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## Improving Care for Depression & Suicide Risk in Adolescents: Innovative Strategies for Bringing Treatments to Community Settings

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### Abstract

This article reviews the literature on interventions and services for depression and suicide prevention among adolescents, with the goals of placing this science within the context of current changing health care environments and highlighting innovative models for improving health and mental health. We examine the: challenges and opportunities offered by new initiatives and legislation designed to transform the U.S. health and mental healthcare systems; summarize knowledge regarding the treatment of depression and suicidality/self-harm in adolescents; and describe innovative models for partnering with health systems and communities. This review demonstrates that treatment models and service delivery strategies are currently available for increasing evidence-based care, particularly for depression, and concludes with recommendations for future research and quality improvement initiatives aimed at inspiring additional efforts to put science to work, bridge science and community practice, and develop strategies for partnering with communities to improve care, mental health, and well-being among adolescents.

### Keywords

depression; suicide; self-harm; self-injury; community; treatment

### 1. Introduction

Major achievements in intervention and services research over recent decades have yielded critical advances in knowledge regarding how to improve care for depression and suicide prevention among youths. We now have large trials that document the efficacy of psychosocial, pharmacologic, and combined psychosocial and pharmacologic treatments for adolescent depression, as well as the effectiveness of these treatments when exported to real-world clinical service settings. Advances have been more difficult to achieve in the area of suicide prevention. Recent work suggests the promise of some approaches, however, and national health programs across the globe have been devoting increased attention and resources to addressing this major clinical and public health problem (Goldston et al., 2010, Ougrin et al., 2012, Claassen, 2013).

These major clinical advances coincide with health care reform efforts currently underway in the United States. The health care system transformation has goals of enhancing quality of care and patient outcomes, while reducing costs. This article examines the evidence base for treatment of depression and suicide prevention in adolescents and discusses how this

knowledge could inform health care improvement for this population. Because the presence of prior suicide attempts is a potent predictor of suicide deaths in adolescents, we emphasize the treatment literature targeting suicidal behavior. Depression is also a significant risk factor for suicide attempts and deaths, underscoring the links between depression and suicide risk.

We begin by setting this review within the context of the changing U.S. health care environment. Second, we turn to brief reviews of the literature with the goals of: clarifying the degree to which we have interventions that are ready for dissemination and likely to yield benefits for the diverse adolescents in community practice settings; and how extent data relates to current practice parameters and guidelines. Third, we turn to the literature on strategies for bringing evidence-based treatments for adolescent depression and suicide prevention into communities, highlighting major examples of efforts to partner with health care organizations and communities to enhance patient outcomes through improving access to evidence-based care. Fourth, we highlight emerging models and treatment development strategies for decreasing the gap between science and practice and enhancing the level of evidence-based care available in communities. Finally, we conclude with recommendations regarding how to advance science, practice, and efforts to redesign the U.S. health and mental health systems. Currently, the terms mental health and behavioral health are used interchangeably. For consistency, we will use the term mental health to refer to the full range of mental health and behavioral conditions, including substance use disorders.

## 2. Health & Mental Health Care in the United States: Needs and Changes

Health care costs for the average US citizen are \$8,233 per year. According to the Organization for Economic Co-operation and Development (OECD), an international economic group comprised of 34 member nations, this amount is more than two-and-one-half times that of the most developed nations in the world, including relatively rich European countries like France, Sweden, and the United Kingdom (Paul et al., 2012). Unfortunately, health outcomes are not correspondingly high. For example, a good marker of quality of care for asthma is hospitalization which should be minimized with high quality primary care. The US has over double the rate of asthma hospitalizations than do other OECD nations (Paul et al., 2012). Similarly, prevention of disease is the hallmark of excellent health care. Rates of obesity are a strong marker of a condition that predicts poor future health. Rates of obesity are on the rise throughout the developed world, but the US leads, with 36% of the population obese in 2010 (Paul et al., 2012). Because the U.S. health care system has extraordinarily high costs yet poorer health outcomes than many other systems, legislation has been enacted to reshape the U.S. health care system, including mental health care.

Statistics regarding the need to reform mental health care focus largely on two major issues. First, there is substantial documentation of unmet need for mental health care in general, and for adolescents in particular (Surgeon General Report, 2001). Second, for those who do seek care, the vast majority receive poor quality care, or care that is not evidence based (Surgeon General Report, 2001). Other major problems include: inadequate access to care, particularly for minority and disadvantaged youths; limited access and poor utilization of

preventive services with potential for decreasing the severity of dysfunction and social and economic costs of the problem; and the need for models that prevent cycles of severe dysfunction, repeated episodes of costly services (e.g., hospitalization, ED), and poor linkage to follow-up care that can prevent future severe and costly episodes (National Prevention Council, 2011).

Mental health care reform will be shaped by two landmark pieces of legislation. The first, the Mental Health Parity Law passed in 2008, provides increased insurance coverage for mental health problems. This law requires that all large group employer-funded (50 or more insured employees) or state-regulated plans, and managed-care Medicaid programs provide coverage for services for mental health and substance use disorders in a manner that is no more restrictive than all other plan-covered medical and surgical procedures. This law is designed to decrease the unmet need for mental health care by providing mental health coverage to more of the population, plus providing more generous coverage benefits. The second legislation, the federal 2010 Accountable Care Act (ACA), is designed to revamp the current medical system that responds to illness to a system more geared toward promoting health. In addition, the reform is intended to improve quality of care while containing costs. As the ACA is phased in, there will be more opportunities for prevention of mental health problems, expanded coverage for uninsured populations, and incentives for integrated and coordinated health and mental health care. Many ACA components have not yet been implemented, have been delayed, or are in the early stages of implementation. Clearly, political opposition to the ACA threatens some aspects of implementation. Furthermore, variation in state implementation will occur, and exactly where we are headed remains unknown. Still, the ACA provides recommendations to the Centers for Medicare and Medicaid Services to test new payment and delivery models, with the goal of improving quality of care and health outcomes while decreasing costs. Many commercial insurers are following the government's lead and attempting to incentivize these changes throughout health care. Regardless of one's political beliefs, these initiatives clearly present opportunities to explore alternative approaches to care and advance efforts to improve health and mental health care the United States.

The three goals of health reform are to: 1) improve access to and satisfaction with care, 2) improve quality and outcomes of care, and 3) reduce costs. The Patient-Centered Medical Home (PCMH) and the Health Home concept propose to achieve these goals through expanded primary care that provides timely access to care, continuity of care, and coordination and comprehensiveness of care. This generally involves the use of electronic health records to support patient management and collaboration, as well as support information exchange among primary care providers, specialists, and hospital systems. They also propose to spend more time with patients by: limiting the number of patients seen; using allied health professionals to support primary care providers; and providing integrated care for mental and physical health problems, much in the manner shown to be effective in adult and more recent adolescent studies (see section 3 and 4 of this article). Enthusiasm for the PCMH has been increasing due to reports supporting the value of PCMH demonstrations for increasing quality of care while reducing costs on some measures (e.g. lower ED and hospitalization costs ([www.pcpcc.net/content/pcmh-outcome-evidence-quality](http://www.pcpcc.net/content/pcmh-outcome-evidence-quality)), (Fields et al., 2010).

Both government and private health insurers are incentivizing systems to meet the PCMH requirements. The National Committee for Quality Assurance (NCQA, 2013) has developed criteria for levels of adaptation to the concept (National Committee for Quality Assurance, 2011). The 2011 NCQA criteria for becoming a Level 2 medical home require quality improvement efforts for at least two chronic medical conditions and at least one mental/behavioral health condition (e.g. depression, substance use disorders). Higher levels of pay will be tied to higher levels of medical home achievement. To improve access to care, and hopefully prevent the development of more severe problems through early detection and care, the ACA will also offer incentives for states to expand Medicaid coverage to uninsured patients (currently, 28 states are moving toward such expansions), and has a provision to provide states with additional federal funding for Health Homes.

Building on recommendations from the Institute of Medicine report “Preventing Mental, Emotional, and Behavioral Disorders Among Young People: Progress and Possibilities” (Institute of Medicine, 2009), the ACA emphasizes the importance of prevention, with efforts to shift the health care system from treating illness to achieving wellness. This is achieved partly through eliminating cost-sharing (co-pays, deductibles) for prevention and wellness visits; a change that is expected to improve access to preventive services. If, for example, depression and other risk factors for suicide are detected and treated early, the hope is that there will be lower levels of suffering, disabilities, and fewer deaths by suicide..

