SUBSTANCE USE AND ADDICTION DISORDERS

Part 1 Merging DSM-5 With Standard Screening Methods For Single And Multiple Substance Use

Introduction

A substance use disorder is diagnosed in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) as a problematic pattern of substance use that leads to clinically significant impairment based on at least two outcomes in a 12-month period related to impaired control, physical and mental health risks and other criteria related to substance type use and severity. The DSM-5 provides recommendations for clinicians when diagnosing a substance use and addiction disorder that takes into account the substance type(s), behavioral changes of the affected individual, collateral reporting of family or significant others and interdisciplinary evaluation during development of patient treatment planning. This course highlights the fact that while similarities exist between a singular substance use and multiple substance use disorder, the latter may present unique challenges, which include a lengthier detoxification period and an increase in physical symptoms from the substances consumed. Additionally, standard screening tools to aid in differentiation of a substance use disorder from other conditions, and the diagnosis of substance use disorder(s) and individualized treatment plan are reviewed.

Multiple Substance Use And Cross Addiction

In some cases, those with multiple substance use may be more tolerant of the detoxification process since a physical reliance upon
any singular substance may not have developed. Consequently, each individual using multiple substances requires a personalized treatment plan developed according to their unique medical, psychiatric, and substance use history. The treatment plan will need to consider resources available within the patient’s support network, hospital or treatment facility, and community.

The DSM-5 recommends the evaluation of substance use and addiction disorders along a continuum. Although individuals using multiple substances may require different diagnostic and treatment strategies than those using a single substance, according to DSM-5 each substance use disorder is diagnosed according to type and severity. Nonetheless, there are some similarities between the conditions and treatment approaches related to specific substances; and, those using multiple substances and with cross addiction may benefit from some of the strategies used to treat single substance use.

**Substance Use Defined**

According to DSM-5 a substance use disorder is diagnosed based on overarching criteria in the DSM that include symptoms ranging from mild to severe in affected individuals. Mild substance use generally requires 2 – 3 symptoms from a list of varied substance use type symptoms as outlined in DSM-5. The symptoms listed will depend on the substance, for example, Cannabis-Related Disorders has 11 symptoms whereas Other Hallucinogen Disorders and Inhalant-Related Disorders lists 10 symptoms, respectively. Unlike single substance users, the individual using multiple substances does not have a single substance that he or she favors over other substances and would not qualify as addicted to any single substance category. Individuals may
have both a behavioral (i.e., gambling, compulsive sexual or impulsive spending) and a chemical or substance-related addiction that require combined treatment with unique therapy and treatment planning based on an individual’s response to environmental triggers, of the brain to rewards, and other multivariated factors such as duration and degree of substance use.

While individuals with a multiple substance use disorder may go through the same stages of addiction as single substance users, what differentiate them from single substance users are the onset, development, and severity of their use and addiction. Many that use multiple substances will not show signs of addiction as quickly and readily as single substance users because they will switch the substances they consume on a regular basis. Therefore, unlike an alcoholic who will drink heavily on a regular basis, the individual using multiple substances may only consume small amounts of alcohol before switching to another substance. This will minimize the telltale signs associated with single substance use. In addition, the individual using multiple substances may not progress through the stages of addiction, as he or she may never develop an addiction to one specific substance. In such cases, the individual will develop a reliance on multiple substances or develop a cross addiction, but this development may occur in different stages.

When identifying a multiple substance use disorder, it is necessary to identify the specific components that are used to diagnose and define substance use in general. The DSM-5 specifies that at least two of eleven identified conditions must occur at any time during a 12-month period, causing significant impairment or distress, in order to meet
diagnostic criteria for a substance use disorder. In general, the chief diagnostic criteria for substance use and addiction are identified below and discussed throughout various sections of this study.¹³

*Tolerance*

When tolerance to a substance develops the individual finds that the same amount of the substance has much less of an effect over time than before and the individual has to use increasingly higher amounts of the substance in order to achieve the same effect. After using several different substances regularly over a period of time, an individual may find that he or she needs to use at least half as much more of the amount they began using in order to get the same effect.

*Withdrawal*

Withdrawal to a substance occurs as the individual experiences the withdrawal symptoms when he or she stops using the substance. Additionally, withdrawal can be diagnosed in an individual known to use a substance in order to avoid or relieve withdrawal symptoms. Withdrawal symptoms will also vary across classes of substances.

