Department of
Mental Health &
Substance Abuse Services

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Substance Use Best Practice Tool Guide

ADDICTION

Division of Clinical Leadership in Collaboration with the
Division of Substance Abuse Services

Addiction

What Is Addiction?

Use of substances can lead to addiction. The word "addiction" comes from the Latin word "addicere", which means enslaved by or bound to. As originally used, the word was not linked to substance use behaviors. Instead, it was first associated with excessive alcohol use. It was not until the 1980s that the word "addiction" became linked almost exclusively to excessive patterns of substance use (Ries, Fiellin, Miller, & Saitz, 2009).

Gregory Amer, a physician at the University of Minnesota Medical Center, Fairview, described addiction in the following way: 'the disease of addiction is never cured, it never goes away – the "pilot light always stays on"' (MDHS, 2013, p.14). The American Society of Addiction Medicine's (ASAM's) definition is more scientific but consistent with Amer's description. ASAM defines addiction as "a primary, chronic disease of brain reward, motivation, memory, and related circuitry" (ASAM, 2013, p. 10). Any dysfunction in the circuitry will lead to social, biological, spiritual, and psychological manifestations that are reflected in a person's pathologically pursuing relief and/or reward by substance use and other behaviors. The person will not be able to consistently abstain; demonstrate impairment in craving, diminished recognition of interpersonal relationships, and behavioral control; and exhibit dysfunctional emotional response (ASAM, 2013). In short, it is loss of control over substance use (Nestler, 2009). Thus, an individual with such characteristics is considered to be in active addiction (MDHS, 2013). Addiction usually occurs through misuse as opposed to proper use of medication (SAMHSA/CSAT, 2011). As true for other chronic diseases, addiction will include cycles of relapse and remission. Failure to provide treatment and/or encourage engagement in recovery activities may result in disability or premature death (ASAM, 2013).

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Addiction involves the compulsion to seek and use drugs, a loss of control over how the drugs are used, and the emergence of a negative emotional state (Koob, 2013; NIDA, 2016). Per the ASAM definition, features include:

- An inability to consistently **A**bstain
- Any impairment in **B**ehavioral control
- **C**raving or more "hunger" for substances or rewarding experiences
- **D**iminished recognition of significant problems in the individual's interpersonal relationships and behaviors
- A dysfunctional **E**motional response (ASAM, 2013).

Drug addiction is a complex disease (NIDA, 2012). It affects both the brain and behavior. Years of research has continued to demonstrate that the condition is treatable (NIDA, 2010). Substances including alcohol and nicotine tap into the brain's communication system and interfere with the way the nerve cells normally send, receive, and process information. Some drugs, such as heroin and marijuana, have a chemical structure that actually mimics the natural neurotransmitter. However, the messages being transmitted through the network are abnormal. Other drugs, such as cocaine and amphetamines, cause the release of an abnormal number of natural neurotransmitters or prevent the normal recycling of brain chemicals, ultimately disrupting the communication channels. Most drugs indirectly or directly work on the brain's reward system and flood the circuit with dopamine. (Dopamine is a neurotransmitter that regulates movement, cognition, motivation, emotion, and feelings of pleasure.) Drugs can release two to ten times the amount of dopamine that natural rewards do. Thus, it is the overstimulation of this system that produces the euphoric effects sought by individuals who abuse drugs and leads them to repeat the behavior (NIDA, 2010).

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To adjust to the overwhelming surges of dopamine, the brain produces less dopamine or reduces the number of receptors that can receive signals. This may leave the reward circuit of the substance abuser abnormally low and the ability to experience pleasure weakened. Hence, the development of tolerance or the taking of larger and larger amounts of the drug by the substance abuser than at the first creation of the dopamine high, just to try to bring their dopamine function back up to normal levels. Of course, the development of tolerance can eventually lead to severe changes in neurons and brain circuits. Chronic exposure to drugs of abuse, as in addiction, erodes an individual's self-control and ability to make sound decisions while sending intense impulses to take drugs (NIDA, 2010).

Drug Combinations

Unfortunately many substances of abuse are used in combination, which is a particularly dangerous practice. It could involve the co-administration of two legal drugs, e.g., nicotine and alcohol; the random mixing of prescription drugs; and/or the deadly combination of cocaine or heroin with fentanyl. Regardless the context, such practices are extremely harmful and pose significantly higher risks than the already harmful consequences associated with use/dependence on a single drug (NIDA, 2010).

