

**Youth Recovery from Substance Use Disorders and Co-occurring Disorders:  
Implications of Developmental Perspectives on Practice, Assessment, Definitions,  
and Measurement**

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August 16, 2016

This paper was commissioned by the National Academies of Sciences, Engineering, and Medicine Standing Committee on Integrating New Behavioral Health Measures into the Substance Abuse and Mental Health Services Administration's Data Collection Programs. Opinions and statements included in the paper are solely those of the individual authors, and are not necessarily adopted, endorsed or verified as accurate by the National Academies of Sciences, Engineering, and Medicine. Support for the Standing Committee was provided by a contract between the National Academy of Sciences and the U.S. Department of Health and Human Services.

## Objective

An influential report on the management of chronic illnesses, including substance use disorders [SUDs] by the Institute of Medicine (IOM, 2001) indicated that the health care delivery system within the United States (U.S.) is in need of fundamental change. This report questioned the quality of the SUD service delivery system, finding that care is often delivered in a fragmented way that does not meet the needs of clients, nor is it based on the volumes of research that supports SUDs as chronic and relapsing conditions in need of a continuum of care (IOM, 2001; Dennis & Scott, 2007). Given these issues, the landscape of SUD service delivery within the U.S. has undergone significant changes. As shown in Figure 1 to the right, **recovery support services** have increasingly become an intricate and essential part of the SUD continuum of care (Urada et al. 2015, p. 118).

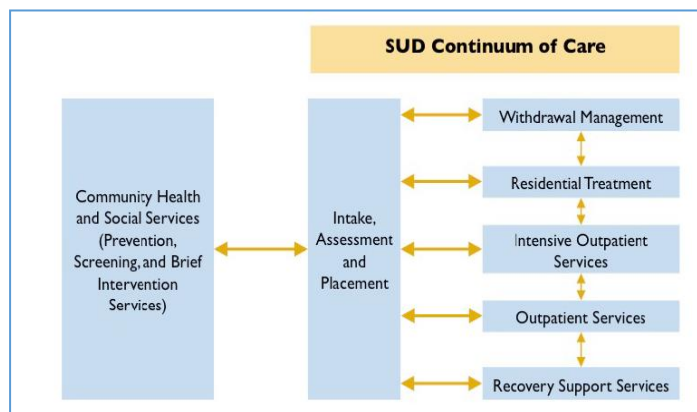


Figure 1: SUD Continuum of Care

In response to the Substance Abuse and Mental Health Services Administration's (SAMHSA) goal of identifying efficient and feasible indicators to measure recovery outcomes, the objective of this paper is to discuss the measurement of recovery from SUDs (with or without co-occurring mental health disorders) in children and adolescents, focusing particularly on *youth*. For children under the age of 12 there is a lack of research on the nature/course of SUDs. Hence, the concept of recovery is not readily applicable in children, rather aspects of prevention and early intervention are more applicable. We characterize youth primarily ranging between the ages of 12 to 17 years. This age grouping was selected given that it follows the developmental time span that is often cited in national epidemiological studies of youth, including the Monitoring the Future Survey (MTF) and National Survey on Drug Use and Health (NSDUH).

The major objective of this paper is to:

- Contextualize the scope of the problem concerning the co-occurrence between substance use and mental health disorders among youth;
- Discuss SUDs and recovery along a continuum of care framework;
- Distinguish the course of SUDs and recovery between youth and adults;
- Explore recovery within the context of SUD practice;
- Review the context of SUD assessment and implications for recovery measurement;
- Highlight possible measures of recovery for youth; and

- Conclude with issues related to measuring recovery in youth and future directions.

### **Scope of the Problem**

Substance use and mental health disorders are leading causes of morbidity and mortality in the United States (Center on Addiction and Substance Abuse, 2011; Eaton et al., 2012). According to national epidemiological data, there are roughly 23 million individuals in the U.S. that currently meet diagnostic criteria for a substance use disorder, which translates into being 9 percent of the population 12 years and older (SAMHSA, 2011; McCarty, McConnell, & Schmidt, 2010). Trends in the incidence and prevalence of substance use and mental health disorders among the general U.S. population 12 years and older show that on average, the onset of such issues start during the early developmental period and peak during the young adult years spanning 18-24 years old (Jessor, Donovan, & Costa, 1991; Hanson, Cummins, Tapert, & Brown, 2011). Studies show that although experimentation of substances and issues with mental health are likely to occur among youth, ages 12 to 17 years old broadly (Keyes et al., 2012; Brown & Ramo, 2006; Dielman et al., 1991; Khoddam et al., 2015), research supports that the risk for onset of having an actual substance use disorder (SUD) or mental illness tends to peak during late adolescence and among young adults in their early 20s (McGue & Iacono, 2008; Hasin et al., 2015; Walters, 2015).