*Loss of Control*

The individual who demonstrates a loss of control either repeatedly uses more substances than planned or uses the substances over longer periods of time than planned. For instance, an individual who previously used substances on the weekends may begin using substances (any combination of two or more types of substances) on weekdays in addition to weekends.
**Inability to Stop Using**

The individual that shows an inability to stop using substances has either unsuccessfully attempted to cut down or stop using substances coupled with a persistent desire to stop using them. For example, an individual who desires to stop using substances on weekdays finds that he or she is unable to do so despite well-intentioned efforts to discontinue.

**Length of Use and Interference with Life Activities**

A person using multiple substances often experiences an interference with life activities. This is because the individual using spends a lot of time obtaining and using substances, being under the influence of substances, and recovering from the effects of substance use. The individual either gives up or reduces the amount of time involved in recreational activities, social activities, and/or occupational activities because of the use of substances. An individual may use substances instead of engaging in hobbies, spending time with friends, or going to work.

**Harm to Self**

Harm to self develops when an individual continues to use substances despite having either a physical or psychological problem that is caused by or made worse because of the use of substances.

While the criteria listed above are used to identify a substance use disorder, it is important to note that those with multiple substance use may not display symptoms exactly as listed in the DSM-5 criteria due to continuous transition from one substance to another, which
complicates the clinical picture and diagnostic process. It is important that health professionals involved in the treatment of an individual with potential use of multiple substances utilize various diagnostic screening tools to assist with identification of a disorder.\textsuperscript{4} Health professionals need to also remember that some individuals with multiple substance use may have developed a cross addiction to more than one of the substances regularly used when considering DSM-5 diagnostic criteria during assessment and treatment planning. Approaches to individualized treatment of substance use disorders and use of various screening tools for diagnosis and to develop a treatment plan will be discussed further on in this article.

**Addiction Progression Stages**

A substance use disorder develops over time and has been identified as going through five distinct stages of progression. The length of time for each stage, and the duration of the progression to a complete addiction to substance(s) will vary by individual. In some instances, the progression will occur quickly, with the individual spending brief periods in each stage. In other instances, the individual will slowly progress through the stages of addiction and will not reach becoming addicted to substances for an extended period of time. Here and in subsequent sections of this course, multiple valid screening tools are presented that remain widely used by clinicians to help diagnose and plan treatment of a specific single or multiple substance use disorder. One example of a common tool to help clinicians identify progression of the stages of addiction is shown below;\textsuperscript{5,6} however, when utilizing such a tool, it is important for clinicians to recognize that prior DSM terms describing conditions such as “alcoholism,” “drug dependence” and “addiction” were often used without a clear understanding of their
impact on developing an individualized treatment plan. Working teams of the DSM-5 had identified problematic issues in prior DSM terminology used to diagnose and guide substance use treatment according to standardized definitions of ‘dependence’ and ‘addiction’.

In the latest edition of the DSM-5, the term dependence has been changed to *substance use disorder* with new applied categories of substance use assessed along a *continuum* ranging from *mild* to *severe*.

<table>
<thead>
<tr>
<th>STAGE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage One: Experimentation</td>
<td>The first stage, experimentation, is the voluntary use of alcohol or other drugs. Quite frequently, the person experimenting is trying to erase another problem. The substance seems to solve the problem so the person takes more, and moves from experimentation to regular use, which is the next stage.</td>
</tr>
<tr>
<td>Stage Two: Regular Use</td>
<td>Here the person has moved from experimentation to regular use. Some people stay in the regular use stage indefinitely. They will not develop a problem, and they are able to stop using substances by themselves. Others start using substances in a manner that is risky or hazardous to themselves or to others.</td>
</tr>
<tr>
<td>Stage Three: Risky Use</td>
<td>Here the individual engages in “risky behavior”. When and how the transition from regular to risky use happens differs for every individual because what constitutes “risky behavior” for one person may not be considered risky behavior for another. People can pass quickly from risky use to a substance use disorder and addiction.</td>
</tr>
</tbody>
</table>
| Stage Four: Dependence | Characteristics of dependence (substance use disorder) include:  
- Repeated use of alcohol or other drugs that leads to failure to fulfill major responsibilities related to work, family, school or other roles.  
- Repeatedly drinking or using drugs in situations that are physically hazardous, such as driving while intoxicated or using heavy machinery when intoxicated.  
- Repeated legal problems.  