Myths about Drug Abuse and Addiction

Myth 1: Overcoming addiction is simply a matter of willpower. You can stop using drugs if you really want to. Prolonged exposure to drugs alters the brain in ways that result in powerful cravings and a compulsion to use. These brain changes make it extremely difficult to quit by sheer force of will.

Myth 2: Addiction is a disease; there's nothing you can do about it. Most experts agree that addiction is a brain disease, but that doesn't mean you're a helpless victim. The brain changes associated with addiction can be treated and reversed through therapy, medication, exercise, and other treatments.

Myth 3: Addicts have to hit rock bottom before they can get better. Recovery can begin at any point in the addiction process—and the earlier, the better. The longer drug abuse continues, the stronger the addiction becomes and the harder it is to treat. Don't wait to intervene until the addict has lost it all.

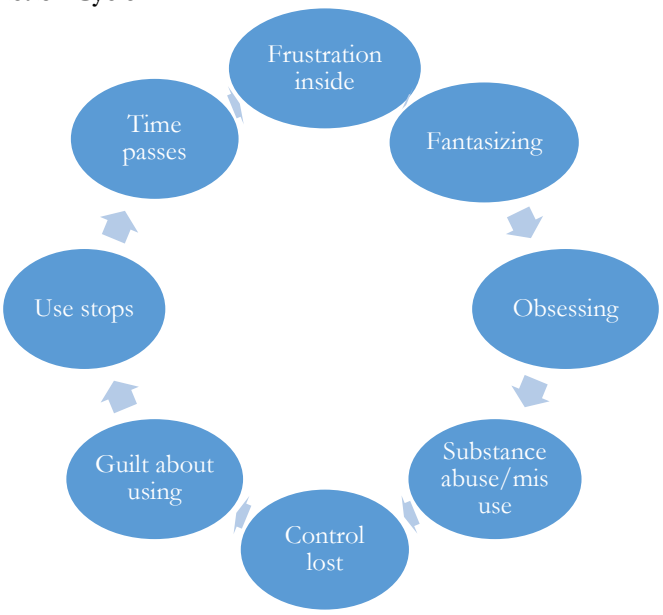
Myth 4: You can't force someone into treatment; they have to want help. Treatment doesn't have to be voluntary to be successful. People who are pressured into treatment by their family, employer, or the legal system are just as likely to benefit as those who choose to enter treatment on their own. As they sober up and their thinking clears, many formerly resistant addicts decide they want to change.

Myth 5: Treatment didn't work before, so there's no point trying again. Recovery from drug addiction is a long process that often involves setbacks. Relapse doesn't mean that treatment has failed or that you're a lost cause. Rather, it's a signal to get back on track, either by going back to treatment or adjusting the treatment approach. (Robinson, Smith, & Saison, 2014)

The Addiction Cycle

A number of sources identify an eight-step cycle of addiction. Persons who are addicted to substances may go through the phases repeatedly before eventually taking a step toward recovery (Treatment4Addiction.com, 2011).

Figure 1. Addiction Cycle



Source: Adapted from Treatment4Addiction.com, 2011.

Phase 1 involves feelings of frustration or some kind of mental anguish that leads to depression or anxiety and triggers craving for drug use. Entering this phase may be the result of a mental disorder or the occurrence of some stressful event such as a relationship that grows apart or the death of a loved one. The second phase involves fantasizing about substance use. The person who is addicted will consider using drugs and fantasize about the use. Most often, the individual does not speak openly about these thoughts (Treatment4Addiction.com, 2011).

The fantasizing typically evokes obsessions, the third phase of addiction. The fantasies grow, thus making the thought of use nearly constant. Sometimes the obsessions are accompanied by a sense of impending doom and the person now comes to terms with the idea of using again. Phase 4 involves actual addictive activity, i.e., actual drug use (Treatment4Addiction.com, 2011).

