number of medications dispensed

during inpatient hospitalization, documented adverse drug effects during admission and schizophrenic admitting diagnosis, and documented adverse drug effects during admission and bipolar admitting diagnosis were tested. None of these interactions were retained in the final model. The statistical significance of the overall model fit was evaluated using the F-test. Adjusted R^2 was used to determine the proportion of variance in length of stay explained by the model, accounting for the number of predictors included in the model. Both Cook's D and residual plots were obtained to identify influential observations and to suggest good model fit without violating model assumptions, respectively.

Finally, a logistic regression model was created using variables associated with length of stay greater than 9 days ($p < .25$ in the unadjusted analyses). Transforming length of stay to a binary variable (less than or equal to 9 days or greater than 9 days) was chosen with the intention of identifying predictors of longer lengths of stays in the highest quartile. The chi-square, Mantel-Haenszel tests, and Pearson or Spearman correlation coefficient were used to assess independent covariates for co-linearity and as potential effect modifiers before inclusion in the logistic regression model. The final logistic regression model was constructed using backward variable deletion of the least significant risk factors using a p-value exceeding 0.05 as the criteria for variable removal; however, the likelihood ratio test was used to assess any change in the model with and without an excluded variable. In addition, changes in the remaining variables' coefficients were assessed as each variable was excluded. In an effort to avoid over-fitting and to retain the strongest predictors, the model with the most predictive variables and the smallest AIC value was ultimately selected. Two-way interaction terms, previously described, were assessed before inclusion in the logistic regression models. Only those terms with an unadjusted $p < .25$ were included in modeling. Goodness-of-fit or calibration was assessed using the Hosmer-Lemeshow test. The area under the receiver operating characteristic curve (logistic regression c index statistic) was calculated to quantify the predictive accuracy or discrimination of the final model.

All analyses were performed using SAS Enterprise Guide 5.1 (SAS Institute, Inc, Cary, North Carolina).

Results

All 693 eligible hospitalizations identified during the study period were included in analyses. The median length of stay was 5 days (IQR 3, 9). The majority of patients were white (61%) and male (58%). The most common diagnoses were depressive disorder (28% of patients), schizophrenia (26%), and bipolar disorder (20%). Only 14% of patients had commercial insurance. Substance use disorders were present in 68% of patients. Personality disorders were present in 26% of patients. Fifty-six percent of patients were on an involuntary status on admission. Table 1 shows the demographic and clinical characteristics of the study population.

Our univariate analyses of the factors associated with length of stay are presented in Table 1. Table 2 presents variables retained in the multivariable linear regression model. The coefficients of the variables indicate the change in days one could expect in visit length of stay given a 1-unit change in the value of that variable, holding all other variables in the model constant. Though several variables were retained in the model, unexplained variance remained (R^2 0.494).

In Figure 1, the logistic regression model examines the factors associated with a length of stay over 9 days. Length of stay greater than 9 days was associated with 2 modifiable factors including number of medications dispensed during hospitalization (OR 1.4; CL 1.3, 1.4) and greater number of medication changes during hospitalization (OR 1.4; CL 1.2, 1.7). Modifiable factors associated with shorter length of stay were the use of pro re nata (prn) psychiatric medications within 48 hours of discharge (OR 0.4; CL 0.2, 0.7), number of prescriptions on discharge (OR 0.8; LC 0.7, 0.9), and medication changes done within 48 hours of discharge (OR 0.5; CL 0.3, 0.8).

Other factors associated with length of stay were considered non-modifiable. Involuntary legal status on admission (OR 3.4; CL 1.9, 5.9) and a discharge diagnosis of schizophrenia (OR 2.6, CL 1.5, 4.7) were associated with longer length of stay. Patients with suicidal ideation (OR 0.4; CL 0.2, 0.7), comorbid substance use (OR 0.5; LC 0.3, 0.9), or an established outpatient provider (OR 0.5; CL 0.3, 0.9) on admission were associated with shorter length of stay. For the logistic regression, the calculated c-index was 0.905 and the Goodness of Fit test value was 0.864, indicating the model was valid and has good accuracy.

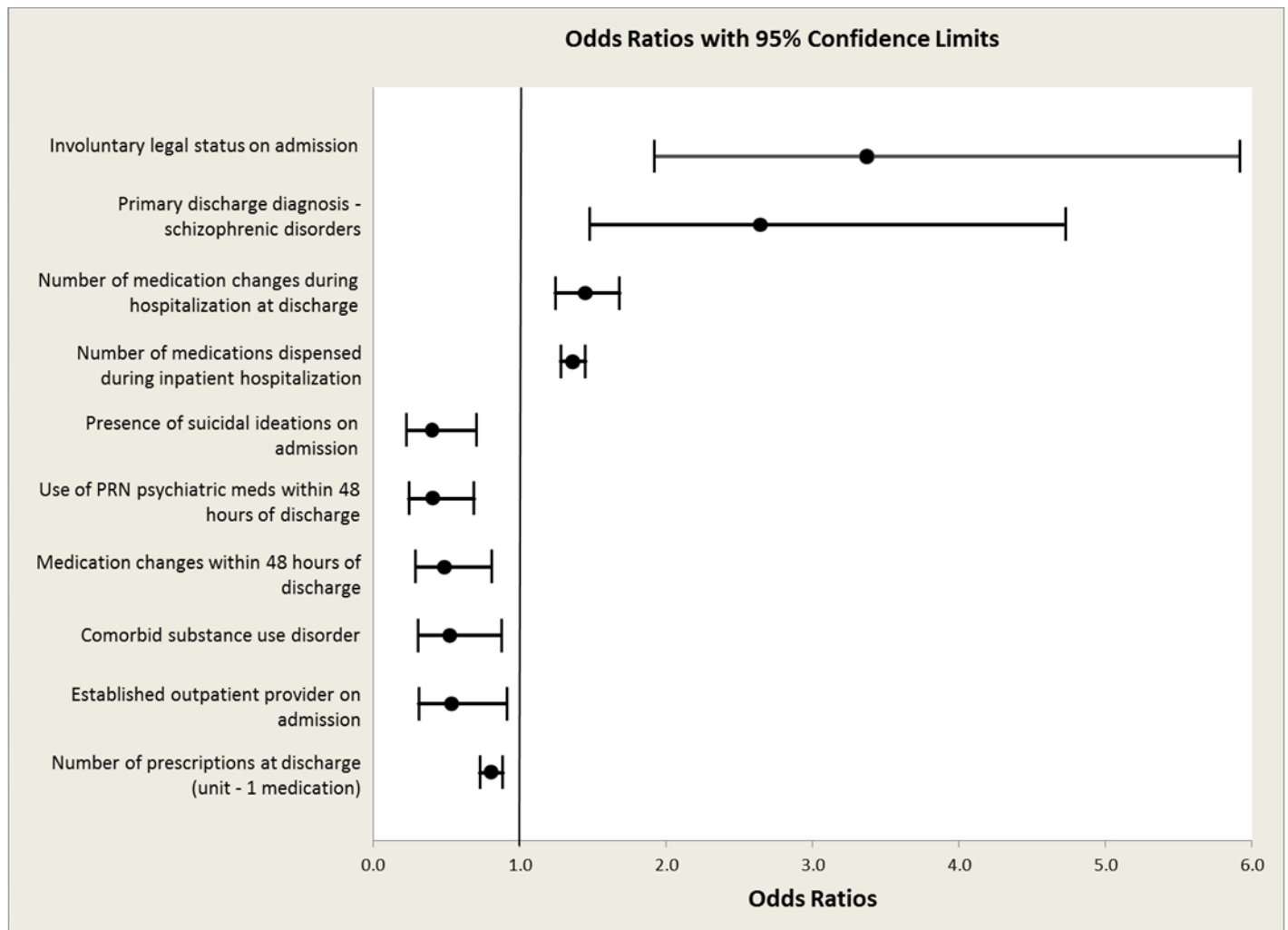


Figure 1. Forest plot of adjusted odds ratios from multivariate logistic regression

Figure 1 depicts variables retained in the final multivariable logistic regression model.

Discussion

Several modifiable factors were associated with longer length of stay including the number of medications dispensed during the hospitalization and the number of medication changes made during hospitalization; we believe these findings deserve further exploration because both factors can be affected by a provider. However, the present analysis is insufficient to establish these factors as targets for operationalized interventions to reduce length of stay. The number of medication changes or total medication dispensed may be a proxy for illness severity, which would likely confound length of stay, which is supported by our finding that patients with primary psychotic spectrum disorders and those admitted on an involuntary status are also more likely to experience prolonged hospitalization. Furthermore, longer

lengths of stay inherently offer more opportunities for medication changes.

Both the administration of prn psychiatric medications within 48 hours prior to discharge and medication changes within 48 hours of discharge were associated with a shortened length of stay. It is possible that as-needed psychotropic administration makes patients appear more stable and thus ready for discharge.¹⁸ However, our prior work did not find any association between prn administration within 48 hours of discharge and 90-day re-admission, suggesting clinical stability is unrelated to prn medication administration prior to discharge.¹⁸ Most likely, this association is an artifact of medication changes during shorter hospitalizations necessarily occurring closer to discharge. We also remain uncertain why the number of prescriptions at discharge was associated with a shorter length of stay.

Similar to other studies, we found that a discharge diagnosis of schizophrenia increased length of stay

while comorbid substance use disorders decreased it.^{12,15} Unlike other studies, we did not find a relationship between length of stay and patient age, payer source, comorbid personality disorder, prior admissions, or a discharge diagnosis of an affective disorder.^{9,11-12,14,16-17} These discrepancies likely reflect the challenges of generalizing risk factors for LOS from one site to another site with different patient populations, community mental health systems, and data sources. To reduce these discrepancies, future studies should be multi-site trials, perhaps of sites that share a similar electronic health record. While the field awaits such multi-site trials to validate modifiable risk factors, our study's differing findings regarding, say, the impact of affective disorders and comorbid personality disorders on LOS, suggest the limitations of basing reimbursement strictly on diagnosis groups.⁶⁻⁸

At present, this study serves as a reminder of how challenging it is to identify the modifiable factors associated with length of stay on an inpatient psychiatry unit. This challenge poses an obstacle to our health care system's efforts to reduce costs by providing care in ambulatory settings whenever possible and to bring parity between medical and mental health services. After all, the MHPAEA requires parity in access to care but also in payment: under the MHPAEA, payers have the same level of regulation and review for medical, psychiatric, and substance use disorders.⁵ Consequently, quantitative treatment limits, including inpatient days, and non-quantitative limitations, including utilization management for inpatient psychiatric services, should mirror those in general medical admissions.⁵ However, the ways to reduce length of stay and decrease costs in inpatient psychiatry remain preliminary. Based on this data and the lack of readily modifiable factors associated with longer length of stays, providers have little ability to facilitate quicker discharges on a systematic basis but pragmatic opportunities remain. For example, our findings that having an established outpatient provider on admission is correlated with a shorter LOS leads us to suspect that reinforcing or initiating robust outpatient wrap-around services from the moment of admission will facilitate quicker discharges. Our study did not measure access to different levels of outpatient care, such as high intensity or assertive community treatment teams, which may be associated with different length of stay. Further, while all patients on this unit are routinely established with an outpatient practitioner

on discharge, this study did not assess the care transition between inpatient and outpatient practitioners as modifiable risk factor for length of stay.