### **3. Are we ready? Do we have interventions for youth depression and suicide prevention that are ready for incorporation within community services?**

#### **Depression**

Evidence exists that both psychotherapy and medications are effective for treating depression in adolescents. Two major national trials in the United States (TADS, TORDIA), one large trial in the United Kingdom (ADAPT) and several smaller studies document the benefits associated with current psychosocial and pharmacologic treatments for depression in adolescents (For review, interested readers are referred to...(Tompson et al., 2012, Sakolsky and Birmaher, 2012, Birmaher et al., 2007). Cognitive-behavior therapy (CBT), Interpersonal Psychotherapy (IPT), and Attachment-Based Family Therapy for adolescent depression have documented efficacy and other promising treatment strategies are under development and expanding to younger children (Tompson et al., 2012, Kovacs et al., 2006, Kennard et al., 2008, Lenze et al., 2011). Extensive evidence also supports the efficacy of some selective serotonin reuptake inhibitors (SSRIs), although warnings have been issued regarding the potential for increased risk of suicidality with antidepressant medication treatment for adolescents and young adults, and this has led to reductions in prescription rates which could be associated with observed increases in suicide deaths (Nemeroff et al., 2007, Libby et al., 2009).

Although both psychotherapy and medications have been found effective for depressed adolescents, controversy remains regarding the need for combined medication and psychotherapy interventions. For moderate to severe depressive disorders, there is support

for the advantages of combined CBT (roughly 15 sessions) and medication from the TADS study where combined treatment was superior to medication alone, CBT alone, and pill placebo at the end of acute treatment (March et al., 2004) and the TORDIA study where combined CBT (about 9–16 sessions) plus a switch in medication was more effective than a switch in medication alone for youths who had previously had minimal benefits from an adequate trial of SSRI medication (Brent et al., 2008). However, the ADAPT trial in the UK found no advantages for combined CBT and medication vs. medication alone when these treatments were provided in routine practice settings with rigorous procedures to promote treatment fidelity and therapist competence (Goodyer et al., 2008). Because youths in the ADAPT study were selected after a preliminary psychosocial intervention with minimal response, it is possible that this design feature led to a sample that was less responsive to psychosocial treatment than those in the US trials. Similarly, Clarke et al.'s trial (Clarke et al., 2005), with adolescent primary care patients diagnosed with major depression found only a weak advantage for medication treatment as usual (TAU) plus brief collaborative care CBT (5–9 sessions, rigorously delivered), when compared to medication TAU alone. Although there were no statistically significant between group differences on the primary outcomes, there was a near-significant trend for youths in the collaborative CBT + TAU medication group to report fewer depressive symptoms on one of the primary outcome measures, self-reported depressive symptoms. A statistically significant advantage for the combined CBT + TAU-medication group did emerge on two exploratory outcome measures: mental health related quality of life/functioning and youth reported externalizing behavior problems. In considering these findings, we note that adolescents in the combined treatment condition had significantly fewer days of antidepressant medication relative to youths in the medication only condition and that this tendency for combination treatment, despite a specific focus on medication adherence in this CBT, was associated with reduced adherence to medications which may have attenuated any observed advantages of combined treatment. These data are, however, consistent with other data indicating that youths prefer psychosocial treatment, are reluctant to accept medication treatment, and look for opportunities to discontinue antidepressant medications (Jaycox et al., 2006, Clarke et al., 2005). This may represent a developmental effect where adolescents differ from adults, as adult collaborative-care trials have generally reported increased medication adherence with patients receiving CBT (Clarke et al., 2005).

While controversies continue and large systematic reviews of extent evidence have led to critiques of guidelines, we have practice parameters and treatment guidelines to support and guide clinical care (Birmaher et al., 2007, World Health Organization, 2010, Force). Of particular note, a recent Cochrane review concluded: 1) there is only limited evidence supporting an advantage for combined treatment; 2) future research is needed to clarify the conditions under which combined treatment is beneficial; and 3) the National Institute for Health and Clinical Excellence (NICE) guidelines that advise combining treatment with selective serotonin reuptake inhibitors (SSRIs) and concurrent specific psychological treatment (<http://guidance.nice.org.uk/CG28/niceguidance/pdf/English>) merit reconsideration, particularly given the additional resources and costs of combined psychosocial and medication treatment (Dubicka et al., 2010).

**When is treatment most effective?**—With recent large trials and meta-analyses, information is becoming available to clarify the conditions under which current treatments are most effective. Data point to both individual, contextual, and treatment variables associated with increased efficacy. Although results vary to some degree across studies, increasing dose of psychosocial treatment to achieve the “prescribed” target dose was associated with improved outcomes in at least two large analyses: one examining CBT effects in the TORDIA trial found improved outcomes among youths receiving 9 sessions vs. < 9 sessions (Kennard et al., 2009); the other was a meta-analysis of evidence-based treatments relative to treatment as usual which found evidence suggesting that increasing dose of EBPs relative to TAU was associated with larger treatment effect sizes (Weisz et al., 2013). CBT dose received was also relatively low in the ADAPT trial with a median of 6 sessions over 12 weeks and 42% of the sample receiving < 6 sessions, suggesting that inadequate CBT dose may have contributed to the weak effect of combined treatment in this trial (Goodyer et al., 2008). Clearly, minimizing drop out and increasing treatment attendance could improve outcomes.

### Suicide Risk

Dissimilar from the area of depression where a range of well-established treatments exist for adolescents, at this point in time, few interventions have been found effective for intervening in suicidality and self-harm in youths. Sadly, suicide is a leading cause of death in young people worldwide, with data pointing to worldwide increases in suicide rates, increasing suicide deaths among youths with youths representing the age-group at greatest risk in a third of nations (Wasserman et al., 2005).

In considering this literature, it is important to note that definitions of suicidal behavior have varied over time and among groups. Currently, in the US, careful distinctions are drawn between suicide attempts, which are defined as having some non-zero intent to die (O’Carroll et al., 2001), and non-suicidal self-injurious behavior (NSSI), where self-harm behavior is not intended to cause death but instead has another function, such as relief from unbearable pain. This distinction can be ambiguous, with many youths reporting ambiguous intent, for instance: “I didn’t know what would happen if I took the pills. Perhaps, it could have killed me, but I really just wanted some relief. I couldn’t stand the way I was feeling. I just wanted to sleep.” In the UK and Europe, the emphasis has been more on the method of self-harm, for instance youths who overdose, with less of a focus on distinguishing between self-harm with and without suicidal intent (Ougrin et al., 2012). In this article, we will use the broader term self-harm to refer to both suicidal and nonsuicidal self-injurious behavior (NSSI), and suicide attempt only to refer to self-harm behavior with some non-zero intent to die.

When considering the literature, and different definitions of suicidal and self-harm behavior, it is important to note that results have converged across three different large studies to indicate that among depressed youths NSSI is a potent predictor of future suicide attempts, and stronger predictor of suicide attempts than prior suicide attempts, although the stronger predictive power of NSSI may be related to the greater frequency of NSSI relative to suicide attempts (Asarnow et al., 2011b, Wilkinson and Goodyer, 2011). Nevertheless, self-harm,



regardless of assessed intent, is an indicator of increased risk for future suicide attempts and suicide attempts are an indicator of increased risk of death by suicide.

Four randomized controlled trials (RCTs) with youths document some reductions in rates of repeat self harm with specific treatments for suicidal/self-harming youths. A recent small study (N=40) examined the efficacy of integrated CBT (I-CBT) targeting both suicidality and substance use disorders for the outpatient treatment of hospitalized adolescents presenting with both high suicidality (suicide attempt within the past 3 months, or high past-month suicidal ideation and alcohol and/or marijuana use disorders). This I-CBT built on prior CBTs for suicidal youths (Esposito-Smythers et al., 2011, Donaldson et al., 2005) as well as motivational interviewing and CBT approaches developed for youths with co-occurring suicidality and substance use disorders. Two therapists were used in the I-CBT with one therapist assigned to the youth and the other assigned to the parents/family. Treatment spanned 12 months and included a 6-month acute phase, 3 month continuation phase, and 3 month maintenance phase with treatment frequency fading from weekly to monthly over the course of the treatment period. I-CBT was compared to community TAU enhanced by: sharing the comprehensive study evaluation with community providers; medication management by study psychiatrists, and a call-in line that youths and families could use to obtain resources and support. The I-CBT intervention had significant advantages, with youths receiving I-CBT reporting fewer suicide attempts, psychiatric hospitalizations, ED visits, arrests, less global impairment, and fewer drinking days and days of marijuana use, relative to enhanced community TAU. No statistically significant between-group differences were found on suicidal ideation.