Many people with dependence on a substance (substance use disorder) are able to work, maintain family relationships and friendships, and limit their use of alcohol or other drugs to certain time periods, such as evenings or weekends. |
| Stage Five: Addiction | The last phase of the spectrum of substance use problems is addiction. Addiction is a medical condition involving serious |
psychological and physical changes from repeated heavy use of alcohol, other drugs, or both. Symptoms include uncontrollable alcohol or other drug craving, seeking, and use, that persists even in the face of negative consequences.

Note: DSM-5 has replaced the term ‘dependence’ and ‘addiction’ with the umbrella term of substance use and addictive disorder; however the general concepts of the progression of addiction are helpful here in terms of identifying level of severity and treatment for a single substance or cross addiction (to multiple substances). Suffice to say, the field of addiction medicine is a rapidly evolving subspecialty of psychiatry that currently endorses standard evaluation tools with a potpourri of mixed terminology, which clinicians are encouraged to be familiar with and to utilize in tandem with the new DSM-5 revisions related to substance use and addictive disorders.

Common Characteristics Of Substance Use

Although substance use can affect any individual, there are some common characteristics that are found in the majority of substance users. The following section includes discussion of the factors known to increase an individual’s risk of developing substance use issues.  

Homelessness

Homelessness and substance use are often co-occurring conditions. In fact, substance use is more common among homeless individuals than the general population. Approximately 64% of homeless individuals use alcohol and/or other substances. In most instances, substance use is the cause of homelessness. Individuals with addictive disorders will often experience a loss of support from friends and family, along with chronic unemployment. These factors will increase their chances of becoming homeless. In fact, approximately 65% of homeless
individuals self-report their homelessness was directly caused by drug and alcohol use.\textsuperscript{7}

In some instances, homeless individuals will develop a substance use disorder as a means of coping with their situation. It is common for homeless individuals to begin using, or to increase their consumption of, drugs or alcohol as a means of coping with their situation. Drugs and alcohol are readily available and easily accessible in the homeless community, and they provide an opportunity for the homeless individual to self-medicate as a means of finding temporary relief from their problems.\textsuperscript{8}

It can be difficult for homeless individuals to identify their substance use problems, as many also suffer from mental health issues and may not be aware of their problematic behaviors. Recovery can also be more challenging for individuals who have substance use disorders and mental illness comorbidity (having both disorders at the same time). In addition, homeless individuals have limited access to the support networks and services necessary to successfully recover from a substance use disorder. Most treatment programs for homeless individuals focus on abstinence rather than harm reduction, which can make it difficult for individuals to adhere to program requirements. Consequently, many homeless individuals do not seek assistance with their addiction recovery.\textsuperscript{9}

The following summarizes the common characteristics and statistics associated with homelessness and substance use disorders:

- An estimated 50 percent of homeless adults with serious mental illnesses have a co-occurring substance use disorder. Individuals
with co-occurring disorders have more problems, need more help, and are more likely to remain homeless than other groups of people.

- Homeless people with mental and substance use disorders often have significant acute and chronic medical conditions, including diabetes, liver disease, upper respiratory infections, severe dental health problems, tuberculosis, and autoimmune deficiency syndrome (AIDS). Homeless individuals with a substance use disorder are in especially poor health.

- People with substance use disorders who are homeless are more likely to have police arrest histories, to have been arrested in the past year, and to report that they have a felony drug conviction. Fifty percent of all arrests of homeless people relate to drinking alcohol in public places.

- Homeless people with substance use disorders, especially those with co-occurring mental disorders, are at risk for losing their housing due to eviction, arrest, and incarceration. Once homeless, they are unlikely to succeed in treatment without access to safe, sober housing.

- Fewer than one quarter of individuals who need treatment for alcoholism or the use of illicit drugs receive treatment. Those with the least resources face the most significant barriers to care.

- There is often a discrepancy between what homeless individuals want and what health providers believe they need. Homeless
individuals may urgently want a job, housing, and help with housing expenses. Only 9% of homeless respondents to a national survey mentioned alcohol and drug treatment as something they needed “right now”.

**Personality Disorders**

Personality disorders and substance use disorders are common co-occurring conditions. Personality disorders are present in approximately 34% of substance users. Personality disorders are a form of mental illness that affects an individual’s behavior, emotions, and thoughts. These individuals express their thoughts and emotions differently than what is considered socially normal.