Dual diagnosis, a term used to describe the co-occurrence of substance use and mental health disorders, is the rule rather than the exception among youth populations (Kaminer, 2015). Research shows that although youth with substance use disorders are heterogeneous, one of the largest subgroups is composed of those with one or more comorbid mental health issues, including anxiety, depression, trauma, and other behavioral issues (conduct/oppositional defiant/ attention deficit/hyper-activity disorders), estimated at 70 to 80% (Kaminer, 2015). To date, there are volumes of information on the *etiology and progression* of substance use and mental disorders. Research shows, for instance, that exposure to childhood adversities, encompassing a range of issues such as sexual and physical trauma, family dysfunction/neglect, neighborhood insecurities, poverty, and socioeconomic stress can have a cumulative effect on one's risk and/or resilience for poor outcomes into adulthood, especially with regards to substance use and mental disorders (Lee, McClernon, Kollins, Prybol, & Fuemmeler, 2013; Evans & Kim, 2012). Although there is a lack of consensus regarding causal risk pathways, i.e., mental health issues increasing risk for greater substance use disorders or vice versa, studies have generally shown that there are shared developmental pathways to substance use disorders and co-occurring mental health disorders in youth which result in a trait termed a Transmissible Liability Index (TLI), which produces a deficiency in psychological self-regulation of high-risk behaviors like substance use (Tarter & Horner, 2015). Given that co-occurring SUD and mental illness is very common among youth (Center for Behavioral Health Statistics and Quality, 2015), we opted to focus the paper on conceptualizing, addressing, and measuring recovery among youth with SUD (with or without co-occurring mental disorders).

## **A Continuum of Care Framework for Understanding SUDs and Recovery**

Large bodies of literature exist on identifying effective *solutions* to address substance use and mental disorders among youth (Sussman, Skara, & Ames, 2008). With recent shifts in health care policy, there has been a movement away from a dichotomous framework of prevention vs. treatment, towards a paradigm that conceptualizes and addresses substance use and mental disorders along a continuum of care (see Figure 1 above).

This shift has led to major initiatives that are currently taking place at the national level. One shift is a focus on *early identification* of SUDs. Screening, brief intervention and referral to treatment (referred to as SBIRT), endorsed by SAMHSA and the Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) program governed by the Centers for Medicare & Medicaid Services (CMS), are two large efforts that address this area of the continuum. The rationale behind such efforts of screening for early detection and intervention of substance use risk behaviors is to help prevent long-term negative outcomes associated with the development of substance use and mental disorders seen among youth (Babor et al., 2007; Committee on Substance Abuse, 2010).

Another area that has gained increasing attention under this continuum paradigm is *recovery* from SUDs. Over the past 30 years, there have been several studies conducted on populations with SUDs (with or without mental health disorders) to understand recovery as it pertains to treatment outcomes. Historically (and still today), treatment outcome evaluations have primarily focused on three traditional measures: abstinence/substance use reduction, increased public safety/reduced crime, and increased productivity/social function (McLellan et al., 2005). Based on these indicators, treatment outcome research has established that recovery from substance use and mental disorders is complex among both adult and youth populations alike.

### **Course of SUDs and Recovery: Adults vs. Youth**

In order to begin to understand the concept of recovery from SUDs (with or without co-occurring mental disorders), it is important to highlight major developmental distinctions between adults and youth. Adults with SUDs start off “sick” or in a diseased state, as supported by pronounced damage to the brain shown in neuroscience imaging studies (Volkow & Morales, 2015). Adults also tend to have distinct clinical signs and symptoms associated with a diseased state of substance use disorders, such as more intense or indicated craving, greater physical and psychological impairment, more instability with social issues of housing and/or work, harsher economic status with limited income and resources, increased interpersonal dysfunction with families and children, greater involvement with legal systems, limited social support outlets, and decreased spiritual openness (Anglin & Hser, 1990; Hser et al., 1998). Treatment outcome studies have established that substance use disorders progress through complex repeated cycles of cessation, abstinence, and relapse that occur over a lengthy trajectory (Hser, Longshore, & Anglin, 2009; Satre, Chi, Mertens, & Weisner, 2012) and that tend to require continuous monitoring and management over extended periods of time (Cacciola, Camilleri, Carise, Rikoon, McKay, et al., 2008). Such treatment outcome studies have led

to models for characterizing substance use and related mental health disorders as “addiction and treatment careers” (see Anglin, Hser, & Grella, 1997) and “chronic health problems” similar to psychiatric and other long-term illnesses like diabetes and hypertension (see McLellan, Lewis, O'Brien, & Kleber, 2000).