A second study with significant effects also used a very high-risk group, youths (ages 10–17, N=156) referred to an ED and authorized for psychiatric admission. Suicidality was a frequent concern in these youths (present in 51% of youths at baseline), but youths were not selected for suicidality or excluded if not suicidal. Youths were randomly assigned to hospitalization or multisystemic therapy (MST), an intensive home and community based treatment, originally designed and tested with youths from the juvenile justice system, and designed to mobilize protective factors within the family, other systems within which the youth functions (e.g. school, neighborhood) as well as strengthen skills within the youth and family using evidence-based strategies. MST is an intensive time-limited approach, with MST therapists available around the clock daily for a 6-month period in this study. Results indicated that based on youth report, MST was more effective than emergency psychiatric hospitalization at reducing rates of suicide attempts at 1-year follow-up. MST was also more effective than hospitalization at reducing mental health symptoms, out of home placements, and improving school attendance and family functioning (Huey et al., 2004, Henggeler et al., 2003, Schoenwald et al., 2000). However, treatment effects generally dissipated by 18 months (Henggeler et al., 2003), intervention effects were not statistically significant in the smaller group of 70 youths presenting with self-harm at baseline, and youth depression was associated with poor outcomes underscoring the need for alternative or supplemental strategies to address the needs of depressed suicidal youth, an important subgroup given that depression is a significant risk factor for suicide deaths (Huey et al., 2005, Shaffer, 2001)

Third, a recent trial in the UK examined the efficacy of mentalization based therapy for adolescents (MBT-A), a 12-month psychodynamic therapy which is rooted in attachment theory and focuses on enhancing the capacity to understand actions in terms of thoughts and feelings. Results indicated that when compared to TAU, MBT-A was associated with a significantly greater reduction in overall self-harm behavior (Rossouw and Fonagy, 2012) (N=80). Results are not reported separately for self-harm with and without suicidal intent.

Finally, an initial trial of a developmental group therapy, relative to TAU, reported a significant reduction in the likelihood of engaging in 2 episodes of self-harm as well as greater reductions on a range of behavior problems (Wood et al., 2001). However, these findings were not replicated in two subsequent larger trials (Green et al., 2011, Hazell et al., 2009), underscoring the critical need for replication particularly when initial trials are small.

**When is treatment most effective?**—A meta-analysis by Weisz and colleagues (Weisz et al., 2006) examining the effect of psychotherapy on suicidality among youths treated for depression reported a small benefit (average effect size = 0.18). However, the effect of psychotherapy on suicide attempts specifically was not reported. In conjunction with open and quasi-experimental data supporting feasibility and benefits associated with a range of CBTs, including DBT, for youths, and the suggestion that depression quality improvement programs may yield benefits on measures of suicidality (see section 4, this article), the collective data suggest that we are getting closer to identifying effective treatments and service delivery programs for suicide/suicide attempt prevention in youths.

**What is currently being done?**—Despite the lack of strong scientific validation of particular approaches for improving outcomes for suicidal youth, many nations have developed guidelines and policy aimed at reducing suicide deaths and treating youths with suicidal and self-harm behaviors. For example, practice parameters were developed by the American Academy of Child & Adolescent Psychiatry (Shaffer, 2001), the National Institute of Clinical Excellence in the UK created clinical guidelines, pathways, and quality standards (<http://guidance.nice.org.uk/CG28>), the WHO has created an intervention guide for evaluating and managing suicidal and self-harm behavior, and the US Preventive Services Task Force has reviewed and issued recommendations regarding screening for suicide risk in primary care and concluded that the evidence is not sufficient at this time to recommend for or against primary care screening for suicide risk (<http://www.uspreventiveservicestaskforce.org/3rduspstf/suicide/suiciderr.htm>). While these diverse guidelines, practice parameters, and recommendations differ, they generally emphasize thorough evaluation and assessment of risk levels, triage and emergency management to ensure that appropriate protective actions are taken to prevent death or injury, continuity of care, enhancing support and protection in the environment including restriction of access to potentially dangerous suicide attempt/self-harm methods, linkage to mental health and substance use disorder services as appropriate, and treatment of disorders and problems contributing to risk. There are currently interventions with documented efficacy for linking youths to outpatient treatment after ED/hospital discharge (Ougrin et al., 2010, Asarnow et al., 2011a). This is a big step forward as inadequate outpatient follow-up care after a suicidal episode is a major concern, and linkage to care is a necessary condition



for providing effective treatment. However, despite evidence with adults supporting the efficacy of DBT (Linehan et al., 2006), cognitive therapy (Brown et al., 2005) and MBT (Bateman and Fonagy, 2009) for reducing suicide attempts and self-harm, and a growing literature of trials focusing on treatments for suicidal youths, clear evidence of efficacy is limited for youths (Ougrin et al., 2012)

#### 4. Bringing evidence-based care to communities

As mentioned earlier, two major problems need to be addressed in order to improve mental health care for depressed and suicidal adolescents: 1) eliminating the unmet need for mental health care for adolescents in general, and ethnic minorities in particular; and 2) improving the quality of care received by those who seek care. Addressing both of these problems is imperative for improving mental health outcomes in youths. We consider what is known about the settings for care, the process of care, and linkages to care, as they relate to accessing and improving mental health care for depressed and suicidal adolescents.

##### What are appropriate settings for mental health care for youth?

Even when care is available, many youths do not link to care, or receive care that is believed to represent a low and inadequate dose. National data indicate that most people with mental health disorders do not seek mental health care (Surgeon General Report, 2001). Nearly 80% of the 6%–9% of youths with need for mental health care, receive no services by recent estimates. Unmet need is associated with lack of insurance and minority status, and minorities are also significantly less likely to receive evidence-based mental health than are their white counterparts (Kataoka et al., 2002, Surgeon General Report, 2001). Further, youth and the uninsured are at greatest risk of premature drop out from care (Edlund et al., 2002). Clearly, too many depressed and suicidal youths do not seek or receive adequate care in mental health care settings.

**School-based mental health care**—Expanding the sites for accessing mental health care services to less traditional sites is a key strategy for improving access to care, particularly for younger youths who are dependent on their parents for transportation, money, and other factors that can become barriers to access. School-based services can be an important venue for providing mental health care to youth, and this literature has numerous demonstrations of effective school-based programs ranging from preventive programs to more targeted programs that focus on youths with severe mental health problems. Schools have traditionally been a major source of a range of services, and school-based services are reimbursable through Medicaid. School services can be especially important for underserved ethnic minority youths who are underrepresented in formal mental health services, but are equally likely to receive school-based counseling (Kataoka et al., 2007), or for populations under stress.

A particularly compelling demonstration of the value of school-based mental health services for improving access is provided by a recent project conducted in New Orleans 15 months after Hurricane Katrina. In this project, youth were randomly assigned to 1) Cognitive Behavioral Intervention for Trauma in Schools (Jaycox, 2004, Cohen et al., 2004), a program with documented effectiveness for improving outcomes in traumatized youths,

delivered by school clinicians in the schools; or 2) Trauma-Focused CBT, another program with a strong evidence-base (Cohen et al., 2004), provided in mental health clinics free of charge and making round trip taxi vouchers and babysitting for siblings available. Both treatments were effective and improvement occurred for all those who began treatment. However, significantly more youth accessed care in the school-based program, with 98% of youth randomized to the school-based CBT beginning treatment, compared to 37% in the clinic-based CBT, and only 15% completing treatment in the clinic-based treatment. Similarly, examining rates of follow-up care among youths discharged from a residential treatment center after an average of one-year of intensive treatment, school based services were the most common form of services received, underscoring the critical role of school-based services even among severely disturbed youths with recent histories of intensive out of home care (Asarnow, 1996).