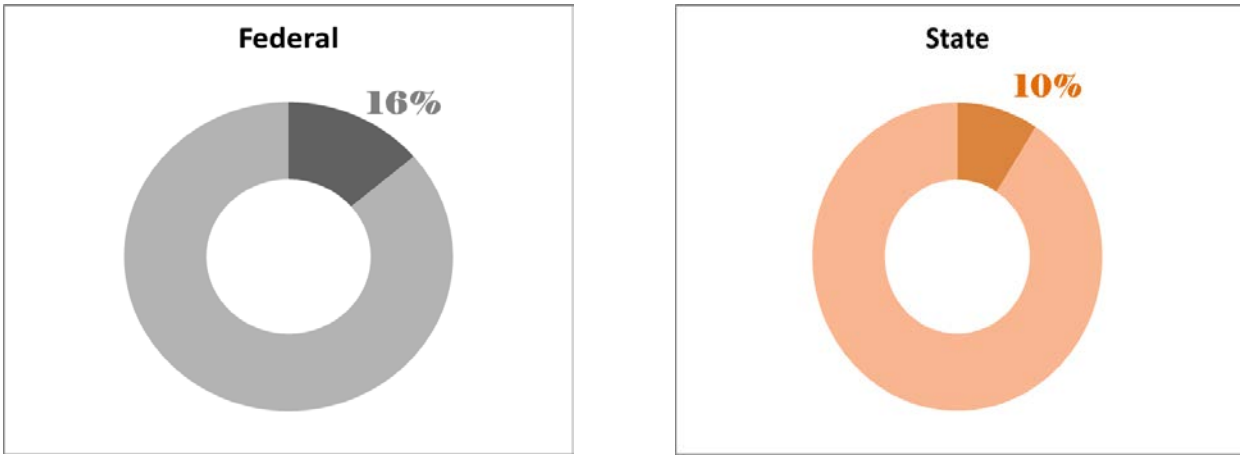
Once the drug use starts to spiral out of control for the individual such that the addictive activity has control of his/her life, the fifth phase of powerlessness commences. The person uses drugs at inappropriate times, whether or not he or she does not really want to. In this phase, the individual may feel completely incapable of abstinence for even a relatively short period of time (Treatment4Addiction.com, 2011).

The chaos that has resulted from the loss of control leads to feelings of guilt, shame, or remorse, the sixth phase. The person may feel very regretful about the decision to use substances again and may be too embarrassed to let anyone know about these insecurities. The self-image has been negatively affected and a sense of dissatisfaction for life is also noted for most people in this phase (Treatment4Addiction.com, 2011).

In Phase 7, the individual begins to make resolutions to end the behavior. This phase may involve promises to self or others that will soon end. It may further incorporate a vow to end substance use forever. Drug paraphernalia may even be disposed of. Substance use may abruptly end for a period of time, but without a proper recovery plan that is put into action, the individual will move into the eighth phase, which starts the cycle all over again. Phase 8 often results in the person forgetting the chain of events that occurred during the last relapse. Thus, there is significant mental pain associated with this phase (Treatment4Addiction.com, 2011).

Cost of Addiction

Figure 2. Percent of Budgets Spent on Addiction/Substance Use



Source: NCAS, 2015.

According to the National Center on Addiction and Substance Abuse (NCAS) (2015), addiction and substance use spending consumes 10 percent of the federal budget and 16 percent of state budgets. The ***health care system*** receives the largest share of spending from consequences of addiction and substance use. Substances, including alcohol and tobacco, cause or contribute to more than 70 other conditions requiring medical care such as heart disease, lung disease, cancer, HIV/AIDS, cirrhosis, pregnancy complications, ulcers, and trauma.

Adult/juvenile corrections and the courts get the second largest share of federal and state spending related to addiction/substance use. Data indicate that 85 percent of inmates in the adult corrections system are substance involved and almost two thirds have a history of substance use problems. Of the young people that enter the juvenile justice system, 78 percent are substance involved and 44 percent meet clinical diagnosis for substance use problems (NCAS, 2015).

The third largest recipient of government spending from consequences of addiction/substance use is the ***educational system***. Substance use negatively affects the learning environment and academic performance. It increases the chances that the young person will drop out of school or fail to attend college and or not obtain a college degree (NCAS, 2015).