Youth are not mini-adults (Kaminer & Godley, 2010). Research shows that the youth brain is under development, until the mid-20s. Given this developing brain phenomenon, signs and symptoms of substance use and mental disorders for youth populations manifest differently, with varying levels of severity and wide heterogeneity (Clark, 2004; Tapert, Caldwell, & Burke, 2004; Squeglia & Gray, 2016). Longitudinal studies show that treatment outcome trajectories among youth tend to manifest differently also. Specifically, three subgroups of youth tend to emerge with different outcome patterns - about a third tend to respond well to treatment and stop using substances altogether; another third tend to vacillate between patterns of use and non-use; and another third do not respond well to treatment and get progressively worse (Kaminer, Winters, & Kelly, 2015; Dennis et al., 2004; Williams & Chang, 2000; Brown & Tapert, 2004; Brown, Ramo, & Anderson, 2010). Furthermore, despite increasing support for a chronicity/illness framework, the applicability of such a model to youth populations is less studied and findings are still emerging.

### **Recovery Within the Context of SUD Practice**

The chronic illness contextualization of substance use disorders with or without co-occurring mental health issues has major implications in the field around the practice of recovery support. Historically, organizations that provide services for substance use disorders have largely operated as specialty providers that deliver a specific service (e.g., detoxification, outpatient or residential rehabilitation) for an intensive period of time over a relatively short interval, i.e., 3 months, followed by discharge from such specialty treatment service. Client progress in treatment has largely been characterized by meeting key treatment milestones/goals to graduate or complete. The dominant treatment milestones/goal for both adults and youth are based on an abstinence/relapse model. This model has set the stage for the way the practice of recovery support has been delivered. Specifically, recovery support for substance use disorders (with or without mental health issues) has been the giving and receiving of non-professional, non-clinical assistance to achieve long-term recovery via self-help community based programs, like Alcoholics Anonymous (AA) or Narcotics Anonymous (NA) (White, Boyle, & Loveland, 2004). These self-help recovery support programs are based on a 12-step model of SUD recovery that enforces total abstinence (McLellan, Lewis, O'Brien, & Kleber, 2000). Specifically, the major premise underlying such self-help models is that substance use disorders are physiological diseases that are successfully addressed through relinquishing personal control to a higher power and active 12-step self-help meeting involvement, with the objective of maintaining life-long sobriety (Alcoholics Anonymous, 2001). As such, most of what is known about recovery is based on outcomes related to participation in self-help (AA/NA groups) and abstinence for both adults (McLellan, McKay, Forman, Cacciola, & Kemp, 2005; Dennis & Scott, 2007) and youth (Kaminer & Godley 2010).

Research supports the utility of 12 step self-help programs (i.e., Minnesota Model<sup>1</sup>) for producing positive recovery outcomes with respect to reductions in substance use behaviors (Winters, Stinchfield, Latimer, & Lee, 2007) when there is active participation (Humphreys, Wing, McCarty et al., 2004) and mainly for adult populations (Laudet, 2007; El-Guebaly, 2012). There is inconclusive evidence of the benefit of these recovery support groups among youth. Studies show that participation in self-help (12-step based programs) is sparse among youth (Alcoholics Anonymous, 2007). Such low involvement has been primarily linked to developmental disconnect as most group members are significantly older, have longer substance use histories, and report greater life challenges due to their age (Passetti & White, 2008; Sussman, 2010). In addition, studies support that youth are less likely to connect with the self-help NA/AA program focus (i.e., disease notions of substance use, total abstinence motto, and life-long recovery process) (Kelly & Myers, 2007; Gonzales, Anglin, Beattie, Ong, Glik, 2012a,b; Gonzales, Anglin, Glik, & Zavalza, 2013). Given these limitations, this literature is problematic for understanding youth recovery from self-help recovery-based programs.

With the shift towards viewing substance use disorders as a chronic health issue and calls for integrating substance use disorders into the health care system (Mechanic, 2012), there has been an aggressive movement to identify and integrate easily deployable behavior-based recovery support/aftercare services that focus on wellness and process oriented models of care into the SUD system of care. One change has been the way recovery support is conceptualized (Godley & White, 2003). Similar to health care disease management models, there is a growing focus in the SUD field to adopt and develop alternative recovery support programs that promote the self-management of SUDs that focus on recovery indicators that are individualized to the needs of the clients as they transition out of intensive treatment back into the community. According to the American Society of Addiction Medicine (ASAM, 2001), aftercare should be “the provision of a recovery plan and organizational structure that will ensure that a patient receives whatever kind of care he or she needs at the time. The recovery program should be flexible and tailored to the shifting needs of the patient and his or her level of readiness to change” (p. 361). Aligned with such conceptualization, there has been growing research in the field supporting the use of adaptive-based models of aftercare that address the unique risks and needs of the individuals in recovery, i.e., addressing different patterns of use (severity), antecedents, and consequences (Chassin, Flora, & King, 2004; Kaskutas et al., 2014), as well as, designing recovery programs that include the voice/experience of the individuals undergoing the process themselves (Gonzales et al., 2012a; Gonzales et al., 2013; Kaskutas et al., 2014). SAMHSA supports such individualized recovery models as shown by Recovery Guiding Principles in Table 1. As highlighted, there are many different pathways to recovery and each individual determines his or her own way (<http://blog.samhsa.gov/2012/03/23/definition-of-recovery-updated/#.VzPUV9jrvEk>).