Finally, when examining length of stay in the linear regression model we found significant variance that our model could not predict. This finding suggests reasons for increased length of stay that we were unable to measure, including legal processes regarding court-ordered medications or challenges in finding permanent placement for homeless patients unable to care for themselves.

Limitations

Limitations of this study include its restriction to a single site, inability to generalize to non-safety net hospitals with different patient populations and payer sources, and the limitations of its quality improvement and retrospective design. Only documented data could be extracted; the capture of important events such as adverse drug events, presence of family meetings, participation in groups, insomnia, and homicidal and suicidal ideations were subject to provider documentation and not verifiable through any other data source. There are no published data against which to compare our novel findings on the association between medication administration and LOS.

Conclusion

Length of stay in inpatient psychiatric facilities is a complex measure with multiple determinants. It appears that several, as of yet unmeasured elements play a large role for patients who remain hospitalized for prolonged periods. We found no systematic opportunities for targeted interventions on the inpatient unit, raising speculation that effort would be better spent trying to prevent admissions in patients at high risk for prolonged hospitalization, implement crisis interventions earlier in the course of clinical deterioration, and continue searching for the modifiable factors. Finally, a better understanding of how community factors impact prolonged stays may increase our understanding of how to streamline treatment, properly utilize available resources, and identify needed resources to minimize the length of psychiatric inpatient stays.

Tables

Table 1. Sample demographics, clinical characteristics, and length of stay (N=693)

| | Sample Description N (%) | Length of StayMedian (IQR) | P value |
|--|--------------------------|----------------------------|---------|
| Age, years (mean±SD) | 38±13 | | 0.0002 |
| Gender | | | 0.3129 |
| Female | 289 (42) | 5 (3, 9) | |
| Male | 404 (58) | 5 (3, 9) | |
| Self-reported Ethnicity | | | 0.3024 |
| Hispanic/Latino/Spanish | 153 (22) | 4 (3, 8) | |
| Self-reported Race | | | |
| African-American | 105 (15) | 6 (3, 10) | 0.0402 |
| White | 422 (61) | 5 (3, 9) | 0.3862 |
| Primary Payer | | | <.0001 |
| Medicare | 165 (24) | 7 (4, 12) | |
| Medicaid | 185 (27) | 5 (3, 11) | |
| Commercial | 97 (14) | 4 (3, 7) | |
| Self-Pay | 60 (9) | 3 (2, 7.5) | |
| Medically Indigent | 183 (26) | 4 (3, 8) | |
| Homelessness | 127 (18) | 7 (3, 13) | 0.0033 |
| Number of prior psychiatric admissions | | | <.0001 |
| Number of prior medical admissions | | | 0.5137 |
| Admission Diagnosis | | | <.0001 |
| Depressive disorder | 261 (38) | 4 (3, 7) | |
| Unspecified psychosis | 127 (18) | 7 (3, 13) | |
| Schizophrenic disorders | 97 (14) | 9 (4, 18) | |
| Bipolar disorder | 73 (11) | 7 (3, 12) | |
| Episodic mood disorder | 58 (8) | 3 (2, 5) | |
| Suicidal ideation | 38 (5) | 4 (2, 7) | |
| Other | 39 (6) | 5 (3, 9) | |
| Primary Discharge Diagnosis | | | <.0001 |
| Depressive disorder | 197 (28) | 4 (2, 6) | |
| Schizophrenic disorders | 179 (26) | 8 (4, 17) | |
| Bipolar disorder | 137 (20) | 6 (3, 12) | |
| Episodic mood disorder | 72 (10) | 3.5 (2, 5) | |
| Unspecified psychosis | 48 (7) | 5 (3, 10.5) | |
| Adjustment disorder | 17 (2) | 2 (1, 3) | |
| Other | 43 (6) | 4 (2, 8) | |
| Comorbid personality disorder | 180 (26) | 5 (3, 9) | 0.5825 |
| Comorbid substance use disorder | 471 (68) | 5 (3, 9) | 0.1698 |
| Presence of suicidal ideations on admission | 411 (60) | 4 (3, 7) | <.0001 |
| Presence of homicidal ideations on admission | 61 (9) | 4 (3, 10) | 0.6275 |

| | Sample Description N (%) | Length of StayMedian (IQR) | P value |
|---|--------------------------|----------------------------|---------|
| Legal status on admission | | | <.0001 |
| Voluntary | 300 (44) | 4 (3, 7) | |
| Involuntary | 386 (56) | 6 (3, 13) | |
| Established outpatient provider on admission | 353 (52) | 5 (3, 10) | 0.0726 |
| Involvement of residents in their care* | 473 (70) | 5 (3, 10) | 0.2203 |
| Family meeting during hospitalization* | 84 (12) | 4 (3, 8) | 0.6338 |
| Participation in groups during hospitalization* | 579 (85) | 5 (3, 10) | <.0001 |
| Number of medications dispensed during inpatient hospitalization, median (IQR)* | 10 (6, 14) | | <.0001 |
| Medication refusal during hospitalization | 117 (18) | 7 (4, 18) | <.0001 |
| Number of medication changes during hospitalization at discharge, median (IQR)* | 2 (1, 3) | | <.0001 |
| Use of emergency medications during hospitalization* | 50 (7) | 11 (5, 17) | <.0001 |
| Initiation of long-acting injectable antipsychotic during hospitalization | 39 (6) | 12 (7, 21) | <.0001 |
| Medication changes within 48 hours of discharge* | 292 (43) | 4 (2, 7.5) | <.0001 |
| Number of prescriptions at discharge, median (IQR)* | 3 (2, 6) | | <.0001 |
| Use of PRN psychiatric meds within 48 hours of discharge* | 411 (60) | 5 (3, 9) | 0.8789 |
| Documented adverse drug effects during admission* | 50 (7) | 7 (4, 26) | 0.0003 |
| Use of restraints during hospitalization* | 41 (6) | 10 (6, 22) | <.0001 |
| Documented insomnia* | 373 (55) | 6 (3, 10) | <.0001 |

* Variables considered modifiable are starred. All other variables were considered non-modifiable.

Table 2. Multivariable linear regression model for length of stay in days, N=617

| Variable | DF | Parameter Estimate | Standard Error | t Value | Pr> t | Variance Inflation |
|--|----|--------------------|----------------|---------|--------|--------------------|
| Intercept | 1 | 0.83928 | 0.12482 | 6.72 | <.0001 | 0.0 |
| Initiation of long-acting injectable antipsychotic during hospitalization | 1 | 0.45918 | 0.12209 | 3.76 | 0.0002 | 1.1 |
| Participation in groups during hospitalization | 1 | 0.52307 | 0.07570 | 6.91 | <.0001 | 1.1 |
| Use of emergency medications during hospitalization | 1 | 0.35531 | 0.10755 | 3.30 | 0.001 | 1.2 |
| Documented adverse drug effects during admission | 1 | 0.29235 | 0.10344 | 2.83 | 0.0049 | 1.0 |
| Admitting diagnosis—schizophrenic disorders | 1 | 0.28182 | 0.08308 | 3.39 | 0.0007 | 1.2 |
| Presence of suicidal ideations on admission | 1 | -0.29727 | 0.06138 | -4.84 | <.0001 | 1.3 |
| Medication refusal during hospitalization | 1 | 0.11605 | 0.07610 | 1.52 | 0.1278 | 1.2 |
| Medication changes within 48 hours of discharge | 1 | -0.30493 | 0.05375 | -5.67 | <.0001 | 1.0 |
| Documented insomnia | 1 | 0.13717 | 0.05746 | 2.39 | 0.0173 | 1.2 |
| Homelessness | 1 | 0.08000 | 0.07045 | 1.14 | 0.2566 | 1.1 |
| Comorbid substance use disorder | 1 | -0.12432 | 0.05792 | -2.15 | 0.0322 | 1.1 |
| Established outpatient provider on admission | 1 | -0.16887 | 0.05625 | -3.00 | 0.0028 | 1.2 |
| Number of medications dispensed during inpatient hospitalization (unit—1 medication) | 1 | 0.07100 | 0.00496 | 14.31 | <.0001 | 1.4 |
| Age, years (unit—1 year of age) | 1 | -0.00412 | 0.00221 | -1.87 | 0.0622 | 1.2 |
| F-test | | | | 44.02 | <.0001 | |
| R ² | | | | 0.5059 | | |
| Adjusted R ² | | | | 0.4944 | | |

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Evaluation of a Telephonic Counseling Program in a Safety Net Hospital

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Abstract

Introduction: We present the development, structure, and outcomes of the Telephonic Counseling for Depression and Anxiety (TCDA) program and describe how it increases access to quality care within a safety net hospital. TCDA was developed to help primary care providers improve the management of depression and comorbid anxiety among their patients who may otherwise be unable to access traditional psychotherapy.

Methods: We created a manualized treatment guide of telephonic counseling for depression and comorbid anxiety using a cognitive behavioral framework. The total duration of treatment was approximately 3 months. We conducted t-tests to examine pre/post differences in depression and anxiety symptomology at 6, 12, and 24 weeks.

Results: Among 398 enrolling participants, there were high rates of dropout overall: 43.7% (n=174) completed the 6-week assessment call, 30.9% (n=123) completed the 12-week assessment call, and 16.6% (n=66) completed the final 24-week assessment call. At 6 weeks 48.8% of participants with follow-up scores experienced statistically and clinically significant improvements in depression symptoms. This rate increased to 70.1% at 12-weeks, but dipped to 60.9% of active participants at 24 weeks.

Discussion: Results indicate participants experienced a significant improvement in symptoms of both depression and anxiety, peaking at the conclusion of active participation in the telephonic counseling program. Further efforts are needed to support participant retention and wide-reaching implementation of telephonic counseling.