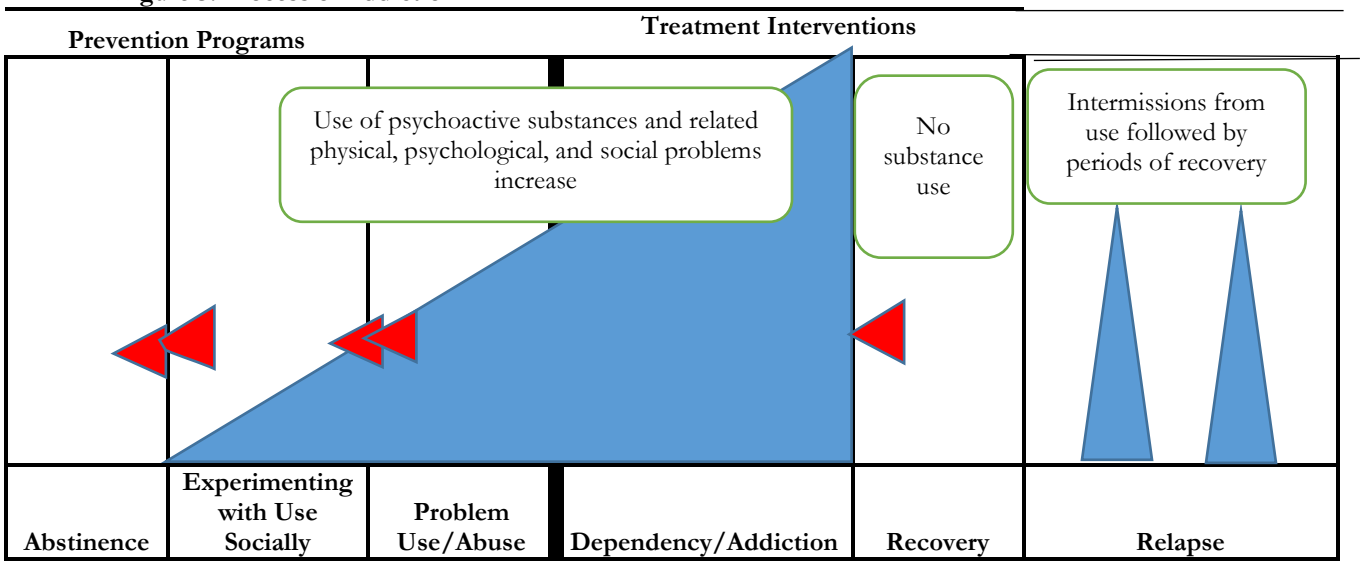
Consequences of addiction/substance use also mean spending on ***public safety*** and ***workforces***. States have to invest in highway patrol, local law-enforcement programs and highway-safety, special drug enforcement programs, as well as accident-prevention programs to keep the public safe. Moreover, addiction/substance use compromises workforce productivity and increases the cost of doing business. Besides affecting personal job performance, substance use impacts co-workers/the success of the company. Co-workers, for example, report having been injured or almost injured or covering for another employee's substance use. Addiction/substance use places a burden on ***many other governmental services***, including mental health, child welfare, developmental disabilities, food and nutrition assistance, and housing and employment assistance (NCAS, 2015).

Model of Care – Traditional versus Chronic Disease Model

Addiction cannot be cured (SAMHSA/CSAT, 2011).

The traditional acute care model of substance use treatment has encouraged the public to expect that persons entering addiction treatment will be cured and able to maintain lifelong abstinence following a single episode of specialized treatment (MDHS, 2013; White, Boyle, & Loveland, 2003). ***However, addiction cannot be cured***. It can be treated with medication, counseling, and/or support from family and friends (SAMHSA/CSAT, 2011).

Figure 3. Process of Addiction



Source: Adapted from Crowe & Reeves, 1994.

The figure above provides a graphic representation of the progression of substance use through three states of experimental/social use, problem use/abuse, and dependency/addiction. Related physical, psychological, and social problems increase as use progresses through the stages. Many individuals are able to manage their substance use during earlier stages and may move back and forth from abstinence to problem use. Many professionals contend that individuals who reach the stage of dependency/addiction have acquired a chronic, relapsing disorder for which there is no cure. It is hypothesized that, at this point, the individual cannot return to earlier stages of controlled use without help (Crowe & Reeves, 1994).

Treatment becomes necessary to help individuals addicted to substances enter a stage of recovery during which they can abstain from substance use and engage in improved physical, psychological, and social functioning (Crowe & Reeves, 1994).

Determining If You May Be Addicted to Substances

There are confidential screening tools online, as well as in this document, to help you determine if you may need to seek help for a substance use problem. You might also read and honestly respond to the questions below. Written by persons addicted to substances that were participants in Narcotics Anonymous (NA), the results may help you remove doubts about whether your substance-using behaviors signal addiction. Consider further evaluation and/or seeking help from a professional knowledgeable in the area of substance use if you respond "Yes" to some of the questions (about.com, 2014).