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<sup>1</sup>The Minnesota Model is also known as the abstinence model of addiction treatment. It was created in a state mental hospital in the 1950s and has since gained dominance in the field. A key element of this model is the blending of professional and trained nonprofessional (recovering) staff around the principles of Alcoholics Anonymous-AA (see Anderson, McGovern, & DuPont, 1999).

<b>Table 1. SAMHSA’s Guiding Principles of Recovery by Focus</b>
Recovery emerges from hope: The belief that recovery is real provides the essential and motivating message of a better future – that people can and do overcome the internal and external challenges, barriers, and obstacles that confront them.
Recovery is person-driven: Self-determination and self-direction are the foundations for recovery as individuals define their own life goals and design their unique path(s).
Recovery occurs via many pathways: Individuals are unique with distinct needs, strengths, preferences, goals, culture, and backgrounds including trauma experiences that affect and determine their pathway(s) to recovery.
Recovery affects the whole person, body, mind, spirit, and community. The array of services and supports available should be integrated and coordinated.
Recovery is supported by peers and allies: Mutual support and mutual aid groups, including the sharing of experiential knowledge and skills, as well as social learning, play an invaluable role in recovery.
Recovery is supported through relationship and social networks: An important factor in the recovery process is the presence and involvement of people who believe in the person’s ability to recover; who offer hope, support, and encouragement; and who also suggest strategies and resources for change.
Recovery is culturally-based and influenced: Culture and cultural background in all of its diverse representations, including values, traditions, and beliefs are keys in determining a person’s journey and unique pathway to recovery.
Recovery is supported by addressing trauma: Services and supports should be trauma-informed to foster safety (physical and emotional) and trust, as well as promote choice, empowerment, and collaboration.
Recovery involves individual, family, and community strengths and responsibility: Individuals, families, and communities have strengths and resources that serve as a foundation for recovery.
Recovery is based on respect: Community, systems, and societal acceptance and appreciation for people affected by mental health and substance use problems – including protecting their rights and eliminating discrimination – are crucial in achieving recovery.

### **SUD Diagnostic Assessment and Implications for Recovery Outcomes**

Recently the diagnostic criteria for SUDs (using the Diagnostic and Statistical Manual of Mental Disorders-DSM) underwent a revision from DSM IV to DSM 5. Under DSM 5, the core criteria for SUD currently fall along a behavioral continuum of risk severity of mild, moderate or severe rather than as discrete and dichotomous categories of abuse or dependence as was the case in version IV, see Table 2. As shown, anyone meeting at least two of 11 criteria during a 12-month period can now be diagnosed with a substance use disorder of varying severity (Compton et al., 2013). Criticism of the appropriateness of several of the DSM-5 criteria for youth has already been published (Kaminer & Winters, 2015), however this new way of SUD diagnosis aligns well with developmental research that deem youth an “at risk population” for developing substance use disorders and mental health issues (Koob et al., 2004). Specifically, as discussed in the section above related to SUDs (adults vs. youth), youth tend to engage in substance use behavioral patterns that progress over time from unhealthy risk patterns of use (i.e., mild) to more frequent and continued use patterns (i.e., moderate/severe) (Kandel, 1975; Winters & Stinchfield, 1995; Stewart & Brown, 1995).

<b>Table 2: DSM Classification of Substance Use Issues – Version IV vs. 5</b>			
	DSM-IV		DSM-5
	Abuse	Dependence	Substance Use Disorders-SUD
Failure to fulfill obligations	X	--	X
Hazardous use	X	--	X
Substance-related legal problems	X	--	--
Social substance-related problems	X	--	X
Tolerance	--	X	X
Withdrawal	--	X	X
Persistent desire/unsuccessful efforts to cut down	--	X	X
Using more for longer than was intended	--	X	X
Neglect of important activities	--	X	X
Great deal of time spent in substance activities	--	X	X
Psychological/Physical use-related problems	--	X	X
Craving	--	--	X
Diagnostic Threshold	1+ criteria	3+ criteria	Mild: 2-3 criteria Moderate: 4-5 criteria Severe: ≥6 criteria

Understanding the assessment of SUD is important for helping to frame targets of recovery outcomes. From an assessment perspective for example, Table 3 displays SUD diagnostic criteria mapped onto recovery-related outcome categories broadly. As shown, the criteria are compiled into impairment related areas associated with SUD issues that include impaired self-control, impaired role functioning, impaired judgement, and impaired physiology. Given the research that supports substance use disorders falling along a continuum that varies developmentally, by virtue of risk severity (mild, moderate, or severe), there will be differences in how youth improve across the recovery dimensions and functioning gains that are important to consider.