Despite the promise of school-based care, and recognition that educational and mental health outcomes are intertwined (Kataoka et al., 2009) several challenges exist for integrating mental health care into schools. With the exception of the Early and Periodic Screening, Diagnostic and Treatment (EPSDT) benefit through Medicaid that requires comprehensive and preventive health care services for youth, including mental health and developmental services (<http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Benefits/Mental-Health-Services-.html>), universal screenings to identify youths with need for services is often not reimbursed within schools. Given their mandated focus on academic achievement, schools often have fewer incentives and resources for mental health services, and there is a dynamic tension between the need to educate youths in academic areas and the need to promote mental health and adjustment patterns that allow youths to thrive academically and successfully transition into the work force. The inclusion of parents and families in school-based programs can also be challenging since parents are often not available during the school day. However, numerous programs have addressed this barrier through the use of “family nights” and efforts to develop the concept of “schools as community wellness centers” and other strategies (Asarnow, 2002, Rotheram-Borus et al., 2012). Another challenge associated with school based services is that some of the highest risk youths, such as runaways and homeless youths, may not go to school regularly.

**Home-based and community based care**—As exemplified in the success of MST and other home and community based services, outreach to sites other than health and mental health clinics and schools are likely to be key to solving the access problems (Henggeler et al., 2003, Rotheram-Borus et al., 2012). The innovative work developing family wellness centers for delivery of evidence-based interventions by Rotheram-Borus and colleagues is particularly noteworthy (Rotheram-Borus et al., 2012). Rather than the more traditional manualized approach to evidence-based practices, this team embedded common elements of evidence-based interventions within provided services such as martial arts, yoga, dance, music, and summer camps. They also used community members whose families are thriving to provide healthy role models and promote connections and hope. Three alternative contexts for these evidence-based Family Wellness Centers were explored: 1) a retail center set in a shopping area with integrated mental health, child/family focused wellness services, and extra-curricular activities; (2) a similar retail setting focused on mental health integrated

with a mental health and physical health care clinic; and (3) mental health services delivered in a set of six K-12 schools co-located at one site and in collaboration with teachers, nurses, and local community-based agencies.

**Primary health care based treatment**—Consistent with the emphasis on integrated medical and mental health care, and health homes, there have been three major trials evaluating adolescent depression treatments through primary care: 1) the Clarke et al study described previously (Clarke et al., 2005); 2) a trial conducted within school based health centers, which found that IPT was significantly more effective than treatment as usual in reducing depressive symptoms and improving functioning (Mufson et al., 2004); and 3) Youth Partners in Care (YPIC), a large randomized effectiveness trial showing that, when compared to TAU enhanced by provider education, a quality improvement (QI) intervention designed to improve access to evidence-based CBT and/or medication treatments through primary care was associated with decreased depression, improved mental health related quality of life, and increased patient satisfaction, with initial clinical improvements resulting from the intervention at 6-months having an indirect effect on depression and mental health-related quality of life through 12 and 18-month follow-ups, shifting youths towards a healthier pathway (Asarnow et al., 2009).

Although the extant literature supports the feasibility and value of integrating mental health care into primary care for both adult and youth disorders, particularly depression, this is not an easy task. As documented in an extensive review by the Agency for Healthcare Research and Quality (Epstein et al., 2007), organizational barriers to integrated health and mental health care exist at the level of change and the process of care. Resistance to change exists in healthcare organizations unless strong leadership is committed to integrated care. Extensive training is needed to truly integrate care. However, financial barriers remain the major impediments to integrating care. Many activities associated with high quality integrated care, including care manager functions, consultations and communications activities, such as telephone outreach to patients, are typically not reimbursed under fee-for-services care. Integrating carve-out mental health programs into general health care programs is difficult because of competing demands of each service. Because of these issues, translating integrated programs into real-world medical settings has remained challenging. However, the good news is that literature is accumulating to guide the field in strategies for overcoming these barriers and building more accessible systems of care, work is underway to transform care systems, and there are accumulating examples of state and county initiatives and policies in the United States that have mandated mental health care reform (e.g. (Beidas et al., 2013, Rea, 2005).

### **What has effectiveness research taught us?**

The shift of research from laboratory and psychiatric settings out to community settings, such as schools and general health care settings, has clearly advanced knowledge about closing the gap between what is scientifically known about care and improving care that is actually provided to depressed, suicidal, and self-harming youths. Some of the more critical challenges are highlighted in Table 1. To anchor the reader, we provide examples of each trial type from the youth depression literature: efficacy trials, where the focus is on treatment

effects under highly controlled conditions; and effectiveness and pragmatic trials which evaluate treatment effectiveness under more real-world practice conditions. It is important to note, however, that there is variation among trials and more recent efficacy trials such as TADS and TORDIA have included effectiveness components such as the expansion of outcome assessments to include the targeted outcome (depression improvement) and measures of functioning and costs (March et al., 2004), outcomes that are more often associated with effectiveness designs. Advances in methodologies in clinical trial design (e.g. adaptive designs that incorporate stepped decisions, or patient choice) have also enabled more trials that blend efficacy and effectiveness elements and are likely to translate to reduced gaps between laboratory-based science and community care.

Inspection of Table 1 highlights the point that data derived from efficacy studies may not generalize to community practice settings. Traditional randomized controlled efficacy trials are critical for establishing the safety and efficacy of new treatments under controlled conditions. The goal of efficacy trials is “explanatory” to determine whether a particular treatment leads to improved outcomes for the targeted problem, relative to a comparator condition such as a placebo or alternative treatment. Efficacy trials are designed to test causal research hypotheses, such as does behavioral activation treatment lead to changes in behavioral activation and improved depression outcomes? Because the goal is to control for potential sources of bias, extensive inclusion and exclusion criteria are used to select a clearly defined and relatively homogeneous population presenting with the targeted disorder/problem, treatment condition is randomly assigned with blinding and allocation concealment, treatment decisions are made according to study protocol, and treatment is delivered by therapists paid for, trained, and monitored for treatment adherence and competence by the study. These trials have high internal validity.

To determine whether efficacy trial results will generalize to real-world community settings, however, pragmatic or effectiveness trials are needed. The goal of a pragmatic trial (a term first used in 1967 by Schwartz and Lellouch) is to inform decisions about practice through a randomized controlled trial of alternative treatment conditions tested under real-world conditions, with heterogeneous patients presenting with the complexity and co-occurring disorders/comorbidity typical of patients in practice, and treatment delivered by usual community providers paid for and responsible to the practice settings. Some effectiveness trials such as YPIC also allowed for usual community treatment elements such as patient choice and complex treatment decision-making, whereas others such as the ADAPT trial have randomly assigned patients to condition and used more protocol-driven decision algorithms. As the trial design moves closer to routine practice conditions, effect sizes tend to decrease. For example, the YPIC trial retained patient choice of whether to receive treatment, and the amount and type of treatment. Thus, treatment was encouraged vs. assigned in the QI intervention condition, yielding lower rates of treatment “received” than typical of efficacy trials. This, in combination with the fact that treatment was available to patients in the TAU condition which was enhanced by provider education in depression evaluation and management, resulted in smaller between group differences than would be seen in a controlled RCT aimed at evaluating the efficacy of a specific treatment.

The goal in pragmatic trials is to guide choices between alternative treatments under real-world conditions. Given the tensions between the need to evaluate efficacy and effectiveness under routine practice conditions and the desire to bring scientific advances to patients in real-world clinical settings more rapidly, the shift towards greater blending of efficacy and effectiveness components is encouraging and there are increasing calls for randomized controlled pragmatic trials that maintain the internal validity of traditional efficacy RCTs while considering external validity in trial design and implementation to better address the need for evidence on comparative treatment effectiveness, real-world risks and benefits, and informing clinical and health policy decisions (Chalkidou et al., 2012). Conversely, treatment development models rooted in partnerships between researchers, community clinicians, and clinical service organizations are being used to increase the feasibility of developed treatment for export to community settings (Asarnow, 2013, Wells et al., 2004).

Effectiveness studies have now begun to show the benefits of interventions when applied in real world settings under routine practice conditions, such as allowing for patient choice of type of treatment. These studies have and will continue to provide needed information for moving treatments into real world settings under health care reform.

### **Changing the Process of Care**

In general, the evidence shows quite substantial beneficial effects of youth treatments, when scientifically-supported treatment procedures are used. Other evidence shows generally weak effects of usual clinical care that is not guided by empirical evidence (Surgeon General Report, 2001, Southam-Gerow et al., 2003, Weisz et al., 1995). A problem in applying evidence-based care in clinical practice is that it is primarily focused on one disorder when many youth present with multiple problems and disorders. One attempt to improve the quality of care is to alter the process of care to be more responsive to patient complexity, co-occurring problems, and co-morbidity. A second problem involves getting youths to treatment, underscoring the importance of attitudes and other personal barriers to care for youths and families and attending to strategies for linking youths to care. These two problem areas are discussed in more detail below.