Introduction

An estimated 6.7% of US adults (15.7 million individuals) experienced a major depressive episode in the past year.¹ Furthermore, estimates have shown that over half of individuals with depression also have a comorbid anxiety disorder.² Despite the high prevalence of depression and comorbid anxiety, which are readily treatable with psychotherapy, many individuals lack access or experience other barriers to receiving needed care.³ For example, previous studies show only 20% of patients with depression and 33% of patients with anxiety disorder follow up on referrals for psychotherapy.³⁻⁴ Lack of adequate treatment of behavioral health problems contributes to worse overall health and increases use of costly health care services.⁵ Barriers to treatment especially among

diverse, low-income populations include high rates of un- and under-insurance, lack of transportation and childcare, and stigma against seeking mental health resources.⁶

A rising number of patients are being treated for depression by a primary care provider (PCP) rather than by a mental health professional.⁷ While it is encouraging that PCPs are increasingly asking about depression among their patients,⁸ their assessment of history and symptoms is suboptimal.⁸⁻⁹ Treatment by PCPs consists almost exclusively of the prescription of medications such as antidepressants.^{8,10} However, medication adherence rates are low and dosages are infrequently adjusted for non-responding patients.¹¹ Moreover, a randomized controlled trial found that although many patients prefer psychotherapy for use in

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combination with or as an alternative to medication, only 10% of primary care patients being treated for depression receive adequate counseling.¹² This may be attributed to limited counseling resources, which is especially pronounced in primary care clinics serving ethnically-diverse and low-income communities.¹³ It appears that optimal treatment for depression and comorbid anxiety would include a team approach between a PCP who can identify needs and initiate early treatment and a mental health professional who can provide more intensive care for patients as needed.¹⁴

Telephonic interventions may offer a much-needed resource to increase access to effective depression and anxiety treatment for primary care patients, including among underserved populations and others with barriers to receiving traditional care. A meta-analysis of 10 studies demonstrated that telephonic counseling for depression significantly reduced symptoms compared to treatment as usual (regular contact with a medical provider).¹⁵ However, more research is needed to determine the effectiveness of telephonic interventions beyond controlled research settings,¹⁶ and for underserved patient populations experiencing depression with or without comorbid anxiety.

We first developed a brief telephonic counseling program for depression in 2007 as a cost-effective strategy to increase treatment access in a health care system serving a diverse and predominately low-income population.¹⁷ In a randomized controlled trial, we provided a brief mental health assessment followed by 5 weekly therapy calls focused on behavioral activation. While we demonstrated a high level of patient satisfaction, we found only modest improvements in depression symptoms compared to usual care. We therefore further enhanced this treatment using a patient-centered approach in which we created a variety of additional therapy modules that participants choose among to address specific themes related to their depression, such as managing stress, coping with grief and loss, and dealing with chronic illness. We included an emphasis on treating anxiety given high rates of comorbidity with depression.¹⁸ We also increased the total number and duration of therapy sessions. This article presents our novel, revised treatment approach for telephonic counseling (Telephonic Counseling for Depression and Anxiety; TCDA) and related outcomes.

Methods

Setting

We implemented TCDA in an integrated health care system (Denver Health and Hospital Authority) that serves as the primary safety net for the region and provides medical care for one quarter of Denver residents regardless of ability to pay.

Recruitment

We recruited patients primarily through referrals from PCPs and other health care providers. Counselors contacted referred patients by phone, provided program information, and screened for eligibility criteria. Participants were not offered additional incentives beyond receiving the program at no cost. The program was fully supported by grant and institutional funding. All eligible, consenting participants received treatment.

Sample

Participants included adult patients who were referred for telephonic counseling by providers in 8 primary care clinics. We excluded patients with active psychosis or substance use that would impair their ability to actively engage in telephonic counseling. Substance abuse severity was determined using clinical judgment based on history and presentation during the initial phone call (eg, apparent intoxication). All patients presenting with concerns for active substance use disorders were referred to substance abuse treatment. The present analysis includes 398 eligible patients who consented to participate between January 2013 to June 2015 and endorsed a minimum of mild depressive (PHQ-9 score of 5 or greater) symptoms based on a standardized questionnaire. We included participants with any level of anxiety based on a standardized questionnaire, although nearly all participants reported symptoms indicated at least mild anxiety (88.9%; n=354). We received institutional review board approval as a program evaluation initiative.

Staffing

A team of masters-level counselors, including bilingual, Spanish-speaking therapists, served as telephonic clinicians for the program. We used telephone interpreters as needed for other languages. A research

assistant conducted assessment calls. Unlicensed clinicians (eg, doctoral students) were closely supervised by licensed psychologists. All counselors and the research assistant also participated in a monthly case review. Additional supervision was available from consulting physicians and psychiatrists.

Assessment

Participants completed an initial telephonic assessment of depression and anxiety symptoms and severity with Patient Health Questionnaire (PHQ-9¹⁸) and Generalized Anxiety Disorder questionnaire (GAD-7¹⁹). Both the PHQ-9 and GAD-7 are concise, valid, and reliable tools for assessing symptomology over the previous 2 weeks, and are commonly used in primary care. Mild, moderate, moderately severe, and severe depression are indicated by PHQ-9 scores of 5, 10, 15, and 20, respectively. Five, 10, and 15 are criteria used to assess for mild, moderate, and severe anxiety with the GAD-7. Clinicians also conducted a detailed chart review of available medical record information to assess pertinent information, such as sociodemographic considerations, past and current health status, previous treatment received, and medication history. The research assistant re-administered PHQ-9 and GAD-7 scores by telephone at 6, 12, and 24 weeks to determine treatment outcomes at the mid-point of treatment, at the conclusion of treatment, and approximately 3 months after treatment ended.

Intervention

We created a manualized treatment guide of telephonic counseling for depression and anxiety using a cognitive behavioral framework (available from the authors upon request). Our treatment manual was designed to be replicable, yet also interactive and patient-centered. The guide consisted of 11 therapy modules that participants selected among to best address their unique presenting concerns. Available modules were: (1) Getting Going (ie, behavioral activation), (2) Positive Thinking (ie, cognitive restructuring), (3) Worry Less, (4) Manage Stress Better, (5) Healthy Relationships, (6) Life Changes (ie, coping with loss), (7) Sleep Better, (8) Overcoming Illness, (9) Mind Tricks for Pain, (10) Healthy Eating, and (11) Physical Activity. Participants were encouraged to choose 3 modules, each consisting of 3 sequenced counseling calls. Modules included a scripted outline

for psychoeducation, intervention techniques, and goal-setting. Subsequent calls emphasized feedback, reinforcing gains, and reviewing educational content as needed. Personalized handouts were mailed in between calls to support self-management goals. All content was translated to Spanish. The total duration of active treatment was approximately 3 months of weekly calls.

Risk Protocol

We developed a risk protocol to address the unique needs of a telephonic counseling program. We completed an initial risk assessment by telephone to determine the presence of suicidal or homicidal ideation, intent, and plan, as based on the Suicide Assessment Five-step Evaluation and Triage (SAFE-T) protocol.²⁰ We only provided care for patients who had recently been seen by a PCP and with whom they had ongoing access to in-person care. We further screened patients for suicidal and homicidal risks at each subsequent call. We engaged participants in safety planning and triaged at-risk patients. This included contacting crisis and protective services for welfare checks for imminent safety concerns. Our informed consent process followed regulatory guidelines and notified patients of this protocol. Given the potential challenge of reaching at-risk participants by phone for follow-up, we verified emergency contact information and documented consent to outreach to emergency contacts as needed to confirm well-being.

Provider Feedback

We maintained an integrated care approach by giving PCPs regular feedback on patient outcomes, treatment adherence, barriers to medication adherence, and considerations for adjusting psychotropic medications (ie, antidepressants, anti-anxiety, mood stabilizers), based on algorithms created by a program psychiatrist (see Table 1). Providers were encouraged to reinforce progress and self-management goals. In turn, we requested feedback from PCPs to best inform ongoing treatment.

Analysis

To evaluate clinical change for patients who received TCDA, we conducted t-tests to examine pre-post differences in PHQ-9 and GAD-7 scores at 6, 12, and 24 weeks. We examined the frequency of participants

achieving at least a 5-point reduction in PHQ9 and GAD-7 scores at 6, 12, and 24 weeks, which is a standard marker of clinically significant improvement.¹⁸ Using an intent-to-treat approach, we assessed the rate of remission among all participants, including those who were lost to follow-up. We also compared outcomes among only participants who completed follow-up, given the inability to determine whether patients whose data was missing at follow-up remained symptomatic or dropped out due to experiencing symptom relief. We used IBM SPSS Statistics for Windows, Version 21.0 (Statistical Package for the Social Sciences, Armonk, NY: IBM Corp.) for all analyses.

Results

The mean age of enrolling patients was 51.0 (SD=13.2). Participants tended to be female (77.6%) and low-income (66.6%). Over two-thirds of participants were of racial/ethnic minority status. For example, 43.2% of participants were Latino and 21.4% noted they were African American. Fourteen percent of participants were Spanish-speaking.

Participants had a mean baseline PHQ-9 score of 15.4 (SD=5.1), indicating moderately severe depression on average. GAD-7 scores indicated moderate anxiety on average at enrollment (M=11.9; SD=5.5). Among all 398 participants who began the telephonic counseling program, 43.7% (n=174) completed the 6-week evaluation, 30.9% (n=123) completed the 12-week evaluation, and 16.8% (n=67) completed the 24-week evaluation.

Mean PHQ-9 and GAD-7 scores over the course of treatment are presented in Table 2. All t-test comparisons between baseline PHQ-9 and GAD-7 scores at 6, 12, and 24 weeks were significant to the $p < .001$ level. At 6 weeks 48.8% (n=85 of 174) of participants with follow-up scores experienced improved depression based on a decrease of 5 points or greater on the PHQ-9. This increased to 70.1% (n=86 of 123) at 12 weeks, but dipped to 60.9% (n=39 of 66) at 24 weeks. We saw a similar pattern of depression improvement using a more conservative, intent-to-treat approach comparing remission rates among all 398 participants, albeit with much lower rates of remission overall: 21.9% at 6 weeks, 22.1% at 12 weeks, and 9.8% at 24 weeks. At 6 weeks 41.7% (n=72) of participants with follow-up scores experienced improved anxiety based

on a decrease of 5 points or greater on the GAD-7. This increased to 53.7% (n=66) at 12 weeks, and then decreased slightly to 51.6% (n=33) at 24 weeks. Anxiety remission rates using an intent to treat approach were as follows: 18.5% at 6 weeks, 16.6% at 12 weeks, and 8.3% at 24 weeks.

Discussion

To our knowledge, this is the first evaluation of a telephonic counseling program for a predominately underserved patient population in a real-world setting. We reached a diverse and predominately low-income population who may otherwise have inadequate access to mental health resources.

The program resulted in significant improvement in depression symptoms, peaking at the conclusion of active participation in the telephonic counseling program (12 weeks). Although depression symptoms increased somewhat after treatment ended, symptoms remained improved compared to initial levels. In regards to symptoms of anxiety, results indicate participants also experienced a significant improvement, peaking at the conclusion of active participation in the telephonic counseling program. Though symptoms of anxiety slightly increased between 12 weeks and 24 weeks, symptoms remained improved compared to levels at initial enrollment.