Personality disorders can have a significant impact on an individual’s life, and are commonly associated with substance use problems. The general characteristics of personality disorders include the following:

- Pattern of problematic relationships
- Tendency to blame difficulties on others, or on “bad luck”
- A lack of personal responsibility
- Impaired ability to learn from previous experience

The general characteristics or traits listed above are associated with personality disorders. However, there are a number of different personality disorders that are characterized by their effect on the individual’s thoughts and behaviors. Personality disorders are categorized into the groups listed below.

- Antisocial personality disorder:
Manipulating, exploiting or violating other’s rights.

- Avoidant personality disorder:
  Excessive shyness, inadequacy and fear of rejection.

- Borderline personality disorder:
  Unstable and turbulent emotions, actions and relationships.

- Dependent personality disorder:
  Excessive dependence on other people.

- Histrionic personality disorder:
  Acting emotional or dramatic to draw attention.

- Narcissistic personality disorder:
  Inflated ego and an obsession with the self.

- Obsessive-compulsive personality disorder:
  A preoccupation with rules, orderliness and control.

- Paranoid personality disorder:
  Unfounded distrust and suspicion of others.

- Schizoid personality disorder:
  Feelings of social isolation and indifference to people.

- Schizotypal personality disorder:
Difficulty with relationships and irregular lifestyle patterns.

The various personality disorders are quite diverse in their symptoms and severity. While some individuals will experience significant complications, others may only experience minor complications. Individuals with substance use problems and personality disorders will experience additional complications, as their inability to appropriately process and express thoughts and emotions makes it difficult for them to address their problem behaviors.

There is a direct correlation between those who use drugs and those who have a personality disorder. In fact, 50% to 65% likelihood exists that an individual with substance use problems will also be afflicted with one or more personality disorders. While all personality disorders can co-occur with substance use, some disorders are more common and associated with an increased risk of substance use. The following is a list of the percentage of the occurrence of specific personality disorders in individuals who use alcohol and at least one other substance:¹⁰

- Obsessive Compulsive Disorder: 21%
- Antisocial Personality Disorder: 21%
- Narcissistic: 14.5%
- Borderline Personality Disorder: 11%
- Paranoid: 10%
- Dependent Disorder: 9%

It is difficult to determine if substance use is caused by the personality disorder or if the substance use increases the development and severity of the personality disorder. In some instances, an individual
who experiences symptoms associated with a personality disorder will self-medicate with alcohol and other drugs. In other instances, the substances that the individual consumes will alter brain chemistry and trigger the onset and subsequent development of the personality disorder.⁹

**Comorbid Psychiatric Disorders**

Comorbid psychiatric and substance use disorders are quite common. While there are differing views on how and why they occur, there is consensus regarding the fact that comorbidity is a significant problem in both groups. The following discussion highlights data and medical opinion of the significance and prevalence between substance use and psychiatric disorders.¹²,¹³,¹⁴,¹⁵

In the National Comorbidity Study, a nationally representative population study, about 41-65% of participants with any lifetime substance use disorder also had a lifetime history of at least one mental health disorder. The most common individual diagnosis was conduct disorder (29%), followed by major depression (27%), and social phobia (20%). Among those with a lifetime history of any mental disorder, 51% had a co-occurring addictive disorder, with those respondents with conduct disorder or adult antisocial personality having the highest prevalence of lifetime substance use disorder (82%), followed by those with mania (71%) and PTSD (45%). In the Epidemiologic Catchment Area Study, lifetime prevalence of alcohol use disorder was highest among persons with bipolar disorder and schizophrenia.

In 501 patients seeking addictions treatment, 78% had a lifetime psychiatric disorder in addition to a substance use disorder and 65%
had a current psychiatric disorder. The most common lifetime disorders were antisocial personality disorder, phobias, psychosexual dysfunctions, major depression, and dysthymia (mild, chronic depression). Similarly, in 298 patients seeking treatment for cocaine use disorders, 73.5% met lifetime, and 55.7% met current, criteria for a psychiatric disorder. These rates accounted for conditions of major depression, bipolar spectrum conditions such as hypomania and cyclothymic personality, anxiety disorders, antisocial personality, and history of childhood attention deficit disorder.

A variety of mental illnesses such as post-traumatic stress disorder, antisocial personality disorder (characterized by a lack of empathy toward other people), anxiety, sleep disorders, or depression, increase the risk of addiction. Those with the highest risk of addiction have bipolar disorder or schizophrenia; and, up to 50 percent of people with these conditions can have an addiction. Certain mental conditions frequently associated with alcohol and drug use are listed below:

- Depression
  
  In some cases, individuals may start to use a substance to mask the symptoms of depression. Female substance users are particularly likely to have depression, but it also occurs in male substance users.