- Do you avoid people or places that do not approve of you using drugs?
- Do you continue to use despite negative consequences?
- Do you ever question your own sanity?

- Do you ever use alone?
- Do you feel it is impossible for you to live without drugs?
- Do you put the purchase of drugs ahead of your financial responsibilities?
- Do you regularly use a drug when you wake up or when you go to bed?
- Do you think a lot about drugs?
- Do you think you might have a drug problem?
- Does the thought of running out of drugs terrify you?
- Does using interfere with your sleeping or eating?
- Has using affected your sexual relationships?
- Has your job or school performance ever suffered from the effects of your drug use?
- Have you ever been arrested as a result of using drugs?
- Have you ever been in a jail, hospital, or drug rehabilitation center because of your using?
- Have you ever felt defensive, guilty, or ashamed about your using?
- Have you ever lied about what or how much you use?
- Have you ever manipulated or lied to a doctor to obtain prescription drugs?
- Have you ever overdosed on any drugs?
- Have you ever stolen drugs or stolen to obtain drugs?
- Have you ever substituted one drug for another, thinking that one particular drug was the problem?
- Have you ever taken drugs you didn't prefer?
- Have you ever taken one drug to overcome the effects of another?
- Have you ever thought you couldn't fit in or have a good time without drugs?
- Have you ever tried to stop or control your using?

- Have you ever used a drug without knowing what it was or what it would do to you?
- Have you ever used drugs because of emotional pain or stress?
- Have you had irrational or indefinable fears?
- Is your drug use making life at home unhappy? (about.com, 2014)

Treatment

There are a number of treatments available to help individuals counter the power of addiction's disruptive effects. Research has shown that the combination of addiction treatment medications with behavioral therapy is the best way to ensure success for most individuals addicted to substances. This document provides detailed information on evidence-based (EB) medication-assisted treatments and psychosocial therapies such as behavior therapy as aids to clinicians and others that may be interested in education and information on the topic. It is recommended that treatment approaches be tailored to each individual's drug use patterns and co-occurring psychiatric, medical, and social problems, if evident, to effect sustained recovery and a life with substance abuse (NIDA, 2012).

Treatment for addiction must help a person stop using drugs, stay drug-free, and be productive in his or her family, work, and society. Therefore, effective treatment programs must be based on the following key principles:

- Addiction is a treatable disease that affects brain function and behavior, despite being complex.
- There is no single treatment that is right for everyone.
- People need to have quick access to treatment.
- All of a patient's needs, not just his or her drug use, must be addressed for treatment to be effective.
- Medications are an important part of treatment, especially when used in combination with behavioral therapies.
- Treatment plans must be reviewed often and adapted to align with the patient's changing needs.
- Treatment should address other possible mental disorders.
- Medically assisted withdrawal management is only the first stage of treatment.
- Treatment does not need to be voluntary for it to be effective.

- Drug use during treatment must be monitored on a continual basis.

- Treatment programs should test patients for tuberculosis, hepatitis B and C, HIV/AIDS, and other infectious diseases and teach them steps they can take to reduce their risk of such illnesses (NIDA, 2016).

Unfortunately, many individuals with substance use disorders (SUDs) may not seek treatment. Data from the 2012 National Survey on Drug Use and Health indicate that only about 11 percent of persons who need substance abuse treatment actually receive it (SAMHSA, 2014). Some persons are in denial about their substance use problem. Others believe that they should be able to work through their substance use problem without help. Then there are individuals who carry shame or fear about accessing treatment, potential physical withdrawal from substance use, and/or failure to recover. Additionally there is the fear of what family, friends, and/or employers might think if they seek treatment (MDHS, 2013).

Final Comments

Not all individuals that use substances, whether alcohol or other drugs, become addicted. In fact, researchers say that risk of addiction is influenced by a myriad of factors, including biology, age, stage of development, and social environment. Individuals who have more risk factors have the greatest chance of moving into addiction with their substance use (NIDA, 2012). Persons addicted to specific substances also need to be careful about developing tolerance for substances of the same class, even those to which the body has not yet been exposed (TheFreeDictionary, n.d.). Such cross-tolerance can be exhibited by cigarette smokers to caffeine, e.g., where they experience a lower sensitivity to caffeine's stimulant effects than nonsmokers (SoberPlace, 2009).

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