There were high levels of dropout, with approximately one-third of participants completing the duration of active telephonic counseling. Dropout rates in TCDA were higher than the 26.2% dropout rate reported in a meta-analysis of 115 therapy studies.²¹ Although reasons for dropout were unknown, it is expected that some patients may decline to follow up if they feel better. Previous research suggests that a top predictor of engaging in therapy is misery, and feelings of improvement lead to dropping out of therapy.²²

Overall, our telephonic counseling program may be effective for a broader population of individuals experiencing depression with or without comorbid anxiety who have inadequate access to mental health resources or other barriers to receiving specialty care. Modifications since the first iteration included: (1) a variety of available treatment topics for depression and anxiety, (2) a patient-centered approach, and (3) increased intervention duration resulting in better outcomes than an earlier iteration of the program

that offered only brief counseling focused on behavioral activation.¹⁷

Limitations

There are several limitations to consider for this study and for future research. We did not have a randomized control group with which to compare outcomes, so we are unable to examine whether these changes in symptoms are definitively related to this intervention. Additionally, we were unable to conservatively test all outcomes using an intent-to-treat approach, which may be especially limiting given high rates of dropout and inability to impute missing data. Also, generalization to other settings may be limited to health care settings where participants have access to a PCP or other prescribing provider who can address needs for medication follow-up. As mentioned above, individuals who do not have a PCP at Denver Health were excluded from the TCDA program. This is partly due to the difficulty of addressing safety concerns without a PCP. Therefore, the sample represents the sub-segment of our patient population without acute safety concerns, making it difficult to generalize to the greater population. It is important to note that the completion of follow-up assessment calls by a greater number of participants would help to determine true effectiveness of the program. Lastly, we did not have the ability to determine formal psychiatric diagnoses of participants.

Future Directions

For future research, we will continue pursuing technology-driven enhancements that further increase the reach, retention, and effectiveness of telephonic counseling. We have begun partnering with new technology companies to implement automated communications such as appointment reminders and supportive messages between each counseling call and after program completion as needed. For example, myStrength, Inc, offers psychoeducation and self-monitoring resources through a mobile application and website portal, with content that can be tailored to complement our program. To ensure symptom remission is maintained after treatment, we are also seeking to implement brief automated assessments every 2 months, with outcomes monitored by a program clinician. Participants who show evidence of possible relapse will be offered 2 to 3 “booster” calls.

To better address larger gaps in specialty behavioral health treatment across the state, we are seeking to offer our program to all Coloradans with depression with or without comorbid anxiety who are being treated in primary care and for whom telephonic counseling would be appropriate. Only crisis lines exist on such a wide scale currently, which are important but do not address ongoing behavioral health needs for the broader population. As a statewide resource, the TCDA program would be conceptually similar to Colorado’s smoking cessation Quitline. These are effective programs that deliver evidence-based interventions via telephone counseling to achieve optimal outcomes, and likely at a lower cost than traditional in-person care.²³ Future directions also include expanding the program to serve other medical specialties in which depression and anxiety disorders are frequently seen and can worsen overall health outcomes, such as obstetrics/gynecology, cardiology, rehabilitation, etc.

Conclusion

TCDA was developed to increase access to behavioral health care among a predominately underserved patient population. We found that participation in TCDA was associated with reduced symptoms of both depression and anxiety. Although telephonic counseling can increase access to treatment, it remains important to use clinical judgment to determine the best approach for all individuals. For example, it may be especially important to encourage patients with severe depression or other risk factors to seek longer-term, traditional care as able. Future research involving telehealth services may help to solidify its efficacy and strengthen programs.

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Tables

Table 1. Algorithm for recommendations to adjust psychotropic medications

| Response | PHQ-9 or GAD-7 score after 4-6 weeks | Treatment Plan | |
|----------------------|--|---|--|
| | | Depression | Anxiety |
| Remission | Score <5 | No treatment change needed. Follow up again after an additional 4 weeks. | |
| Partially Responsive | Decrease in score but still ≥ 5 | Consider increasing dose and continue to increase until max. Then consider augmenting with another antidepressant (ie, bupropion if currently on an SSRI or possibly mirtazapine if on SNRI). | Consider increasing dose and continue to increase until max. Then consider augmenting with anti-anxiety (ie, buspirone, hydroxyzine, etc). May add anti-anxiety earlier if very symptomatic. |
| Non-responsive | Drop ≤ 1 point or increase in score | Consider starting anti-depressant or anti-anxiety (SSRI or SNRI) if receiving therapy alone or increase dose. Review psychological counseling options and preferences. | |
| | | Consider switching meds (ie, change SSRI to SNRI) or augmenting with another anti-depressant (bupropion if currently on an SSRI or possibly mirtazapine if on SNRI). Consider informal or formal psychiatric consultation (ECT an option for depression in some cases). | Consider switching meds (ie, change SSRI to SNRI) or augmenting with anti-anxiety (ie, buspirone, hydroxyzine, etc.). Consider informal or formal psychiatric consultation. |

Note: Adapted from the HealthTeamWorks²⁴ to assist primary care providers in diagnosis and treatment of depression. It is not intended to replace a clinician's judgment or establish a protocol for all patients.

Table 2. Depression and anxiety scores among telephonic counseling participants over time (N=398)

| | n | Mean | Standard Deviation |
|--------------------|-----|------|--------------------|
| PHQ-9 | | | |
| Initial evaluation | 398 | 15.4 | 5.1 |
| 6-week assessment | 174 | 11.6 | 6.2 |
| 12-week assessment | 123 | 9.6 | 6.2 |
| 24-week assessment | 66 | 10.0 | 6.8 |
| GAD-7 | | | |
| Initial evaluation | 398 | 11.9 | 5.5 |
| 6-week assessment | 173 | 9.4 | 6.0 |
| 12-week assessment | 123 | 7.4 | 5.8 |
| 24-week assessment | 67 | 7.9 | 6.2 |

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Dr Daidone received his bachelor's degree in Molecular and Cellular Biology from the University of Arizona and his medical degree from the Medical College of Wisconsin. He completed his internship and residency at the University of Colorado School of Medicine.

Ivy Donaldson, MS; Author

Ivy Donaldson, MS is a clinician for the Telephonic Counseling for Depression and Anxiety (TCDA) program at Denver Health Medical Center, and is a PhD student in the Counseling Psychology program at the University of Denver. She is also currently working at Community Reach Center in Commerce City, CO as a predoctoral psychology intern. As a clinician for the (TCDA) program, Ms Donaldson is responsible for providing depression and anxiety interventions over the phone to Denver Health patients who are enrolled in the program. She has had in-depth training in applied behavior analysis, motivational interviewing, and CBT. Ms Donaldson has been invited to speak as a guest lecturer at several universities on the topic of applied behavior analysis. She is passionate about health psychology, and has enjoyed working as a health coach as part of an integrated care team at the Healthy Lifestyle Clinic at Denver Health. In her future career, she hopes to continue to use her training and practice in both health psychology and depression and anxiety management in a hospital setting with marginalized populations.

Thom Dunn, PhD; Author, Reviewer

Thom Dunn, PhD is a professor of psychological science at the University of Northern Colorado, where he teaches both undergraduate psychology majors and doctoral students in counseling psychology. Additionally, he is a clinical instructor of psychiatry at the University of Colorado School of Medicine. Dr Dunn's clinical commitment is to the Denver Health Behavioral Health Consult Liaison team as an attending psychologist, where he helps supervise psychiatry residents, predoctoral psychology residents, and is a faculty member in the Psychosomatics Fellowship. Dr Dunn also serves on the hospital's bioethics committee and is a member of the Colorado Psychological Association's ethics committee. Dr Dunn's research activity broadly concerns health psychology, and specifically orthorexia nervosa.

Dr Dunn received his bachelor's degree in Psychology from Allegheny College and his doctoral degree in Clinical Psychology and Clinical Neuropsychology from the University of Cincinnati. He was a psychology resident at the Salt Lake City VA medical center.

Darryl Etter, PsyD; Author

Darryl Etter, PsyD is a clinical health psychologist at the VA Eastern Colorado Health Care System. He practices at the Aurora community-based outpatient clinic with the Primary Care–Mental Health Integration team. Dr Etter specializes in brief cognitive-behavioral interventions for mood and anxiety symptoms involved in medical conditions, including life-threatening conditions, and psychological trauma. He consults with medical providers and patient’s family members to develop their abilities to better care for patients and cope with caregiver stress. Dr Etter also serves as a behavioral health preceptor at the DAWN Clinic, which provides free primary care and other health services to uninsured individuals. He presents to community and professional groups on topics including managing caregiver stress among early childhood education providers and the identification, prevention, and management of delirium. His research focuses on identifying correlates of posttraumatic symptoms in military veterans and patients with chronic medical conditions. Dr Etter received the 2014 Award for Outstanding Dissertation in Trauma Psychology from the American Psychological Association.

Dr Etter received his bachelor’s degree in Psychology from Middlebury College and his doctoral degree in Clinical Psychology from the Pacific Graduate School of Psychology-Stanford Consortium at Palo Alto University. He completed his postdoctoral fellowship in psycho-oncology at the Colorado Blood Cancer Institute at Presbyterian/St Luke’s Medical Center.

Colleen Fischer, PhD; Author, Reviewer

Colleen Fischer, PhD is a child and adolescent psychologist at Denver Health Medical Center and maintains a faculty appointment as an instructor with the University of Colorado School of Medicine. She has worked closely with multidisciplinary teams of medical and mental health providers in the assessment and treatment of high-risk, pediatric populations in outpatient and integrated care settings. Dr Fischer provides didactic instruction and supervision to doctoral psychology interns. Her research and clinical interests include empirically supported treatments for adolescent depression and self harm as well as psychology training.

Dr Fischer received her bachelor’s degree in Psychology from the University of Wisconsin, Madison and her doctoral degree in Psychology from the University of Oregon. She completed postdoctoral training in Psychology at New York Presbyterian Hospital of Columbia and Cornell-Westchester Division.

Jennifer L. Gaudiani, MD, CEDS; Author

Jennifer L. Gaudiani, MD, CEDS was an associate professor of medicine at the University of Colorado School of Medicine and the Medical Director of the ACUTE Center for Eating Disorders at Denver Health until May 2016. She attended clinically on adults admitted to ACUTE for definitive medical stabilization of their eating disorder, ran the service administratively, and contributed to the growth and clinical oversight of ACUTE. Dr Gaudiani has lectured nationally and internationally on the topic of the medical complications of eating disorders and has published extensively in peer-reviewed journals as well as contributed to textbooks about eating disorders. A member of the board of the International Association of Eating Disorder Professionals (IAEDP) as well as the editorial board of the International Journal of Eating Disorders, Dr Gaudiani has won numerous clinical and teaching awards.