- Bipolar disorder
  
  Those with bipolar disorder — a condition that causes alternating cycles of depression and an abnormally elevated mood — may attempt to smooth out mood swings with substances.
• Anxiety

Alcohol use is more common in both men and women with anxiety disorders.

• Schizophrenia

Psychotic symptoms, such as hallucinations and delusions, may lead to substance use as a way to ease the distress that these symptoms can cause.

There are also other factors that may explain the frequent simultaneous occurrence of addiction and mental illness. These factors include:

• Genetics

Genetic factors seem to account for some of the comorbidity of substance use and mental disorders. Studies comparing identical and fraternal twins found more instances of having two disorders among the identical twins, indicating that genetics likely play some role.

• Chemical deficiency

Neurochemical factors were also found to be a common thread when mental disorders and addiction occur together. A reduction in the amount of serotonin, a chemical critical to brain functioning, may be the reason that alcoholism and anxiety disorders coincide so often. There is also evidence that addiction
and mental disorders are associated with the dysfunction of a group of brain chemicals called monoamine oxidases.

- **Shared environment**
  Studies surrounding twins also show that environment plays a major role in having both a substance use problem and another mental disorder.

- **Withdrawal symptoms**
  Abruptly stopping alcohol intake can lead to withdrawal symptoms — including hallucinations — that may look just like schizophrenic symptoms.

- **Personality changes and mental disorders**
  Alcoholism and drug use can cause changes in the brain, sometimes leading to changes in personality and mental disorders. Alcoholics of both genders frequently suffer depression and anxiety disorders, while men are more likely to exhibit antisocial personality disorder than non-users of alcohol.

**Screening For Substance Use**

Screening refers to methods and procedures, often of a brief nature, designed to rule out the possibility of substance use problems. Screening is not the same thing as providing a diagnosis (determining if one meets criteria as established in a diagnostic manual) or
evaluation (a more thorough analysis of substance use problems, of which screening is but one component). Screening procedures are designed to detect the possible presence of a substance use issue and the need for further care. In general, screening methods can be informal and observational or more formal with the use of brief screening instruments.¹

Unlike specific substance use disorders, which only screen for addiction of one substance, screening for more than one substance use requires screening with multiple instruments. When evaluating individuals with multiple substance use problems, practitioners will have to rely on more than one instrument to identify substance use type and severity. Until recently, the DSM was used to identify and categorize substance use disorders, including “polysubstance use”. However, with the creation of the DSM-5, the diagnostic criteria have changed significantly.

Changes have been made to the substance use category of the DSM-5. Polysubstance use has been removed from the DSM-5. It was historically diagnosed by the use of three or more substances (excluding caffeine and nicotine) with no single substance dominating. Key to diagnosis was the lack of a specific drug preference, with the primary motivation for use being uninterrupted intoxication. Substance use criteria also needed to be met for substances as a group, but not for any individual substance. The diagnostic terms of 'Abuse' and 'Dependence' used in DSM-4 for all substances have been removed from DSM-5 based on evidence for unidimensionality of diagnostic criteria. The nondichotomized diagnosis term 'Substance Use Disorders' is now represented on a continuum of severity ranging from (2-3 symptoms) 'mild' to (6 or more symptoms) 'severe'.¹
Patients who use multiple substances or have cross addictions will be diagnosed by substance type and graded on this scale. This subtle change means that the relatively small but clinically unique group of patients who previously met DSM polysubstance dependence criteria will now be subsumed into a broader diagnostic umbrella. This may have implications from a comparative, epidemiological standpoint – although most population level research has not included diagnostic criteria or severity, only frequency of substance use. The prospective clinical implications are not yet known, nor are the reliability of clinical assessments of the DSM-5 severity index.\textsuperscript{16}

Individuals using and cross-addicted to multiple substances require a thorough screening and assessment process to ensure the level of use and types of substances used are appropriately identified. Therefore, the clinician must rely on a combination of tools to assess the patient. To ensure the appropriate tools are used, it is important to identify the goals of substance use and addiction screening and assessment. The goals of substance use and addiction screening are as follows:\textsuperscript{2}

- Identify individuals who are at risk for developing drug- or alcohol-related problems.
- Identify individuals who may have developed drug- or alcohol-related problems or addiction.
- Identify individuals who require further medical or addiction assessment.
- Diagnose addiction or other substance-related disorders.
• Develop recommendations and plan for appropriate addiction treatment.