### **Patient Complexity, Co-Occurring Problems and Comorbidities**

Perhaps, stimulated by funder policies that emphasized studies targeting specific mental health disorders and problems, most recent “evidence-based treatments” have targeted specific disorders, with evaluations using efficacy designs that limit patient complexity and comorbidity. Since clinically-treated patients often have complex and co-morbid/co-occurring disorders, and the treatment models that have been most prominent feature disorder-specific interventions, clinicians interested in providing evidence-based care must learn numerous treatments to target the complex patterns of co-occurring disorders that youths typically present with in their practices. This has feasibility problems and often leads to dissatisfaction in clinicians. Moreover, there is no current evidence-base supporting the efficacy or effectiveness of delivering multiple sequenced manualized treatments and limited extent evidence suggests that this is not as effective as other approaches (Weisz et al., 2012).

There are multiple strategies for addressing patient complexity and comorbidity. One strategy, closest to the disorder-specific approach, is to target broader dimensions of psychopathology, such as depressive symptoms vs. depressive disorders and develop flexible algorithms to address multiple dimensions. In the YPIC trial (Asarnow et al., 2005, Asarnow et al., 2009) and subsequent dissemination work, depression was targeted as a general dimension. This strategy involves screening for high levels of depressive symptoms in primary care clinics and targeting youths with high levels of current depressive symptoms for the intervention. The YPIC Depression Treatment Quality Improvement protocol uses a flexible intervention model that focuses on “stress and your mood”, offers CBT strategies for strengthening effective behavioral activation, cognition, and social relationships, while encouraging consideration of co-occurring problems and adapting treatment strategies as appropriate to meet the needs of youths and families (<http://www.nrepp.samhsa.gov/ViewIntervention.aspx?id=282>). Additionally, the YPIC model includes education and support for medication management through primary care and a care manager to support primary care providers with evaluation, medication management, and deliver psychotherapy/CBT within the primary care clinics. Similar to the YPIC approach, some more recent trials of CBT with complex depressed and suicidal patients have incorporated modules and components to address common co-occurring problems such as substance use/abuse (Kennard et al., 2009, Spirito et al., 2011, Esposito-Smythers et al., 2011). While this general approach, directs youths to a treatment based on presenting problems, the treatment itself is flexible with components and algorithms available to target frequent co-occurring problems.

Dialectical Behavior Therapy (DBT) a treatment program developed by Linehan for highly suicidal emotionally dysregulated adults with Borderline Personality Disorder also targets dimensions. This approach is designed to target the dimensions of mindfulness, distress tolerance, emotion regulation, and interpersonal effectiveness using a high-intensity approach featuring weekly individual DBT, weekly 2-hr skills training groups (run as a multi-family group in DBT for adolescents), phone coaching with therapist availability 24 hours daily, and a consultation team to support therapists in their work with these severely disturbed patients (Linehan et al., 2006). DBT uses an hierarchy of treatment targets to structure each individual therapy session with priority given to life threatening issues, followed by therapy threatening issues, and finally by quality of life issues. Thus, for a youth with life threatening suicidal behavior, the session focuses on understanding this behavior (suicide attempt, NSSI, suicidal or self-harm urges) and strengthening and mobilizing effective skills for reducing suicide risk. If a youth is resisting therapy by missing treatment sessions, not completing treatment homework, or other therapy-threatening behavior, strategies are used for enhancing motivation for treatment and adherence to the treatment approach. When these higher order threats are not present, the session focuses on quality of life and building a life worth living. The DBT therapist targets both acceptance/validation and change/skills, striving for an optimal dialectical balance between these poles. There is also an emphasis on generalization from the start, with homework assignments and non-completion of homework treated as a therapy threatening behavior. Efforts are used to strengthen environmental support and structure environmental contingencies to reinforce safe and adaptive behavior. Documented efficacy of DBT for



reducing suicide attempts in adults (Linehan et al., 2006) has led to extensions to adolescents (Miller, 2007), with preliminary support for efficacy from open and quasi-experimental trials (Rathus and Miller, 2002), early promising reports from an RTC conducted in Norway (Mehlum, 2013), and one large NIMH-funded multi-site trial in progress at University of Washington/Children's Hospital Seattle and UCLA/Harbor Medical Center (Linehan, McCauley, Berk, Asarnow, [ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study?term=NCT01528020) Identifier:NCT01528020).

Individuals struggling with suicidality present with high levels of heterogeneity, complexity, and co-occurring problems. This is addressed in the DBT protocol using strategies for addressing individual patient presentations and needs. However, to address frequent co-occurring problems in this population, similar to the Esposito-Smythers et al approach (Esposito-Smythers et al., 2011), efforts have been made to integrate other evidence-based treatment protocols within the DBT treatment protocol. For instance, a preliminary evaluation of an integrated protocol for treating PTSD in suicidal and self-injuring adults with borderline personality disorder using Prolonged Exposure added to DBT indicated improvements in PTSD, suicidal ideation, and other symptoms (Harned et al., 2012).

We have highlighted these approaches (YPIC/DTQI, DBT) as flexible strategies that target dimensions associated with a specific disorder/problem area. However, it is important to note that there are other examples of this general approach, for instance the Adolescent Coping with Depression Course, Interpersonal Psychotherapy for Adolescents, and interested readers are referred to other sources for additional information ([nrepp.samhsa.gov](http://nrepp.samhsa.gov)). This dimensional approach could be described as targeting transdiagnostic dimensions. Suicidality, self-injurious behavior, emotion regulation and the other dimensions targeted in DBT are important across diagnostic categories. High and impairing levels of depressive symptoms are seen across disorders, and rates of depressive symptoms are high in the general population with rates ranging from 27% to 40% in diverse primary care clinics (Asarnow et al., 2005), and depression can be life-threatening due to the links between depression and suicide deaths. This highlights the importance of some focus on depression regardless of other co-occurring problems.

A second related approach is designed specifically to focus on transdiagnostic processes. One innovative example of this approach is the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (Barlow, 2011). This approach targets the broader dimension of negative emotionality, which encompasses both anxiety and depression. The Unified Protocol incorporates advances in emotion regulation, motivational interviewing, mindfulness techniques, and exposure-based procedures to enhance an individual's ability to respond adaptively to intense emotional experiences, down-regulate intense negative emotional experiences, and extinguish anxiety and distress associated with intense emotions (Campbell-Sills et al., 2006). Following research documenting the efficacy of the unified protocol for adults (Farchione et al., 2012), this approach has been adapted for adolescents, and examined using a multiple-baseline design (N=3), with results indicating reductions in anxiety and depressive symptoms at post-treatment, with continuing improvements through a six-month follow-up. (Ehrenreich et al., 2009).

A third approach involves breaking current evidence-based treatments into essential treatment elements. This approach has been used by (Chorpita and Daleiden, 2009) who identified common practice elements included in evidence-based treatments tested in RCTs and developed an online searchable database ([www.practicewise.com](http://www.practicewise.com)) to support clinicians in identifying strategies to address specific target behaviors or diagnoses for persons of a particular age, gender, ethnicity, and/or in a specific setting (Chorpita et al., 2011). With this information, and a list of common procedures used across evidence-based treatments to address the specified problem, clinicians can customize their treatment plan for the complex needs of individual youths and families.

The Chorpita and Daleiden (Chorpita and Daleiden, 2009) approach was expanded in a recent study which examined whether redesigning evidence-based practice to address co-occurring disorders could improve care in mental health specialty settings. This Modular Approach to Therapy for Children with Anxiety, Depression, or Conduct Problems (MATCH) (Weisz et al., 2012) redesigns treatment procedures from evidence-based care for anxiety, depression, and disruptive conduct into free-standing modules that form a menu of options for clinicians. Decision flowcharts guide module selection and sequencing. This modular approach was tested against standard manualized treatment, with community therapists in specialty mental health clinics trained in delivering three separate treatment manuals to address these three problem areas, in a trial conducted in specialty mental health clinics. In this trial, the modular care outperformed the standard care (Weisz et al., 2012).