Dr Gaudiani completed her bachelor’s degree at Harvard University, medical degree at Boston University, and her internal medicine residency and chief residency at the Yale School of Medicine. She now runs a private practice, the Gaudiani Clinic, serving adults with eating disorders in the outpatient setting.

Jacqueline Grant, LCSW; Author

Jacqueline Grant, LCSW is the lead social worker at the ACUTE Center for Eating Disorders at Denver Health. Ms Grant is responsible for providing clinical support and coordination planning to patients and their families while at ACUTE, and actively works with eating disorder program partners to ensure transition plans that are safe and comprehensive in approach for the patients upon reaching medical stabilization.

Ms Grant received her bachelor’s degree in Psychology from State University of New York at Fredonia and her master’s degree in Social Work at State University New York at Buffalo.

Jennifer Grote, PhD; Author

Jennifer Grote, PhD is the Director of Integrated Behavioral Health for Denver Health Ambulatory Care Services and serves as a behavioral health consultant (BHC) at the Westwood Family Health Center. Dr Grote is responsible for overseeing the Integrated Behavioral Health (IBH) Division and is the direct supervisor for BHCs within Denver Health's Community Health Clinics. Dr Grote is responsible for quality improvement initiatives for IBH including depression screening for perinatal mood and anxiety disorders, transitions of care, identifying and treating high-risk patients in primary care, and improving the referral process to specialty mental health treatment. Her research is focused on leadership styles that promote engagement/reduce burnout, improving evidence-based interventions in primary care, and maternal mental health.

Dr Grote received her bachelor's degree in Psychology from Miami University, her master's degree in Community Counseling from Loyola University Chicago, and her doctoral degree in Counseling Psychology from the University of Denver. She completed a post-doctoral fellowship in behavioral health and wellness at Denver Health through Managed Care.

Gareen Hamalian, MD, MPH; Reviewer

Gareen Hamalian, MD, MPH was an assistant professor of psychiatry at the University of Colorado School of Medicine, faculty in the forensic psychiatry fellowship, and a psychiatrist at Denver Health Medical Center on the adult inpatient unit as well as the Correctional Behavioral Health programs. She recently transitioned to the east coast where she is now a clinical assistant professor in the Department of Psychiatry at New York University School of Medicine and a psychiatrist in the Bellevue Hospital Center Comprehensive Emergency Psychiatry program. In addition to her clinical work between the inpatient unit and correctional/forensic services at Denver Health, she was a faculty liaison for the launch of the medical school's longitudinal integrative curriculum and involved in a collaborative project with the department of obstetrics and gynecology in expanding perinatal integrated care.

Dr Hamalian received her bachelor's degree from Columbia College and her medical and master's degrees

in Public Health from Tufts University School of Medicine. She trained in general psychiatry and forensic psychiatry at New York University/Bellevue Hospital.

Jonathan Hawkins, MA; Author

Jonathan Hawkins, MA is a licensed professional counselor at Denver Health Medical Center and also owns and operates a small private practice in the Denver area. Mr Hawkins provides group and individual therapy to clients who are currently in crisis and primarily specializes in working with individuals who have a trauma history. Mr Hawkins supervises master's-level interns and occasionally lectures for the Graduate School of Professional Psychology at Denver University. He has worked in very diverse fields ranging from community mental health settings to international locations such as India, Kenya, and China. Mr Hawkins' research interests include trauma/trauma-informed care, aggression, and substance abuse.

Mr Hawkins received his bachelor's degree in Psychology from the University of North Florida and his master's degree in Clinical Psychology from the University of Denver.

Jacqueline Hidalgo, PsyD; Author

Jacqueline Hidalgo, PsyD is a psychology fellow for the Colorado Health Foundation. Dr Hidalgo recently started working at 2 primary care practices: Rose Medical Center and Uptown Primary Care-Presbyterian St Luke's Medical Center. While an intern at Denver Health, Dr Hidalgo worked in the integrated primary care clinic, bariatric services, adult outpatient mental health, Health Coaching at Managed Care, and the Telephonic Counseling for Depression and Anxiety program. Her previous teaching experience includes leading an undergraduate health psychology class at Albizu University in Miami, Florida. Dr Hidalgo's research interests include psychological factors in fibromyalgia, access and barriers to mental health care, and culturally-sensitive services in health care.

Dr Hidalgo received her bachelor's degree in psychology from Florida International University and her doctoral degree in clinical psychology from Albizu University. She completed her predoctoral internship at Denver Health Medical Center.

M. Camille Hoffman, MD, MSCS; Author

M. Camille Hoffman, MD, MSCS is an assistant professor of maternal fetal medicine in the University of Colorado School of Medicine departments of Obstetrics & Gynecology and Psychiatry. Dr Hoffman directs a clinical and translational perinatal mental health research program that she established to investigate maternal-child mental and physical health relationships, and to promote maternal-child wellness. She serves as principal investigator or co-investigator on several federal, state, and privately-funded maternal-child mental health research grants. Her research was recently featured in a Rocky Mountain Public Broadcasting System documentary on health disparities in infant mortality entitled Precious Loss.

Dr Hoffman has clinical expertise in the management of high-risk pregnancies, obstetric ultrasound, and perinatal mental health. Dr Hoffman was awarded a Society for Maternal Fetal Medicine (SMFM) Pregnancy Foundation *Garite Mini-Sabbatical* in Perinatal Mental Health in 2015. She heads the SMFM Perinatal Mental Health online provider community forum and is the Social Media Director for the International Marcé society for Perinatal Mental Health.

Dr Hoffman received her medical degree at the Medical University of South Carolina, obstetrics & gynecology residency at University of Miami, and her maternal fetal medicine fellowship at the University of Colorado Anschutz Medical Campus. Dr Hoffman lives in the Rocky Mountain front-range with her husband, 2 preschool-aged children, many bicycles, and a herd of alpacas.

Robert M. House, MD; Author

Robert M. House, MD is a professor of psychiatry at the University of Colorado School of Medicine and Director of Behavioral Health at Denver Health. Dr House oversees Behavioral Health Services at Denver Health, which includes child and adult inpatient services, child and adult outpatient services, substance abuse services, a psychiatric emergency service, and behavioral health services at the Denver city and country jails. Dr House oversees programs in medical student education, psychiatry resident education, fellowship training in child and adolescent psychiatry, addiction psychiatry, forensic psychiatry, and psychosomatic psychiatry. His areas of academic interest are

in the field of psychosomatic medicine, and his areas of health care delivery interest are in children and adolescents, and the correctional care population. He has served as a residency training director, a senior examiner for the American Board of Psychiatry and Neurology, and consultant to NASA for the selection of astronauts and mission specialists.

Dr House received his bachelor's degree from the University of Denver and his doctoral degree from the University of Nebraska. He completed a medicine internship at St Luke's hospital, psychiatry residency, and psychosomatic psychiatry fellowship in Denver.

Madelyne Hull, MPH; Author

Madelyne Hull, MPH is a statistical research specialist at Denver Health and Hospital Authority. Mrs Hull provides support to investigators in the departments of Medicine, Surgery, and Behavioral Health.

Mrs Hull received her bachelor's degree in Political Science from the University of Massachusetts, Amherst and her master's degree in Epidemiology from the University of Colorado, Anschutz Medical Campus.

Jennifer Hyer, MD; Author

Jennifer Hyer, MD is an assistant professor of obstetrics and gynecology at the University of Colorado School of Medicine. Her clinical activities include full scope practice of obstetrics and gynecology at Denver Health Medical Center as an attending physician in the Department of Obstetrics and Gynecology. She is the Obstetrics and Gynecology Clerkship Site Director for junior and senior medical students, and also supervises and teaches residents from the University of Colorado School of Medicine. She currently serves on the Denver Maternal and Infant Mental Health Advisory Board and the Pregnancy Related Depression State Advisory Committee for the State of Colorado. She completed the Maternal Mental Health Professional Certificate Training through Postpartum Support International and 2020 Mom Project.

Dr Hyer received her medical degree at the University of Tennessee Health Sciences Center and completed her obstetrics and gynecology residency at the University of Colorado. She is a fellow of the American College of Obstetrics and Gynecology and a diplomate of the American Board of Obstetrics and Gynecology.

She is a member of the 2017 class of the Association of Professors in Gynecology and Obstetrics (APGO) Academic Scholars and Leaders program.

Andrew Jackenheimer, MD; Author

Andrew Jackenheimer, MD is a fourth-year psychiatry resident at the University of Colorado School of Medicine and serves as the Chief Resident for the inpatient unit at Denver VA Medical Center. Dr Jackenheimer's clinical interests are in emergency and inpatient adult psychiatry, specifically treatment of schizophrenia, bipolar disorder, and other psychotic illnesses.

Dr Jackenheimer received his bachelor's degree in Biology from Huntington University and his medical degree from the Indiana University School of Medicine. He is completing his residency training in psychiatry at the University of Colorado School of Medicine.

Robert Keeley, MD, MSPH; Author

Robert Keeley, MD, MSPH is an associate professor of family medicine at the University of Colorado School of Medicine and serves as a family doctor at Denver Health. Dr Keeley was principal investigator on a grant from Colorado Access that introduced an integrated approach to substance use counseling in primary care. This integrated model has grown across multiple outpatient sites in the Denver Health system and also now includes opioid substitution treatment with suboxone. Dr Keeley's research focuses on improving treatment and outcomes for primary care adults with major depression.

Dr Keeley received his bachelor's degree in Biology and English and his medical degree from Stanford University. He received a master's degree in Public Health from the University of Colorado and was a visiting scholar in psychiatry at Stanford University from 2004-2005.

Jason Keene, MD; Author

Jason Keene, MD is a pulmonary sciences and critical care medicine fellow at the University of Colorado. Dr Keene cares for patients in intensive care units at the University of Colorado hospitals and maintains a general pulmonary clinic at the county hospital. His research focuses on characterizing clinical phenotypes in chronic obstructive pulmonary disease at National Jewish Health.

Dr Keene received his bachelor's degree from Texas A&M University and his medical degree from the University of Texas Southwestern Medical Center at Dallas. He completed a residency in internal medicine at the University of California San Francisco and is now completing his pulmonary sciences and critical care fellowship at the University of Colorado.

Angela Keniston, MSPH; Author

Angela Keniston, MSPH is the Research Projects Manager for the Department of Medicine at Denver Health and Hospital Authority. Her role includes research design, regulatory compliance and human subjects protection, data collection, management and analysis, drafting manuscripts to publish results, and grants management for projects with funding. Ms Keniston is well versed in a wide range of quantitative and qualitative research methods, data analysis techniques, statistics, and statistical software. She has worked as a data analyst or co-investigator on a number of projects exploring the relationships between clinical health, behavioral health, and social determinants of health, including health literacy, economic status, and cultural characteristics. In addition, Ms Keniston supports research exploring health system improvements and innovation in the areas of patient experience, patient flow, transitions of care, and safety and quality.