• Assess the biopsychosocial needs of patients with addictions.

The initial screening process will utilize a variety of tools, including screening instruments, laboratory evaluations, and patient interviews. Once a problem has been identified, the clinician will determine what type of further assessment is needed. In most instances, the clinician will utilize in-depth interviews, family interviews, and diagnostic assessments.¹⁷

Screening typically occurs via a diagnostic or intake interview; if the client reports problems in a specific area, the clinician has the option to focus on the issue by asking more specific questions related to the substance problem. Screening also occurs through observation of the client’s immediate signs and symptoms as well as his or her behavior outside the counseling setting, including past history. Part of screening is addressing and exploring the red flags that provide clues as to what role, if any, alcohol or drug use plays in the client’s life. These red flags become even more important when the client is not forthcoming about his or her substance use at the beginning of the screening. In general, observational red flags fall into the three categories of physiological, psychological, and behavioral.

**Physiological Category**

A brief inquiry into typical physiological issues or general medical conditions can sometimes point to the extent of possible substance use problems. Liver problems, hypertension, ulcers, tremors, or injection
track marks are indications of severe use. For clients who do not immediately admit to use but who are still using problematically, these and other physiological symptoms can tip off the clinician that problematic substance use is a possibility and that substance use needs further exploration.

An additional area of exploration, although not directly about current physiological symptoms, is the client’s potential genetic predisposition. Inquiry about family history of substance use provides additional insights to help clarify the assessment and diagnostic picture. For example, a client who suggests that he or she has a drink now and then, but insists that there is no drinking problem, may report that their mother and father were “alcoholics” and that the father used other substances as well. In this case, the possible genetic link to alcohol use would warrant further and more targeted substance use assessment, especially if the client reports some negative consequences as a result of drinking alcohol.

**Psychological Category**

Many clients report symptoms of depression, anxiety, or other emotional problems and use substances to self-medicate or cope. Indeed, psychological symptoms, such as depression and anxiety, are often associated with problematic substance use. Also associated with substance use are negative or difficult emotions such as guilt, shame, anger, or boredom. At minimum, practitioners should check in with clients who report severe negative emotions related to their substance use history, current behavior, and typical methods of coping.

**Behavioral Category**
There are many behavioral signs of substance addiction, some of which are obvious (*i.e.*, evidence of intoxication), and some of which are indirectly related (*i.e.*, employment problems). Perhaps the most important area of inquiry is if there has been any past treatment for substance-related problems. Clients who affirm previous attempts at treatment to address substance-related problems often struggle currently with those same problems. Additional behavioral problems often associated with substance use include legal problems, poor work history, financial problems, extreme talkativeness, poor judgment, erratic behavior, frequent falls, increase in risk taking, and frequent hospitalizations. One or more of these behavioral issues should alert the clinician to the possibility of significant substance use.\textsuperscript{18,19}

**Biological Screens**

An effective addition to self-report screening instruments is biological lab tests designed to detect the presence of substances. Typically, biological drug screens occur by sampling via urinalysis or hair analysis. These tests may be most useful to corroborate self-report data, especially when there is high suspicion that one is not being honest about his or her substance use. Some agencies or substance use programs require random screens, particularly when medication is used as part of the addiction treatment. Clinicians, however, may not have the ability to screen for recent drug use within their agency. In these instances, the clinician will utilize a referral list of medical specialists who are trained to perform biologically based substance use screening.

It is important to know that biologically based screens are not a substitute for self-report data. Biological screening tests tend to have
low sensitivity (producing a high false positive rate) and are impacted by one’s age, gender, smoking status, metabolism, how the drug was taken, how long ago the drug was ingested, and the drug’s potency. They are best used as one piece of the screening process and in conjunction with self-report data. If possible, the clinician should utilize all available resources in the screening process, such as, well-established screening instruments, biological measures, intake interviews, and collateral reports.

**Dimensions of Addiction**

There are seven dimensions of substance addiction that are interrelated but also operate independently. The dimensions are thought to be on a continuum from less severe or low risk to more severe or high risk. Knowledge of where a client falls along each continuum can provide useful clinical information and strengthen the assessment process.