<b>Table 3: SUD Diagnostic Criteria and Recovery-Related Outcome Categories</b>	
DSM 5 11 Symptom Criteria	Recovery Related Outcome Categories
1. Substance taken in larger amounts or for a longer period of time than was intended 2. Unsuccessful attempts to cut down/control use 3. A lot of time spent to obtain, use or recover from effects 4. Craving -strong desire or urge to use	Criteria 1-4: Impaired Self Control
5. Failure to fulfill work, school or home obligations due to use 6. Continued use despite social or interpersonal problems 7. Reducing important social, work, or recreational activities due to use	Criteria 5-7: Impaired Role Functioning
8. Use in physically hazardous situations 9. Continued use despite knowledge of problems	Criteria 8-9: Impaired Judgement
10. Tolerance (defined by either): needing more for effects or diminished effect with same amount 11. Withdrawal (manifested by either): withdrawal symptoms or medications/substances taken to relieve symptoms.	Criteria 10-11: Impaired Physiology

In addition, there are changes made between the DSM versions IV to 5 that need to be considered from a developmental perspective in light of how SUD recovery outcomes are tracked and monitored, especially for youth. First, the new version has separate diagnoses by substance category rather than lumping all substances together. Specifically, youth are notorious for being polysubstance users, and using *uncommon* substances (i.e., inhalants, ecstasy) that may not be easily assessed with DSM criteria (Caetano & Babor, 2006). This phenomenon was referenced as an orphan diagnosis issue in prior versions of the DSM (Martin & Chung, 2008). In addition, the most common substance youth are in treatment for is marijuana (Center for Behavioral Health Statistics and Quality, 2015). Diagnosing marijuana SUDs (and measuring recovery from marijuana) poses challenges for the field in light of the current political legalization movement for recreational use across the country (National Conference of State Legislatures, 2015). National data shows that marijuana is viewed as the least risky of the illicit drugs among youth, with very few (10-12%) perceiving use as being “a great risk” (Johnston et al., 2014).

Another change made to the DSM-5 that has recovery measurement implications entails the addition of craving as one of the 11 symptom criteria. Research shows that the addition of craving may be an important recovery indicator for adults. However more research is needed with respect to the utility of the craving criterion among youth, especially in light of the fact that severe or more “chronic” substance use disorders tend to affect brain areas that may illicit craving urges (brain reward circuitry), which manifests differently for the developing brain. Moreover, there may be challenges with measuring craving among youth given that most youth do not feel they “need” treatment or have a “desire” to quit using substances. This translates into youth who end up in SUD

treatment unsuccessfully adhering to therapeutic treatment plans (Williams & Chang, 2000; Dawson, Grant, Stinson, Chou, Huang, & Ruan, 2006).

Lastly, removing legal involvement from the assessment and diagnosis of SUDs also has important implications for SUD recovery since legal issues have been a primary driver (referral source) of SUD treatment for youth (Winters, 1999). It is important that the field begin to shift away from the nexus between substance use and legal problems and begin to build in assessment that targets important high risk behavioral issues (i.e., oppositional defiant) and mental health issues that co-occur with substance use among youth (Winters, 1999; Dennis & Kaminer, 2006; White, Boyle, & Loveland, 2004).

### **Possible Measures of Recovery**

Aligned with such practice shifts, there has been divergent theoretical and clinical thinking on recovery from substance use disorders. Common characterizations include: “a process of change through which an individual achieves abstinence and improved health, wellness, and quality of life” (SAMHSA, 2011) or “a voluntarily maintained lifestyle comprised of sobriety, personal health, and citizenship” (Betty Ford Institute, 2007). Others have conceptualized recovery more as a function of strengths rather than pathologies (White & Cloud, 2008) and as a process of stages or recovery paths (Groshkova, Best & White, 2013). Currently, SAMHSA provides a multifunctional working definition of recovery: “a process of change through which individuals improve their health and wellness, live a self-directed life, and strive to reach their full potential.”<sup>2</sup> This definition parallels commonly used definitions of the concept of “recover” in health care, which means “to return to a normal state of health, mind, or strength.” Synonyms for recover include “to recuperate, get better, regain one's strength/self-control, get stronger, improve, heal, bounce back, and respond to treatment” ([www.merriam-webster.com/dictionary/recover](http://www.merriam-webster.com/dictionary/recover)). Unfortunately, there is very little knowledge or understanding on how the concept applies to youth populations with substance use (with or without co-occurring mental) disorders.