Ms Keniston received her bachelor's degree in Communication and her master's degree in Public Health from the University of Colorado.

Kristie Ladegard, MD; Author

Kristie Ladegard, MD is an assistant professor of psychiatry at the University of Colorado Department of Psychiatry and serves as a child and adolescent psychiatrist at Denver Health and Hospital Authority. She provides psychiatric services and consultation for local Denver public schools, and treats adolescents who are dually diagnosed with substance use disorders and psychiatric illnesses in Denver Health's school-based clinics. Dr Ladegard supervises child and adolescent psychiatric fellows from the University of Colorado Psychiatry Residency Training program, nurse practitioner students, and medical students rotating through the school clinic rotation. Her research focuses on improving educational outcomes of students by providing comprehensive mental health care directly in the school setting. She received the Deb Carter Distinguished Educator Award in June 2016 for her work in educating child and adolescent psychiatry fellows.

Dr Ladegard received her medical degree from Creighton University School of Medicine. She completed a general psychiatry residency and fellowship in child and adolescent psychiatry at Eastern Carolina University Brody School of Medicine.

Sean R. LeNoue, MD; Author

Sean R. LeNoue, MD is a fellow in addiction psychiatry at the University of Colorado School of Medicine where he is conducting research and clinical training. Dr LeNoue's research and clinical interests include the prevention and treatment of co-occurring substance use and mental health disorders in adolescents and young adults.

Dr LeNoue received his bachelor's degree from Drury University and his medical degree from the University of Tennessee Health Science Center College of Medicine. He completed general and child psychiatry residency training at the University of Colorado School of Medicine. He recently received the University of Colorado School of Medicine, Department of Psychiatry's Laughlin Family Foundation Award & Scholarship for Outstanding Psychiatric Resident.

Alison Lieberman, PsyD; Author

Alison Lieberman, PsyD is a clinical psychologist in the Integrated Behavioral Health Department at Denver Health Medical Center and an instructor at the University of Colorado Department of Psychiatry. She provides evaluation and clinical services to patients and families in the Geriatric Primary Care Clinic, Hematology and Oncology Clinic, Bariatric Clinic, and Women's Care Clinic. She is involved in teaching and supervision of psychology residents in integrated care.

Dr Lieberman received her bachelor's degree from the University of Vermont and her master's and doctoral degrees from the University of Denver Graduate School of Professional Psychology. She completed her internship specializing in health psychology at the Miami Veterans Administration Medical Center.

KC Lomonaco, PsyD; Author

KC Lomonaco, PsyD is a licensed clinical psychologist who works in integrated behavioral health care at Denver Health. She specializes in issues of social justice and diversity in health care, integrated primary care, and women's health issues including chronic disease management, adjustment to chronic disease, perinatal and postpartum mood disorders, trauma, and health behavior change. Dr Lomonaco is certified to treat perinatal and postpartum mood disorders. She is a clinical professor in both the Psychiatry and General Internal Medicine (GIM) departments at the University of Colorado School of Medicine (CU-SOM). Dr Lomonaco has taught the CU-SOM Foundations of Doctoring course and has also provided support and mentoring for GIM and OB/Gyn residents. She is a supervisor to students, residents, and fellows in clinical psychology at Denver Health's robust Integrated Care program. Dr Lomonaco is currently involved in research related to perinatal and postpartum mood disorders and the effects of "screen-to-treat" programs in integrated behavioral health. She has presented at numerous psychology and cross-specialty conferences on women's health and integrated care, diversity and social justice in integrated care, and perinatal and postpartum mood disorders.

Dr Lomonaco received her doctoral degree from the University of Denver Graduate School of Professional Psychology in 2008 and has practiced in multiple FQHC clinics as an integrated primary care psychologist. She joined the faculty of Denver Health in 2011.

Elizabeth Lowdermilk, MD; Author

Elizabeth Lowdermilk, MD is an assistant professor at the University of Colorado School of Medicine and serves as the Outpatient Medical Director for the Department of Psychiatry at the Denver Health Medical Center. Clinically, Dr Lowdermilk is the Lead Psychiatrist for the Integrated Behavioral Health program, providing direct and indirect consultation in 4 primary care clinics, and coordinating the psychiatry services for the program. Dr Lowdermilk teaches rotating psychiatry, internal medicine, and family medicine residents and medical students. She lectures locally (state conferences, grand rounds, resident lectures) on basic psychiatric diagnosis and treatment to internal medicine, family medicine, and pediatric practitioners, and nationally on the practice of integrated care at Denver Health Medical Center.

Dr Lowdermilk received her bachelor's degree in Psychology from Pennsylvania State University, her master's degree in Counseling Psychology from the University of Colorado, Denver and her medical degree from the University of Colorado School of Medicine. She completed a residency in adult psychiatry at the University of Colorado.

Lisa McGloin, MD; Author

Lisa McGloin, MD is a psychiatrist at Denver Health Medical Center and an instructor at the University of Colorado School of Medicine. Dr McGloin provides outpatient consultation/integrated care services to the Women's Care Clinic at Denver Health, as well as general adult outpatient services to the Level One Physicians Clinic at Denver Health. She is involved in teaching and supervising residents, fellows, and medical students who rotate through these clinics and who have a special interest in women's mental health.

Dr McGloin received her bachelor's degree in Molecular Biology from Princeton University and her medical degree from the Keck School of Medicine at the University of Southern California. She completed her psychiatry residency at the University of Colorado.

Haley Medlin, PsyD; Author, Reviewer

Haley Medlin, PsyD is a licensed clinical psychologist on the Adult Inpatient Psychiatry Unit at Denver Health Medical Center and adjunct faculty in the University of Colorado School of Medicine Department of Psychiatry. Dr Medlin is responsible for providing clinical services, such as assessment and individual and group psychotherapy, to inpatients in this acute psychiatric setting. Additionally, Dr Medlin is involved with program development/quality improvement, consultation with the interdisciplinary team, and supervision and teaching activities. She is involved in supervising and teaching doctoral psychology interns and externs and regularly teaches seminars on clinical and applied topics such as Acceptance and Commitment Therapy and Cognitive Behavioral Therapy for psychosis, behavioral therapies to address chronically-assaultive or self-harming behaviors, and Trauma-Informed Care.

Dr Medlin received her bachelor's degree in Psychology from the University of Georgia and her doctoral degree in Clinical Psychology from the University of Indianapolis School of Psychological Sciences.

**Philip S. Mehler, MD, FACP, FAED, CEDS;
Author**

Philip S. Mehler, MD, FACP, FAED, CEDS is the Glassman Professor of Medicine at the University of Colorado School of Medicine. Dr Mehler is the founder and Executive Medical Director of the ACUTE Medical Center at Denver Health, a one-of-a-kind unit in the United States, which provides medical stabilization to those most severely ill from anorexia and bulimia. Dr Mehler recently retired from Denver Health after a 30-year career, during which time he held positions as its Chief of Internal Medicine, Chief Medical Officer (CMO), and ultimately its Medical Director at the time of his retirement. However, Dr Mehler remains actively involved with ACUTE. He has been a long-time leader in the medical care of patients with severe anorexia nervosa and bulimia for more than 3 decades.

In 2012, Dr Mehler was awarded the Academy of Eating Disorders highest award for a physician, and also achieved Fellow status within the Academy. In addition, he has been listed in *Best Doctors in America*, for the past 19 years, and by 5280 Magazine as a top internist in Denver on many occasions. Dr Mehler has written a number of textbooks on the medical complications of anorexia, with his next book to be published by John Hopkins University Press later this year. He has also authored 400 scientific publications and lectured extensively across the United States and internationally. Currently, he is the Chief Medical Officer of the Eating Recovery Center.

Rachael Meir, PsyD; Author

Rachael Meir, PsyD is a senior clinical instructor at the University of Colorado School of Medicine and serves as the Clinical Director of the Behavioral Health and Wellness Services department for Denver Health Medical Plan. She is responsible for the development, implementation, and evaluation of new and existing chronic care and disease management programs, mental health and behavioral health programs, and also general health and wellness promotion programs. In addition to a broad background and education in clinical psychology, Dr Meir has specific training and expertise in health behavior change counseling. As a member of the Motivational Interviewing Network of Trainers (MINT), she is highly qualified to provide expert consultation and regularly conducts trainings

for health care providers to improve their behavior change counseling strategies using Motivational Interviewing.

Dr Meir received her bachelor's degree in Psychology from the University of Colorado, Boulder and her doctoral degree in Clinical Psychology from the PGSP-Stanford PsyD Consortium.

**Chelsie Monroe, MSN, APRN, PMHNP-BC;
Author**

Chelsie Monroe, MSN, APRN, PMHNP-BC is an adjunct faculty at the University of Colorado College of Nursing and serves as the Nurse Manager of the Psychiatric Emergency Services unit at Denver Health Hospital. She acts as a psychiatric nurse practitioner outside of her role as a Nurse Manager. Ms Monroe also regularly teaches undergraduate mental health nursing at the University of Colorado College of Nursing and the University of Phoenix.

Ms Monroe received her bachelor's and master's degrees in Nursing at the University of Colorado College of Nursing.

Laura Monthathong, FNP; Author

Laura Monthathong, FNP is a nurse practitioner in Denver Health's Community Health Services department, working in the primary care setting with children from birth through age 18. She is certified as an asthma educator and also works in the Pulmonary Specialty Clinic at Denver Health. She serves as a preceptor for nurse practitioner students from various universities.

Ms Monthathong received her bachelor's degree in the Science of Nursing at Colorado University School of Nursing in Denver, Colorado. She received her master's degree in the Science of Nursing from Regis University in Denver, Colorado. She is certified as a family nurse practitioner.

Kimberly Nordstrom, MD, JD; Author, Reviewer

Kimberly Nordstrom, MD, JD is the Division Director for the Colorado Mental Health Institutes and Medical Director of the Office of Behavioral Health for the State of Colorado. She works clinically in emergency psychiatry at Denver Health Medical Center where she had been the Medical Director of Psychiatric Emergency Services and Telepsychiatry. She is an associate professor with the University of Colorado, Department of Psychiatry. She has written several articles and book chapters on evaluation and treatment of behavioral emergencies, and participated in the formation of guidelines regarding the triage and medical evaluation of agitation as part of “Project BETA” with the American Association for Emergency Psychiatry (AAEP). She is the Immediate Past President of AAEP and a Distinguished Fellow of the American Psychiatric Association (APA).

Dr Nordstrom received her medical and legal degrees at Southern Illinois University, School of Medicine and School of Law, respectively. She trained in psychiatry at the University of Colorado School of Medicine and has since worked clinically in the fields of general adult, emergency, and forensic psychiatry.