In conclusion, there are multiple approaches to the problem of patient complexity and co-occurring problems. Innovation and continued research is clearly needed to clarify optimal strategies for addressing the needs of the complex youths who struggle with mental health problems and the providers and organizations that care for these youths and families. The optimal approach may vary for youths with different presentations and severity of dysfunction. For instance, based on the current evidence base, for youths with severe depression and only mild levels of other problems, evidence-based pharmacologic and psychosocial treatments targeting depression are likely to prove most effective. Similarly, for youths with high levels of suicidality, emotion dysregulation, and multiple suicide attempts and episodes of self-harm, DBT or other specialized treatment approaches such as mentalization may be the preferred treatment. For youths presenting with similar levels of anxiety and depression, the Unified Protocol or MATCH may be appropriate; and for youths with high levels of comorbidity and no life threatening suicidality and/or depression MAP or MATCH may be preferred. Regardless of which strategy appears optimal based on the evidence, what is best for any individual youth in practice is also determined by the skills of the individual provider and ability to implement the treatment strategy effectively.

### Linkage to Treatment

Linkage to care is a general problem. However, this is a particularly severe problem among suicidal youths. Current data indicate that, even among the very high risk group of suicidal patients seeking ED treatment, rates of linkage to outpatient treatment after ED discharge are often alarmingly low- as low as 20% in some EDs with an average of about 50% (Olsson et al., 2005, Doshi et al., 2005, Rotheram, 1987). This is particularly concerning given

recent data indicating that 66% of youth ED patients seen for suicide attempts are discharged home, discharge to home vs. hospital is associated with the lowest rates of follow-up treatment, and hospitalization after an ED visit for suicidality is more strongly associated with the type and location of ED than the characteristics and needs of youths (Levine et al., 2005). Additionally, boys who are at particularly high risk of death by suicide, appear to be at risk for low use of treatment services. In girls who present to the ED with suicidality, suicide attempt risk was associated with increased use of overall services, inpatient services, and medication treatment, whereas ED visits was the only service variable that increased with increasing suicide attempt risk for boys, suggesting that boys are often under-treated despite a need for continuing care as indicated by repeat suicidal behavior (Asarnow et al., 2009).

The low rate of follow-up care among youths seen in many EDs for suicidal behavior, data indicating high need for mental health services among suicidal youth ED patients, and data suggesting that providing evidence-based care after ED discharge may lead to improved patient outcomes, has underscored the value of an ED visit as a window of opportunity to identify youths at high-risk for suicide/suicide attempts and link them to needed services. Indeed, objective 8.4 of the 2012 National Suicide Prevention Plan is to: “Promote continuity of care and the safety and well-being of all patients treated for suicide risk in emergency departments or hospital inpatient units.” Effective approaches for achieving this objective have been identified for youths (Asarnow et al., 2011a, Ougrin et al., 2010, Rotheram-Borus et al., 2000, Spirito et al., 2011). The interventions that have shown the strongest impact on improving engagement and linkage to follow-up care include both a brief psychotherapeutic intervention at the point of emergency contact in conjunction with continuing contact after discharge with support for linking to follow-up services (Ougrin et al., 2012, Asarnow et al., 2011a).

## 5. Innovative Models for Transforming Care

Models exist and are emerging for addressing the challenges involved in disseminating and integrating evidence-based mental health care within community settings. We offer examples below for depression and suicidality; including one example of innovation within the health care sector and another involving community partnered approaches for each topic area.

### Depression

**Youth Partners in Care/Depression Treatment Quality Improvement in Primary Care (YPIC/DTQI)**—Building on work with adults and late-life depression (Wells et al., 2000, Unutzer et al., 2002), the YPIC trial discussed previously demonstrated the benefits of a QI model for improving access to evidence based depression care for adolescents through primary care. To adapt and implement this approach across six clinical sites within five diverse health care organizations, ranging from managed care, to public sector clinics, to academic medical centers, the approach involved three major components: 1) an expert leader team composed of key leaders from each organization who collaborated with the project team to adapt the intervention model to the needs of the organization and lead the intervention within the organization; 2) education regarding depression evaluation and

management offered to all primary care providers through meetings, detailed manuals, pocketcards, with additional contacts to provide support and updates regarding new information; and 3) care managers placed in the primary care practices who provided manualized group and individual depression CBT (as described previously) and support primary care providers with patient evaluation, treatment choice, patient monitoring, and coordination of services. In addition to the primary study results documenting intervention effectiveness, discussed previously, (Asarnow et al., 2005, Asarnow et al., 2009), a few additional findings merit note. Consistent with other data suggesting that QI interventions have strong potential for decreasing disparities in mental health care for ethnic minority youth, minority youths benefited substantially. Indeed, the strongest intervention effects were observed among minority youths (Ngo et al., 2011). Moreover, within the context of this broad QI initiative where organizations and primary care providers were organized around depression QI and providers received education regarding depression evaluation and management, there were substantial benefits associated with receiving psychotherapy/ counseling and/or medication for depression across both the QI and enhanced TAU conditions. Instrumental variable analyses that controlled for selection effects (the tendency for sicker youths to receive more treatment) revealed that youths receiving “appropriate treatment” (defined as 6 or more psychotherapy sessions and or antidepressant medication), compared to others, were significantly less likely to have severe depression, with similar findings observed among Latino and other youths, and youths with DSM-IV defined depressive disorders and sub-syndromal depressive symptoms. These data support the view that care that approximates guideline standards but retains leniency substantially reduces the likelihood of severe depression after a 6-month treatment period (Wells et al., 2012) and that QI approaches like YPIC/DTQI that offer integrated collaborative depression and primary care may offer a strategy for decreasing disparities in mental health care and outcomes for ethnic minority youths.

**Community Partners in Care**—Although this project focused on adults, the Community Partners in Care (CPIC) project offers a promising model for bringing evidence-based mental health care to low-income and minority communities whose health care resources are unlikely to be able to meet the challenges of providing high quality mental health care. This project employed a community engagement strategy, developed with community participatory research principles. The primary CPIC aim was to examine the impact of bringing together a broad coalition of health and other service sector community agencies, such as substance abuse and housing programs, to partner and provide evidence-based depression care to adults (Chung et al., 2010). This partnered approach led to a decision to expand access sites to nontraditional locations such as community centers, parks, barber/ beauty shops, and gyms and to expand the program focus to less “clinical” outcomes such as employment/work force, housing, victimization and other common stresses. Program evaluation results indicated that community participatory collaboration was more successful than a comparator condition that simply provided evidence-based depression care resources (manuals and toolkits) to similar agencies in improving mental health quality of life and physical activity for primarily low-income Hispanic and African Americans (the predominant participants of this study). Additionally, community engagement resulted in reducing risks factors for homelessness, rate of behavioral health hospitalizations, and

medication visits to specialty providers while increasing depression visits among primary care, public health facilities, and faith-based programs. Community engagement offers a viable alternative for improving care and this approach could be extended to services for youths. This approach could help to eliminate disparities in mental health care; while improving quality of care in primary health care settings decreases disparities in those settings for both adults (Miranda et al., 2003, Wells et al., 2004); and youths (Ngo et al., 2009), these interventions are unlikely to be sustainable in under resourced communities of color.