The relevance and utility of the concept of recovery from mental illness in youth has been questioned and debated (Friesen, 2007; White, 1998). The literature on recovery from mental illness in youth promotes the use of “recovery” in tandem with “resilience” which fits better with a prevention focus for youth. In contrast, the operationalization and measurement of recovery from SUDs in youth is still under development. In light of the chronic nature paradigm of substance use and mental health disorders in the field, understanding the process of recovery and its complexities among youth has been of growing interest. The question about how recovery should be measured among youth is challenging and complex given the varying nature of substance use disorder patterns and recovery trajectories (discussed earlier).

Despite such expert attention to what recovery constitutes, Gonzales et al. (2012a; 2012b; 2013) conducted in-depth examinations of recovery from youth affected by substance use disorders. This work revealed that many youth in treatment reject chronic disease notions

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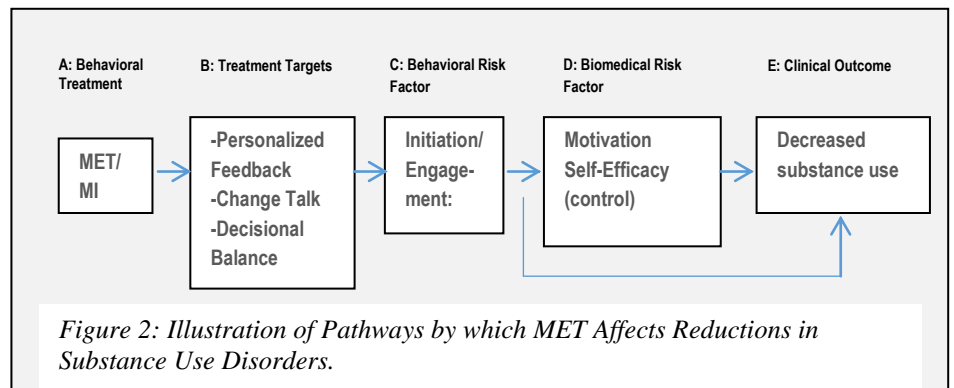
<sup>2</sup> See <https://store.samhsa.gov/shin/content/PEP12-RECDEF/PEP12-RECDEF.pdf>.

of substance use disorders (i.e., the requirement of total abstinence, life-long recovery, and relinquishing personal control to a higher power); and instead view substance use as behaviors that can be self-regulated and changed via personal control efforts; and recovery as a lifestyle change process, including adopting healthy alternative lifestyles. This research highlights an important challenge with measuring recovery from the way in which substance use disorders are currently conceptualized – as chronic and relapsing conditions. Specifically, there is a mismatch between the way the field is measuring SUD recovery and the way youth misperceive the actual risk of their substance use behaviors, and their difficulty understanding the “cumulative risk” of continued use over time (i.e., chronicity/disease).

Overall, given the vast array of definitions for recovery that pose complexities for the field (Widbrot, Kaskutas, & Grella, 2015) and the fact that signs and symptoms of SUDs (with or without co-occurring mental health issues) do not fall along a unidimensional model, but rather along a more complex multi-dimensional model, it is recommended that recovery measurement approaches/models be: 1) rooted in the emerging effectiveness research and 2) be developmentally appropriate.

An important step towards identifying developmentally appropriate recovery measures for youth is to review the treatment literature and identify “targets of change,” also called mechanisms of action (Black & Chung, 2014; Morgenstern & McKay, 2007). Collier (2008) has suggested a mechanisms logic model in which, evidence based behavioral treatments should address critical treatment targets that reduce behavioral and biomedical risk factors that, in turn, affect clinical outcomes.

Using this logic model allows for understanding the specific treatment targets of evidence based practices for youth (e.g., Cognitive Behavioral Treatment, Motivational Enhancement Treatments, Trauma Informed Treatment,



Relapse Prevention, and Psychosocial Education) that are expected to impact key behavioral risk factors in order to change SUD behaviors. Figure 2 above displays an example of this logic model using the evidence based practice of Motivational Enhancement Treatments (Apodaca & Longabaugh, 2009). As shown, the specific treatment targets that influence treatment initiation/engagement are personalized feedback, decisional balance, and change talk, which affects motivation and personal control to ultimately affect SUD behavior. In essence, the behavioral or bio-medical risk factors should be recovery targets. Table 4 below provides further examples of critical treatment targets of other evidence based practices that have generated empirical support for SUD and mental health issues among youth.