Douglas K. Novins, MD; Editor-in-Chief, Reviewer

Douglas K. Novins, MD is the Cannon Y. & Lydia Harvey Chair in Child and Adolescent Psychiatry, and Chair of the Department of Psychiatry & Behavioral Sciences at Children’s Hospital Colorado. He is also professor of psychiatry and community & behavioral health at the University of Colorado Anschutz Medical Campus. Dr Novins serves as the leader of child and adolescent behavioral health at Children’s Hospital Colorado and the University of Colorado Anschutz Medical Campus, leading the ongoing development of a diverse set of clinical, training, and research programs with over 60 faculty and 275 staff. Dr Novins’ expertise is in the areas of adolescent substance-related problems and traumatic experiences, particularly among American Indian and Alaska Native youth. He is also Deputy Editor of the *Journal of the American Academy of Child & Adolescent Psychiatry (JAACAP)*, the highest ranked publication in child and adolescent psychiatry and developmental psychology.

He was recently selected to be the 7th Editor-in-Chief of JAACAP with the first issue of his term scheduled to be published in January, 2018.

Dr Novins received his bachelor’s degree in History and Premedical Studies from Columbia College and his medical degree from Columbia University’s College of Physicians and Surgeons. He trained in general psychiatry at New York University/Bellevue Hospital and in child and adolescent psychiatry at the University of Colorado. The National Institute of Mental Health supported Dr Novins’ research training at the University of Colorado through a postdoctoral research fellowship in developmental psychobiology and a career development award in mental health services research.

Abraham M. Nussbaum, MD, MTS; Editor, Author

Abraham M. Nussbaum, MD, MTS is an associate professor of psychiatry at the University of Colorado School of Medicine, and serves as Chief Education Officer for Denver Health. Dr Nussbaum supervises and provides strategic vision for the more than 2,000 learners in 40 health professions who annually rotate at Denver Health. As a clinician, Dr Nussbaum sees patients and supervises trainees in the adult inpatient psychiatric units. In addition to his clinical teaching, he teaches the psychiatric interview to psychiatry residents, and serves as the Associate Director of Medical Student Education. His teaching efforts were the foundation for his clinical textbooks, *The Pocket Guide to the DSM-5 Diagnostic Exam*, *the DSM-5 Pocket Guide for Child and Adolescent and Mental Health*, and the forthcoming *DSM-5 Pocket Guide for Elder Mental Health*. His research interests include the care of persons with schizophrenia, medical education, and the history of psychiatry. With the support of a grant from the University of Chicago’s Program on Medicine and Religion, he recently published a memoir, *The Finest Traditions of My Calling: One Physician’s Search for the Renewal of Medicine*.

Dr Nussbaum received his bachelor’s degree in Religion and English literature from Swarthmore College, his medical degree from the University of North Carolina, and his master’s degree in Theology and Medicine from Duke Divinity School. He completed his psychiatry residency at the University of North Carolina.

Marla Pidgeon, BSN, PMHRN-BC; Author

Marla Pidgeon, BSN, PMHRN-BC is a registered nurse at Denver Health Medical Center and a charge nurse in the Psychiatric Emergency Service (PES). She is responsible for overseeing and managing the daily nursing care of child, adolescent, adult, and geriatric patients with psychiatric emergencies. Ms Pidgeon leads journal club meetings for nurses to discuss current topics in emergency psychiatric nursing. She has participated in research pertaining to utilizing a standardized behavioral activity rating scale (BARS) as a means to more effectively communicate about and treat patient agitation in the emergency setting. Ms Pidgeon was nominated for a Denver Health organization-wide charge nurse of the year award. She has also received 2 STAR awards from Denver Health for exemplary patient care.

Ms Pidgeon received her bachelor's degree in Nursing from the University of Colorado and is an ANCC board-certified psychiatric-mental health registered nurse. She also received a bachelor's degree in Biology from Colorado State University, Pueblo.

Christopher A. Pierce, PhD; Author

Christopher A. Pierce, PhD is the Director of Neuropsychology Services at Denver Health Medical Center and an associate professor in the Department of Psychiatry at the University of Colorado School of Medicine. Dr Pierce provides adult and geriatric outpatient and inpatient neuropsychological evaluations for patients with various diagnoses. He provides supervision to psychology interns on the Psychiatric Consultation/Liaison Service and the Neuropsychology Service. He also supervises psychology graduate students in neuropsychology and rehabilitation psychology. Dr Pierce's research focuses on topics relevant to neuropsychology such as traumatic brain injury, psychometrics, and attention.

Dr Pierce received his bachelor's degree in Psychology from the University of Northern Colorado, his master's degree in Clinical Psychology from the University of Alaska, Anchorage, and his doctoral degree in Medical Psychology from the University of Alabama at Birmingham. He completed an internship in neuropsychology at the University of Washington School of Medicine and a postdoctoral residency in rehabilitation psychology and neuropsychology from the Reha-

bilitation Institute of Michigan/Wayne State University School of Medicine.

Brinda Prabhakar-Gippert, PhD; Author

Brinda Prabhakar-Gippert, PhD coordinates the Tele-Counseling program at Denver Health. She is a licensed professional counselor and serves as a treatment therapist for the Tele-Counseling program.

Dr Prabhakar-Gippert received her bachelor's degree in Psychology from Clemson University, her master's degree in Professional Counseling from Georgia State University, and her doctoral degree in Counseling Psychology from the University of Denver.

Paula Riggs, MD; Author

Paula Riggs, MD is a professor of psychiatry at the University of Colorado School of Medicine, where she is the Director of the Division of Substance Dependence within the Department of Psychiatry. Dr Riggs is a general, child, and addiction psychiatrist, and her research focuses on clinical care of adolescents with co-occurring psychiatric and substance use disorders.

Dr Riggs completed her medical and post-graduate training at the University of Colorado School of Medicine.

Natalie Ritchie, PhD; Author

Natalie Ritchie, PhD is a clinical health psychologist at Denver Health Medical Center and an instructor in the Department of Psychiatry at the University of Colorado School of Medicine. Dr Ritchie is committed to reducing health disparities through research and clinical work in safety net health care systems. She has conducted research on a wide range of health promotion topics and has served as the Principal Investigator of multiple awards (totaling \$2.5 million) for diabetes prevention and management among diverse and underserved patient populations. Dr Ritchie also provides clinical supervision and mentoring for graduate students in psychology. As a promising junior investigator, Dr Ritchie was the recipient of a Scholars Program award to provide further mentoring in patient-centered outcomes research and grant writing.

Dr Ritchie received her bachelor's degrees in Spanish and Psychology from the University of Washington.

She received her doctoral degree in Clinical Psychology from the University of Illinois, Chicago. She completed a clinical residency and postdoctoral fellowship in health psychology at Denver Health Medical Center.

Melanie Rylander, MD; Author, Reviewer

Melanie Rylander, MD is an assistant professor of medicine and psychiatry at the University of Colorado School of Medicine. She is the Medical Director of Adult Inpatient Services at Denver Health Medical Center and Associate Training Director for the General Psychiatry Training program. She attends on Denver Health's adult inpatient psychiatric unit, general medical wards, and its ACUTE Center for Eating Disorders. Her research interests involve the impacts of marijuana on mental health and medical complications of eating disorders. She is currently a PI on an NIH study examining the role of refeeding on cognition in severe anorexia nervosa.

Dr Rylander received her medical degree and a combined internal medicine/psychiatry residency at Southern Illinois University School of Medicine.

Trina Seefeldt, PhD; Author, Reviewer

Trina Seefeldt, PhD is a licensed psychologist and team lead for the Outpatient Adult Mental Health Team at Denver Health Medical Center, and is an instructor of psychiatry at the University of Colorado School of Medicine. She provides therapy and psychological testing services on the adult team in addition to her administrative duties as team lead. She also provides clinical supervision for pre-doctoral psychology residents and teaches first and second-year medical students as part of their Foundations of Psychiatry series. Dr Seefeldt has worked for more than a decade with underserved populations, including individuals experiencing homelessness and incarcerated individuals. Her areas of treatment interest include trauma, personality disorders, parenting issues, couples/family therapy, and depressive and anxiety disorders. Her honors include a Fulbright Fellowship to Japan and a National Science Foundation graduate summer research fellowship.

Dr Seefeldt received her bachelor's degree in Psychology from Loyola University, Chicago and her doctoral degree in Clinical Psychology from the University of Utah.

Christopher Sharp, MD; Reviewer

Christopher Sharp, MD works in Psychiatric Emergency Services at Denver Health Medical Center and is an instructor in the Department of Psychiatry at the University of Colorado School of Medicine. Dr Sharp is responsible for providing acute care to emergency psychiatric patients. He teaches pharmacotherapy to second-year residents and leads a medical student interview group. His interests include the clinical identification and management of malingering and psychotic disorders in emergency settings.

Dr Sharp received his bachelor's degree in Biology from the University of Georgia and his medical degree from the Medical College of Georgia. He completed a general psychiatry residency at the University of Colorado.

J. Christopher Sheldon, PhD; Author, Reviewer

J. Christopher Sheldon, PhD is an associate professor at the University of Colorado School of Medicine. He was appointed as Chief Psychologist at Denver Health in 1999 and added the position of Director of Internship Training in 2005. He has supported the growth of behavioral health services at Denver Health in outpatient and inpatient psychiatric services as well as in integrated primary care. Dr Sheldon also provides outpatient clinical services for children and adolescents. Recent grant-funded activities include expansion of integrated primary care training opportunities and telephonic assessment and counseling for depression.

Dr Sheldon received his bachelor's degree in Philosophy from the University of Texas at Austin and his doctoral degree from the University of Texas Southwestern Medical Center at Dallas Graduate School of Biomedical Sciences.

Scott Simpson, MD, MPH; Editor, Author, Reviewer

Scott Simpson, MD, MPH is an assistant professor of psychiatry at the University of Colorado School of Medicine and the Medical Director of Psychiatric Emergency Services (PES) at Denver Health. The PES provides specialized treatment of adult and pediatric behavioral emergencies alongside Denver Health's level one trauma center. The Denver Health PES also offers telepsychiatry consultation to rural emergency departments throughout Colorado. In the emergency service, Dr Simpson leads clinical instruction for residents, medical students, and other health professions students, including physician assistant, nurse practitioner, and paramedic students. He frequently lectures to medical students and residents on general and emergency psychiatry and psychosomatic medicine. Dr Simpson has published on the management of agitated patients and substance-related behavioral emergencies. He has been recognized with the American Association of Emergency Psychiatry's Resident of the Year, a University of Washington School of Medicine award for Clinical Research Excellence, and the Michael Weissberg Teaching Award from the University of Colorado's Department of Psychiatry. In 2016, Dr Simpson was elected the early-career psychiatrist trustee of the Colorado Psychiatric Society.

Dr Simpson received his bachelor's degree in History from Yale University, his master's degree in Public Health from Harvard University, and his medical degree from the University of Pennsylvania School of Medicine. He completed psychiatry residency and a fellowship in psychosomatic medicine at the University of Washington in Seattle. He is board-certified in the subspecialties of psychosomatic and addiction medicine.