## Suicidal Behavior & Suicide/Suicide Attempt Risk

### **Emergency Department Interventions: Family Intervention for Suicide**

**Prevention (FISP)**—To address the problem with linkage to treatment after discharge from the ED/hospital, the FISP, an adaptation of the specialized ER (now ED) intervention developed by Rotheram-Borus and colleagues (Asarnow et al., 2008, Rotheram-Borus et al., 2000), was developed and evaluated. The FISP included three main components 1) an ED level staff training designed to improve usual ED care and the quality of the ED environment in which the other intervention components were delivered; 2) a crisis therapy session with youth and family designed to strengthen protective factors in the family and youth; and 3) care linkage contacts after the ED visit to support linkage and adherence to follow-up treatment. Implementing this emergency mental health intervention within EDs was challenging given the demands of the ED setting and high-need ED patient population. Similar to the model used in YPIC, collaborative expert leader teams at each ED were formed and included key opinion leaders and champions from the site: an emergency physician, a psychiatrist, and a psychologist, all of whom carried key clinical and administrative responsibilities at the site. Because this evaluation trial blended effectiveness and efficacy approaches, expert leader team members were both clinicians/opinion leaders at the site and members of the project team. This offered more control over program implementation, relative to the approach used in effectiveness trials such as YPIC, and greater control over intervention delivery and fidelity was thought to be needed given that the efficacy of the intervention remained to be established. However, as in YPIC, the FISP implementation model allowed flexibility within the general structure of the model with the aim of tailoring the model to emphasize strengths and address barriers within each ED site. Consistent with literature indicating that strengthening social connectedness affords some protection for youths struggling with suicidality, the FISP emphasizes creating a supportive treatment environment, mobilizing support within the family and/or among others in the youth's social world. Involvement of the family in the treatment also provides an opportunity to strengthen protection through educating family members about the importance of restricting access to potentially dangerous suicide attempt methods (e.g. firearms, medicines), enhance family motivation for treatment, and address barriers to treatment at the family as well as individual level. The FISP crisis therapy session in the ED also aims to 1) shift the youth towards a more hopeful view of her/himself, her/his family, and enhance social supports through an exercise in which both youths and family members were supported in identifying positive attributes in the youth and family, 2) strengthening youths abilities to understand their emotional reactions by introducing the concept of an emotional thermometer and helping youths to identify physiological signs, thoughts, and

behaviors associated with calmer as opposed to more intense and “unsafe” emotional reactions; 3) developing and practicing a safety plan involving using a range of cognitive and behavioral skills to down-regulate intense emotions associated with increasing risk of suicidal behavior; 4) identifying responsible individuals the youth could go to for support if they needed help to stay safe; 5) creating a safety card that youths took with them that listed the cognitive and behavioral skills for staying safe as well as the people they would go to for help staying safe if they experienced high distress and increased risk of suicidal behavior; 6) obtaining a commitment to use this SAFETY plan rather than suicidal behavior; 7) providing a positive therapy experience that would enhance motivation for future therapy, and 8) motivating youths and parents to link to subsequent treatment.

This randomized controlled trial indicated that the FISP was significantly more effective than usual ED care enhanced by provider education regarding youth suicidality, with 92% of youths receiving the FISP attending outpatient follow-up treatment vs. 76% in the enhanced TAU condition. These results, however, did not extend to clinical outcomes such as depression or suicidality, and results of instrumental variable analyses that explored the effects of outpatient TAU on clinical outcomes suggested no apparent benefits of attending community outpatient TAU on clinical/functioning outcomes such as suicidal behavior, severe depression, and total problem behavior/overall psychopathology. These results, underscore the critical need for more effective community treatment after ED discharge, a critical next step for the field.

**System Redesign & Quality Improvement (QI)**—There are some demonstrations of system redesign and QI initiatives that have yielded reductions in suicide and suicidal behavior. Although not statistically powered to examine suicide/suicide attempt outcomes and between group differences were not statistically significant, the YPIC/DTQI intervention was associated with a greater than 50% reduction in suicide attempts (from 14.2% to 6.5%) with a somewhat smaller reduction in the TAU condition (11.6% to 9.2%), (Asarnow et al., 2009). This suggests that organizing primary care clinics around the goal of QI for depression and improving access to evidence-based depression care may have potential for decreasing suicidal behavior. Moreover, the Henry Ford Perfect Depression Care Program, which involved system redesign of care delivery, improved depression care, and a focus on the goal of reducing suicide deaths to zero among patients receiving care, (Hampton, 2010) reported a 75% decline in suicides (from roughly 89 per 100,000 to 22 per 100,000) in the first 4-years with zero suicides in the subsequent two years. These results underscore the potential value of QI programs involving broad system redesign that combine suicide prevention strategies (such as risk stratification, strong provider education on suicide risk and prevention, and attention to restricting access to weapons among high-risk patients), evidence-based depression care (access to intranet site with depression guidelines), and practice improvements to support improved care (physician extenders to support and monitor patients, electronic tools to improve quality and efficiency of care) (Hampton, 2010).

**Inter-Agency Celebrating Life Coalition**—Building on prior work and an existing partnership with the White Mountain Apache community, the White Mountain Apache



(WMA) tribe and a team from Johns Hopkins University mobilized to address an alarmingly high youth suicide rate. This work provides an innovative example of how a community partnership can lead to data collection to inform development and implementation of enhanced and effective community services.

This program responded to evidence that: 1) the average suicide rates among youths ages 15–24 was up to 10–12 times higher than rates for same-aged youths in the U.S. all races and 5–6 times the rate of American Indian/Alaska Native (AI/AN) youths in the 1990s and 2000; and 2) there was a cluster of suicides among youths on the WMA reservation. To address this evidence, the WMA Tribal Council passed a tribal law requiring mandated reporting of all suicidal incidents including suicide, suicide attempts, and suicidal ideation to a central registry. The community-based participatory partnership between the Tribe and the Johns Hopkins Native American Research Center for Health builds on the collective wisdom of WMA community partners and the scientific expertise of the Johns Hopkins partners. This team began by developing a surveillance system and used the surveillance data to strengthen suicide prevention within the WMA community. This unique surveillance system employs Apache community paraprofessionals whose role includes: 1) educating the community about the surveillance system and data registry forms; 2) verifying and entering surveillance data on suicide incidents, antecedents, and follow-up of identified individuals and their families; 3) following up on identified cases and facilitating referral to care/services; and 4) working with community leaders and providers to use the surveillance data to strengthen suicide prevention (Mullany et al., 2009).

Surveillance data highlighted additional information that informed suicide prevention efforts. For instance, data from 2001–2006, indicated a particularly high rate of suicide deaths among Apache youths, with 70% of suicide deaths occurring among youths < 25 years during 2005 and 2006, with the highest incidence among youths aged 15–24 years (a rate of 128.5/100,000, 13 and 7 times respectively the rate for U.S. all-races and all AI/AN youths), and an elevated rate among youths aged 10–14 years, 15 times the rate for US all-races and 7 times the all AI/AN rate. These rates are comparable to those for 1994–2000, prior to tribally directed surveillance, suggesting that these elevated rates cannot be accounted for by the existence of the surveillance system. The surveillance data also indicate an elevated suicide attempt rate, and a more equal distribution of males to females (approximately 1:1 vs 3:1) relative to national all-races data. Suicide attempt rates peaked during ages 15–19, and suicide deaths peaked in older youths, ages 20–24. Despite a high rate of firearm ownership within the community, hanging was the predominant suicide method among Apache youths (80%) followed by firearms (16%). In contrast, the predominant method for US all-races youths during the surveillance period was firearms (52%), followed by hanging (33%) and overdose (8%). The pattern of suicide deaths pointed towards links between suicide and alcohol and other substance abuse and AI populations have the highest drug abuse morbidity and mortality of any racial/ethnic group in the U.S. (Indian Health Service, 1997). The most frequently reported precipitants for suicide attempts in ranked order were: family conflict; conflict with boyfriend/girlfriend; suicide or loss of loved one.

Results from this innovative partnership and surveillance system have informed community-based suicide prevention strategies. Facilitated by a SAMHSA grant, a multi-faceted suicide prevention strategy was implemented. This strategy includes UNIVERSAL approaches targeting the broad community, such as development and tribal sanctioning of an Inter-agency Celebrating Life Coalition to coordinate services for Apache youths, community awareness/education led by tribal leaders and elders, and implementation of media guidelines to decrease risk of suicide/suicide attempt contagion effects. SELECTIVE interventions that target high-risk groups, are also used and include: gatekeeper training of individuals likely to be in contact with at-risk youths aimed at early identification and triage; traditional Apache “talking circles”; and training of Natural Helpers to support linkage of youths and families to services. Further, INDICATED approaches for youths with “suicide incidents” are being implemented including a specialized ED/emergency intervention described earlier (Rotheram-Borus et al., 2000, Asarnow et al., 2011a, Asarnow et al., 2008) and the American Indian Life Skills Development Curriculum taught by Apache paraprofessionals (LaFromboise, 1995, Lafromboise and Lewis, 2008). Data on outcomes associated with this work should be available in the near future (personal communication, Walkup, 2013).

## **6. Recommendations: Strategies for advancing science, practice, and health and mental health care systems**

We enter this era of health care reform, at a time when the field has had major success. The literature documents efficacy and effectiveness for many intervention and service delivery strategies. Yet, major challenges remain for implementing the products of science. Research is urgently needed to inform implementation and dissemination efforts, particularly in this era of health care reform when there is an emphasis on improving quality of care, patient outcomes, and accountability. The creative approaches described in this article for putting science to work, bridging science and community practice, and developing and testing strategies for partnering with communities to improve care may help inspire research and practice efforts to achieve the ultimate goal of improving mental health and well being.