<b>Table 4: Treatment Targets for Identifying Behavioral/Bio-Medical Risk Factors</b>			
Evidence-based Behavioral Treatments	Treatment Targets	Behavioral/Bio-Medical Risk Factors	Clinical Outcomes
Motivational Enhancement Therapies/Motivational Interviewing	<ul style="list-style-type: none"> <li>personalized feedback</li> <li>change talk</li> <li>decisional balance</li> </ul>	treatment initiation/engagement, motivation, self-efficacy	Substance Use Disorder Symptoms
Cognitive Behavioral Treatment	<ul style="list-style-type: none"> <li>problem solving</li> <li>cognitive thought stopping</li> <li>behavioral substitution</li> <li>reflection</li> </ul>	coping skills, self-efficacy, anxiety	
Relapse Prevention	<ul style="list-style-type: none"> <li>identification of emotional, behavioral, cognitive triggers (habits)</li> <li>problem solving to avoid relapse</li> <li>behavioral goal orientation</li> </ul>	coping skills, self-management skills (via wellness and extracurricular activities) craving, stressors, mood	
Psychosocial Education	<ul style="list-style-type: none"> <li>education</li> </ul>	awareness, risk attitudes, values, beliefs, social norms	
Contingency Management	<ul style="list-style-type: none"> <li>behavioral reinforcement</li> <li>environmental facilitation</li> <li>drug testing</li> </ul>	treatment attendance/retention, motivation, self-efficacy	
Trauma-Informed Care	<ul style="list-style-type: none"> <li>emotional and behavioral issues</li> </ul>	coping skills, PTSD, mood, anxiety, anger	
Individual Psychotherapy	<ul style="list-style-type: none"> <li>emotional and behavioral issues</li> </ul>	coping skills, PTSD, mood, anxiety, anger	Mental Health Disorder Symptoms
Family Based Treatments	<ul style="list-style-type: none"> <li>parenting education</li> <li>social support</li> </ul>	communication skills, conflict resolution, social support	Both SUD and MH Disorders

As shown, monitoring the processes of SUD treatment can help provide a clearer picture of the processes of recovery. Critical measures of recovery for youth, based on the theoretical underpinnings of treatment, include: changes in self-efficacy (Burleson & Kaminer, 2005; Moss, Kirisci, & Mezzich, 1994), coping skills (Waldron & Kaminer, 2004), and motivation or readiness to change (O’Leary & Monti, 2004), and self-control (Winters et al., 2014; Gonzales et al., 2014). Below are some standardized measures for youth that measure these core aspects that pertain to recovery.

*Motivation (via goal commitment).* It has been proposed that a higher order construct of motivation to change may reflect commitment to change by adhering to identified treatment goals (Kelly & Greene, 2013). According to work by Kelly and Greene (2013), there are differences between being motivated to change and being committed to change that have implications for the fluctuating nature of recovery-based motivation. Kaminer and colleagues (2016) developed a 16-item questionnaire, called the Adolescent Substance Abuse Goal Commitment (ASAGC) questionnaire, to assess commitment to identified goal(s) of treatment. Although the ultimate goal of treatment is recovery, i.e., abstinence/relapse prevention (Marlatt, Larimer, & Witkiewitz, 2012), some youth might choose a harm reduction goal (i.e., decrease only in frequency and /or severity of use), or might drift between the two goals at different points in the continuum of care (Kaminer & Godley, 2010) from assessment and through treatment, aftercare or follow-up. Therefore, the instrument was designed to assess commitment to both of these two goals. The items included in the instrument were the result of a selective review process of multiple relevant items from the abstinence and harm reduction oriented literature. Some representative items from the ASAGC include: “Does the youth express commitment to recovery (abstinence/relapse prevention) as a goal?,” “Does the adolescent realize that recovery is an ongoing process requiring personal accountability?,” “Is the adolescent engaged/active in ongoing recovery?” The ASAGC response scale ranges from 0=definitely not to 4=definitely committed.

*Confidence or Self-efficacy.* The Situational Confidence Questionnaire (SCQ) includes 39-items (Annis, 1987) designed to assess perceived confidence to resist alcohol or substance use in high risk situations. A sample SCQ item is “I would be able to resist the urge to use heavily if I had an argument with a friend.” The response scale ranges from 0 to 10, with higher scores reflecting more confidence in resisting substance use. The SCQ includes the following subscales: Unpleasant Emotions/Frustrations, Physical Discomfort, Social Problems at Work, Social Tension, Pleasant Emotions, Positive Social Situations, Urges and Temptations, and Testing Personal Control. The SCQ has been shown to be a valid and reliable instrument for use with youth (Burleson & Kaminer, 2005; Moss et al., 1994).