Kelly Stainback-Tracy, MPH, IMH-E; Author

Kelly Stainback-Tracy, MPH, IMH-E® (II) is a perinatal/infant mental health program specialist at Denver Public Health. Ms Stainback-Tracy develops and implements practices to promote screening and referral for pregnancy-related depression in obstetric, family medicine, and pediatric community health clinics. She collaborates with local and state women's mental health and early childhood partners to improve awareness, identification, and treatment options for

maternal mood disorders. She regularly lectures in community and professional settings on maternal mental health and its impact on infant development.

Ms Stainback-Tracy received her bachelor's degree in Physical Therapy from the University of North Carolina-Chapel Hill and her master's degree in Public Health/Maternal and Child Health from the University of Washington. She completed a fellowship in Child Development and Infant Mental health with the Harris Program within the Department of Psychiatry at the University of Colorado School of Medicine. She maintains an Infant Mental Health Endorsement through the Colorado Association of Infant Mental Health.

Gillian Taylor Lashen, PsyD; Author

Gillian Taylor Lashen, PsyD is a clinical psychologist on the ACUTE Center for Eating Disorders unit at Denver Health Medical Center. Dr Lashen is responsible for providing supportive psychotherapy to patients with severe and life-threatening eating disorders on ACUTE's inpatient medical service. She also supervises psychology students and lectures on the assessment and treatment of eating disorders for psychology residents at Denver Health. Dr Lashen's research focuses on severe eating disorders and neurophysiological functioning as well as Avoidant/Restrictive Food Intake Disorder.

Dr Lashen received her bachelor's degree in Psychology from the University of Puget Sound and her master's and doctoral degrees in Clinical Psychology from the University of Denver. She completed her doctoral internship at Denver Health Medical Center.

Christian Thurstone, MD; Author, Reviewer

Christian Thurstone, MD is an associate professor of psychiatry at the University of Colorado School of Medicine and the Director of Addiction Services at Denver Health and Hospital Authority. Dr Thurstone's research focuses on clinical aspects of adolescent substance treatment. He is also the Training Director for the Addiction Psychiatry Fellowship at the University of Colorado.

Dr Thurstone received his medical degree at the University of Chicago and his post-graduate training at Northwestern University, the University of Chicago, and the University of Colorado.

Matthew Tolliver, PhD; Author

Matthew Tolliver, PhD is a postdoctoral fellow in Clinical Psychology who works as a behavioral health consultant at East Tennessee State University Pediatrics Clinic. Dr Tolliver's interests include studying dissemination and implementation efforts in primary care, adapting evidence-based interventions for the primary care setting, and finding innovative ways to increase access to behavioral health services for underserved populations.

Dr Tolliver received his bachelor's degree in Psychology from Berea College. Following the completion of his predoctoral internship at Denver Health Medical Center, he earned his doctoral degree in Clinical Psychology from East Tennessee State University.

Anne Elise van Bekkum, PsyD; Author

Anne Elise van Bekkum, PsyD is a clinical associate at a group practice in Denver, CO where she provides individual, couple, and group clinical services. Dr van Bekkum specializes in perinatal mental health and regularly gives presentations at hospitals, birth centers, OB/GYN clinics, and to other birth professionals in the community on the identification and treatment of perinatal mental health, women's and men's issues, and the benefits of therapy. Dr van Bekkum's research focuses on improving screening and treatment of perinatal mental health in integrative settings as well as qualitative research on individual's experiences of birth and labor in 3 different birth settings: home, hospital, and birth center.

Dr van Bekkum received her bachelor's degree in Psychology from Agnes Scott College and her doctoral degree in Clinical Psychology from the University of Denver, Graduate School of Professional Psychology. She completed a postdoctoral fellowship in Clinical Psychology, Women's Care at Denver Health.

Juli Vierthaler, PsyD; Author

Juli Vierthaler, PsyD is a staff psychologist at Lackland Air Force Base in San Antonio, Texas where she provides services to active-duty military members from all branches of the United States military. Along with providing psychotherapy interventions, she is responsible for specialty evaluations and assessments that ensure the safety of service members, as well as the

safety and continuation of military missions. Prior to this, she was a staff psychologist in multiple military settings ranging from the Atlanta Veterans Affairs Medical Center to the US Army Medical Activity in Stuttgart, Germany. She has maintained a commitment to academia, through previous work at the Chicago School of Professional Psychology as the Director of Clinical Training and Assistant Professor. Through her scholarly work, she has focused on furthering the advancements in psychological care for both military service members and individuals living with chronic mental illnesses.

Dr Vierthaler received her bachelor's degree in Psychology from Wichita State University and her doctoral degree in Clinical Psychology from the Chicago School of Professional Psychology. Following completion of her clinical internship at Denver Health Medical Center, she completed a postdoctoral fellowship specializing in chronic mental illness with the University of Oklahoma Health Sciences Center and the Oklahoma City Veterans Affairs Medical Center.

Philippe Weintraub, MD; Author, Reviewer

Philippe Weintraub, MD is an associate professor of psychiatry at the University of Colorado School of Medicine, and is a teaching attending on both the Consultation-Liaison service at Denver Health Medical Center and in the Outpatient Child and Adolescent Psychiatric Clinic at the University of Colorado Hospital. Dr Weintraub is the Associate Director of Training in the Psychosomatic Fellowship and is the Director of the psychosomatic medicine course for second-year general psychiatry residents. This year he attained Distinguished Life Fellow Status in the American Psychiatric Association. He is the President-Elect of the Colorado Child and Adolescent Psychiatric Society.

Dr Weintraub received his bachelor's degree from Harvard College and his medical degree from the University of Virginia School of Medicine. He completed training in the general and child psychiatry residencies at the University of Colorado School of Medicine and obtained added qualifications in psychosomatic medicine from the American Board of Psychiatry and Neurology.

**Melissa Weiser-Rose, MS, OTR/L, CACIII;
Author**

Melissa Weiser-Rose, MS, OTR/L, CACIII has been a senior occupational therapist in the Behavioral Health Department at Denver Health Medical Center for the past 27 years. Ms Weiser-Rose works with chronically mentally-ill adults performing individual evaluations and providing group interventions in order to assess functional performance, as well as sensory regulation strategies. She is the Behavioral Health Coordinator of both level I and level II fieldwork students from a number of occupational therapy programs. Ms Weiser-Rose has presented on occupational therapy (OT) group facilitation techniques at the Colorado occupational therapy state conference. She has been involved in panel discussions at both Colorado State University and at annual OT conferences on collaborative fieldwork in mental health occupational therapy. She was a mental health course instructor for the National American University Occupational Therapy Assistant Program in the winter of 2015.

Ms Weiser-Rose received her bachelor's degree in Occupational Therapy from Boston University and her master's degree in Occupational Therapy from Colorado State University. She maintains a Certified Addiction Counselor certification from the state of Colorado.

Yuko Yamato, PsyD; Author

Yuko Yamato, PsyD is a neuropsychologist at Columbus Regional Hospital in Columbus, Indiana. She provides neuropsychological services in the outpatient neuropsychology clinic and also provides inpatient consult services within Columbus Regional Hospital. She regularly gives lectures in community settings (eg, local senior center, caregiver support groups) on healthy aging.

Dr Yamato received her bachelor's degree in Gender Studies from the University of California, Los Angeles and her doctoral degree in Clinical Psychology from the University of Denver. She completed a predoctoral internship at Denver Health Medical Center and a postdoctoral fellowship in Neuropsychology at the University of Missouri-Columbia.

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About the University of Colorado School of Medicine Department of Psychiatry

The University of Colorado School of Medicine is ranked in the top 10 by U.S. News & World Report in multiple medical specialties. Located on the Anschutz Medical Campus in Aurora, Colorado, the School of Medicine shares its campus with Children's Hospital Colorado and University of Colorado Health. The Department of Psychiatry provides clinical services through the Addiction Treatment Services, Children's Hospital Colorado, University of Colorado Hospital, and in conjunction with Denver Health Medical Center and the Denver Veterans Administration Hospital. The Department of Psychiatry training programs encompass a full spectrum of educational levels (from medical student and residency education through postdoctoral fellowships) and mental health disciplines (eg, psychology, psychiatry, social work, and nursing), and are widely recognized for their consistent high quality.

With over 314 full-time and 379 volunteer faculty members, the Department of Psychiatry is one of the largest in the United States. Its residency program also ranks among the largest programs, with 45 residents and over a dozen fellows. Many of our faculty have positions of leadership in national organizations, including the American Psychiatric Association, the American Psychological Association, and the American Academy of Child and Adolescent Psychiatry.

In terms of research, the Department of Psychiatry regularly ranks as one of the top 3 on the University of Colorado Anschutz Medical Campus, and was recently ranked 13th in the nation for research funding. It is also one of the strongest centers in the Veteran's Administration for funding in mental health research. The breadth and depth of scientific accomplishments span the neurosciences, developmental neurobiology, addictions, infant development, child and adolescent psychiatry, behavioral immunology, schizophrenia, depression, transcultural, and public psychiatry.

Recent research awards, investments in clinical services, and teaching by both our affiliated institutions and the philanthropic community have strengthened and enlarged our existing programs as we continue our commitment to a biopsychosocial model, medical and psychiatric education, an interdisciplinary research approach, and the provision of clinical services.

About the Behavioral Health Service at Denver Health

Denver Health is an integrated, efficient, high-quality academic health care system that has long been considered a model for the nation. As Colorado's primary safety net institution, Denver Health provided more than \$3.3 billion in care for the uninsured over the past decade alone and is now the state's leading Medicare provider. Denver Health serves a diverse population—50% of our patients identify as Latino, 30% as non-Latino White, and 14% as African American—at its 525-bed hospital, 18 school-based clinics, and 9 family health centers. Each year, Denver Health completes more than 25,000 hospital admissions, 100,000 calls for emergency medical assistance, and 450,000 outpatient appointments. Denver Health ensures its financial security, in part, through its nationally-recognized implementation of LEAN principles.

The Behavioral Health Service provides high-quality mental health services throughout the Denver Health system, including integrated care in primary and specialty care clinics; consultation on medical and surgical services; high-acuity inpatient psychiatry units for children, adolescents, and adults; psychiatric emergency services; and specialty outpatient services for psychotherapy and behavioral health and substance use, including opioid substitution. Telepsychiatry is provided for rural emergency departments throughout the Rocky Mountain region. The Behavioral Health Service also provides mental health services in Denver's public schools, forensic institutions, and city detoxification service (CARES). These clinical endeavors provide rich training opportunities for psychiatry and psychology residents, fellows, and health professions students, and the department maintains a formal affiliation with the University of Colorado School of Medicine.



Department of Psychiatry | School of Medicine | University of Colorado

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