Below we highlight some conclusions and recommendations based on this review:

### **1. Improved access is critical**

With the ACA and Mental Health Parity Law access is improving, with many more low-income parents and youths having insurance in the US. The greater access to insurance is expected to reduce insurance-related barriers, however, practical barriers remain. Demonstrations of improved access to care when services are provided in schools and other natural settings (Kataoka et al., 2009, Rotheram-Borus et al., 2012, Wells et al., 2013, Atkins, 2011), underscore that there are strategies for improving access to care and that continuing innovation is needed to further develop and implement service delivery strategies that increase access. The combination of legislative and funding policies that support innovation in this area, makes this an opportune time for this work, particularly for minority and other populations with known access problems. Recent legislation increasing access to

care for both adults and youths also has potential for improving outcomes for both parents and youths, preventing cycles where dysfunction in one family member leads to escalating stress and dysfunction in other family members, a common problem among families struggling with depression and/or suicidality (Hammen, 2009, Garber et al., 2009). The time is ripe to use science to enhance the positive impact of these legislative changes.

**2. The increased focus on prevention and integrated mental health and primary care offers opportunities to promote health and mental health using models from science.**

Incentives within the evolving health care system will favor integrating mental health care within primary care, supporting QI of mental health services and an increased focus on prevention and wellness. From the perspective of this article which focuses on depression and suicide risk, this is likely to translate to increased emphasis on screening for depression and suicide risk as well as innovative strategies for providing preventive care. Indeed, the Healthcare Effectiveness Data and Information Set (HEDIS), a tool used by more than 90% of health plans in the US to measure performance on important dimensions of care and service, lists depression screening for adolescents and adults as one part of achieving the PCMH 2011 Development Goal of integrating care for behaviors affecting health, mental health and substance abuse ([http://www.ncqa.org/portals/0/programs/recognition/PCMH\\_2011\\_Overview\\_5.2.pdf](http://www.ncqa.org/portals/0/programs/recognition/PCMH_2011_Overview_5.2.pdf)) The National Prevention Strategy (National Prevention Council, 2011) developed by the National Prevention, Health Promotion, and Public Health Council (created through the ACA) also prioritizes: promoting emotional and mental well being; preventing risk factors, correlates, and negative sequelae of depression such as drug abuse, excessive alcohol use, obesity, risky behavior, and violence; and strengthening protective factors such as family support. As described in this review, extent research can inform integration of depression treatment efforts for adolescents within primary health care settings, providing opportunities for prevention as well as early detection and treatment that can limit secondary complications and dysfunctions. These models will likely be employed as health care reform reduces the barriers to providing mental health care in medical settings. Further study clearly is needed for suicide prevention efforts. However, QI models have been developed with promise for suicide prevention that could be transported to community settings on a broader scale with a comprehensive evaluation of impact. Due to the thankfully low rate of suicide deaths, such large scale evaluations are needed to detect effects on suicide outcomes.

**3. Improving access to evidence-based practices and ensuring that evidence on outcomes is used to evaluate service effectiveness and improve care is critical**

Despite strong evidence for the efficacy of some interventions, and some documentation of effectiveness in real-world community settings, more work is needed. The relatively limited data on effectiveness under real-world treatment conditions as well as effective treatments for suicide risk calls for continuing

efforts to blend efficacy and effectiveness elements in evaluation trials with the goal of ensuring that the evidence-base applies to the real world demands of clinical care settings. Innovation and effective practices can emerge from practice as well as science. Partnerships and collaborations among scientists, clinicians, community members, and consumers are key for improving care and outcomes in their communities. A continuous quality improvement model will support feedback from science to practice, practice to science, and continuing innovation, shortening the time between implementation of a quality improvement/intervention program and broad diffusion, particularly when flexibility is maintained to adapt programs to optimize adoption and effectiveness (Rotheram-Borus et al., 2012).

**4. There is no simple answer; personalized care is needed to address heterogeneity in characteristics of youths, families, and communities struggling with depression and suicide/self-harm.**

Substantial heterogeneity exists among individuals who suffer from depression, engage in suicidal or self-harm behavior, and die by suicide, requiring that treatment and service delivery strategies have the flexibility to address the particular needs of individuals and families. Consistent with the concept of personalized medicine, care is likely to prove most effective when this diversity is considered and care strategies adjusted to best meet the needs and strengths of youths, families, and the communities within which they live. This review has described several approaches to meet this need to tailor and personalize care to the fit the needs and strengths of individuals, families, and communities.

**5. Optimal care models will need to address both acute risk states as well as continuing risk through regular check-ups/monitoring and additional treatment when needed.**

Data indicate that elevated risk continues over extended periods of time, and throughout the lifetime for many high-risk individuals. The “perfect storm” of risk factors in the absence of protective processes can lead to suicide deaths, attempts, and/or depression recurrence long after treatment episodes (Prinstein et al., 2008, Wells et al., 2008). Optimal models for depression and suicide prevention, therefore, will require extended care and monitoring programs among those with elevated risk, as well as public health interventions that can mitigate risk and reduce environmental risk factors for suicide such as access to lethal means, media and internet exposures associated with increased risk, and rapid intervention programs to support communities experiencing increased suicide risk (e.g. schools after suicide deaths, communities with exceptionally high rates of suicide deaths). The suggested model is that of continuing/chronic risk vs. an acute disorder with full recovery, underscoring the importance of addressing risk and protective processes over time to prevent fatal and other adverse outcomes.

**6. Recognition of both the successes and limitations of current science, has led to renewed attention to fundamental dimensions that cut across traditional disorder categories.**

This dimensional transdiagnostic approach has been adopted in the NIMH Research Domain Criteria (Rdoc), a system of constructs that identify fundamental dimensions that cut across traditional disorder categories and can be studied through basic neuroscience and behavioral science research. Many of the intervention strategies described in this article can be conceptualized within the Rdoc constructs. For instance, interventions that target broad dimensions such as depression and negative emotionality, could be conceptualized as targeting the distress construct within the Rdoc negative valence system. Similarly, those that target emotion regulation could be viewed as targeting arousal/regulatory systems. While it is unclear exactly how this dimensional approach will evolve, it is clear that this shift from disorder-focused approaches to broader dimensions will impact thinking, science, and practice. As better understanding of dimensions such as blood pressure have enhanced medical care, hopefully clearer understanding of the basic biological, psychological, and social processes that contribute to mental health will enhance outcomes.

## 7. Conclusions

The goal of this article has been to place science within the context of the challenges we face and the opportunities afforded by the changing health care environment. We now have treatment models and service delivery strategies for decreasing the gap between science and practice and enhancing the quality of care available in communities. There are many challenges ahead and diverse pathways for moving forward in this era of health care reform. Innovation, thinking outside of traditional service delivery paradigms, collaborative partnerships, and hard work will help us to realize the potential of this science for improving the lives of youths, families, and adults.

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**Table 1**

Comparison of Efficacy and Effectiveness and Pragmatic Trials.

Study Elements	Efficacy Trial	Effectiveness & Pragmatic Trials	
		ADAPT	YPIC
<b>Examples</b>	<b>TADS, TORDIA</b>		
<b>Question</b>	Safety and efficacy- how well do alternative treatments work?	Effectiveness- how well do alternative treatment conditions work in routine practice with routine practice elements (usual providers, patient choice)?	
<b>Sample Selection</b>	Selected, heterogeneity decreased through clinical exclusions	Heterogeneous, modest restrictions to exclude youths where treatment would be inappropriate	
<b>Setting</b>	Controlled, resourced, often academic laboratory	Community Practice	
<b>Providers</b>	Selected, trained, rigorous monitoring for treatment adherence and competence	Usual providers, trained by study with study-supported monitoring for treatment adherence and competence	Usual providers supported through study resources, some monitoring for treatment adherence
<b>Treatment Choice</b>	Assigned by study, no patient choice	Assigned by study, no patient choice	Patient choice
<b>Treatment Decisions</b>	Single or stepped, determined by study protocol	Single or stepped, determined by study protocol	Complex treatment decisions made by usual providers with study resources providing algorithms to guide decision-making