*Readiness or Willingness to Change.* The Problem Recognition Questionnaire (PRQ) includes 25-items (Cady, Winters, Jordan, Solberg, & Stinchfield, 1996) designed to assess both youth problem recognition and willingness to change. An example PRQ item is “Using alcohol or drugs is a real problem in my life.” The response scale is a 4-point Likert-type scale ranging from 1= strongly disagree to 4 = strongly agree. The PRQ has been shown to be both a reliable and valid measure to assess motivation and readiness for

change (Cady et al., 1996). PRQ scores are trichotomized as follows: low recognition (PRQ score = 21–39), moderate recognition (PRQ score=40–59), and high recognition (PRQ score = 60 or greater).

*Self-management (Personal Control and Lifestyle Improvement)*. According to research conducted with youth in SUD treatment, recovery is primarily viewed as a process of lifestyle improvement, well-being, and healing via personal control. To test this idea, Gonzales et al. (2015) explored the utility of using a commonly used recovery measure in the field of mental health, called the Recovery Assessment Scale (RAS) with youth who completed SUD treatment. Results identified the following dimensions to be important for youth in recovery from SUDs:

- Personal determination
- Skills for recovery
- Self-control in recovery
- Social support/moving beyond recovery.

These measures are important to consider as indicators of recovery outcomes beyond abstinence/relapse, which more adequately represents youth with SUDs (White, 2007). In addition, these measures noted above support the direction SAMHSA is moving towards with identifying developmentally appropriate recovery indicators for youth populations, i.e., there are many different pathways to recovery and each individual determines his or her own way (<http://blog.samhsa.gov/2012/03/23/definition-of-recovery-updated/#.VzPUV9jrvEk>). Although we advance new notions of recovery, such opportunities will not be fully realized until definitions are standardized and disseminated within the field of SUD and mental health practice for youth. Until then, the practice world's *interpretation* of recovery for youth will continue to remain variable and contentious.

Future work is needed to tailor SAMHSA's recovery definition and guiding principles to youth populations that address key issues, including concepts of abstinence vs. relapse along a developmental continuum, essential role of craving, and continuing to identify key treatment behavioral and risk targets that are known to be associated with SUD recovery as shown in Table 4 above. Lastly, steps to develop an integrated measurement of recovery for youth with co-occurring substance use and mental health disorders should be further explored and expanded within the definitions. The implications of having a dual diagnosis on recovery outcomes are still inconclusive due to the heterogeneity of the population, differences in methodology and effect size as demonstrated in a recent review on the treatment of co-morbid substance use disorders and depression (Hersh et al. 2014). However, the general consensus is that these youth are at higher risk for poorer outcomes than those with a monodiagnosis (Shane et al., 2003). Furthermore, both disorders should be measured simultaneously and not sequentially as part of a multidimensional approach to the management of SUD and related problems (Fishman, 2015). Specifically, progress should be measured in all functional dimensions targeted (Winters & Kaminer, 2008). Since there is a wide degree of overlap in recovery from SUDs and mental illness with respect to both having the goal of improvement of functioning, getting better (symptoms), and wellness (lifestyle change/ self-management of behaviors) (Grant et al., 2004;

Fishman, 2015), there is a lack of consensus regarding causal risk pathways, i.e., mental health issues increasing risk for greater SUDs or vice versa (White, Boyle, & Loveland, 2004). However, research shows that recovery for these youth, in particular, will be more complex and entail more aggressive clinical monitoring of important mental health indicators that serve to be problematic (i.e., worsen the SUD-co-occurring issues), including behavioral and emotional issues such as anger, chronic physical illness, psychological distress, trauma symptoms (post-traumatic stress), suicidal/self-harm behaviors, functioning in school (such as drop out, truancies), and ability to repair/build relationships (interpersonal skills) (Kaminer, Burlison, & Goldberger, 2002; Kaminer et al., 2015; Ruifeng et al., 2015).

### **Issues to Consider**

- The question concerning *when* should recovery be measured for youth populations is challenging and complex. It is difficult to apply the concept of recovery to children (spanning birth to 12). During this time, research supports that the focus should be on promoting healthy development, prevention, and resilience (as discussed earlier with the overview about current efforts targeting screening and early identification to reduce risk for substance use and mental health disorders).
- Another issue that needs to be considered when measuring recovery for youth is the current lack of a shared language and common vision for youth recovery, including the complexity of achieving change.
- A major challenge for the measurement of recovery among SUD treatment programs is the fact that the current measurement infrastructure is based on Federal, State and Local National Outcomes Monitoring System (NOMS) reporting requirements tied to funding, which are largely adult driven with limited attention to a developmental youth framework.

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