Clinicians can use the seven dimensions of addiction as a starting point when assessing their clients. They are useful in determining the extent or severity of one’s substance use. For example, a client that uses alcohol might self-report moderate use but be extremely high on consequences, behavioral and medical harm. Subsequent treatment could focus on these “higher” dimensions with an eye on reducing or eliminating use. Assessing the dimensions could be accomplished as part of a clinical interview or as seven lines drawn on a piece of paper, ranging from low to high, for each dimension. If using seven lines, the clinician could place a mark on each line indicating the extent of the problem related to a particular dimension. Once completed, the clinician has a snapshot of the client’s addiction pattern, which can
inform placement for treatment and treatment-planning decisions. The seven dimensions are outlined below.

1. Use:

Three behaviors characterize use - quantity, frequency, and variability. Quantity refers to how much one uses a substance on a “typical occasion.” Frequency refers to how often one uses on a typical occasion. Variability addresses the pattern of substance use.

2. Consequences:

Clients do not often come to counseling because they are drinking and/or using but rather because clients using behaviors have gotten them into trouble. Exploring the consequences of substance use can lead to enhanced motivation and is a key part of motivational interviewing. The consequences of substance use range from none to many within a typical day.

3. Physical adaptation:

Another dimension of addiction is the presence or absence of physical adaptation. The presence of tolerance and/or withdrawal is usually the hallmark of physical adaptation.

4. Behavioral dependence/craving:

In the DSM-5 definition of substance dependence or craving (discussed later), tolerance or withdrawal does not have to be present for someone to have a substance use disorder. Clients may psychologically crave a substance, in which case they develop a
mental need for the substance to get through the day or cope with stress. They believe they cannot do this without the substance.

5. Cognitive impairment:

Substance use alters brain chemistry. Even relatively brief periods of substance use can have noticeable negative cognitive effects. Long-term use of some chemicals, such as alcohol, can result in permanent damage to memory, motor skills, and attention.

6. Medical harm:

Substance use also impacts physical health. For example, smoking marijuana is especially dangerous due to high levels of carcinogens that enter the bloodstream. Cocaine and other stimulant drugs can have deleterious effects on cardiovascular functioning. Excessive, long-term alcohol use can damage almost every organ system in the body.

7. Motivation for change:

Lack of client motivation can make treatment planning and movement toward goals a difficult process. Knowing how important making a change in substance use is to the client can help clinicians gauge what strategies might be most helpful. Many techniques are available that can assist in enhancing motivation to change.

For more formal methods of assessment, a number of instruments (discussed in the following sections) correspond with each of these seven dimensions.
Addiction Screening Instruments

There are a number of valid addiction screening instruments available for clinicians to include in the evaluation of individuals with one or more types of substance use. In most instances, substance specific screening instruments will be used to determine the extent and severity of addiction to each substance. Some medical providers and clinicians will develop their own screening tools to identify the presence of substance use and other comorbid conditions.\textsuperscript{20,21} Examples of addiction screening instruments are described in greater detail in this section, beginning with the following list of various available screening instruments.

Drug Screening

- COWS (Clinical Opiate Withdrawal Scale)
- SOWS (Subjective Opiate Withdrawal Scale)
- DAST-10 (Drug Abuse Screening Test)
- CINA (Clinical Institute Narcotic Assessment Scale for Withdrawal Symptoms)
- CAGE-AID (CAGE alcohol screening questionnaire adapted to include drugs)
- Narcotic Withdrawal Scale

Alcohol Screening

- CAGE (Alcohol screening questionnaire)
- AUDIT (Alcohol Use Disorders Identification Test)
- MAST (Michigan Alcohol Screening Test)
- SMAST (Short Michigan Alcohol Screening Test)
The following section will provide more detailed information regarding the most *widely used* screening instruments related to varied types of substance use disorders referenced in the DSM-5.\textsuperscript{22,23,24,25,26,27,28,29,30}

**CAGE and CAGE-AID**

The CAGE is a four question-screening instrument that is used to detect alcohol dependence in patients. The questions typically focus on current feelings and actions associated with alcohol use, but can be modified to assess the patient’s history with alcohol. The assessment is intended to be completed in less than a minute and to be useful as an initial screening instrument for the detection of abuse issues. Primary care physicians, nurses, and general internists often rely on it. The assessment can be administered in three formats:

- pencil-and-paper self-administered
- through an interview
- computer self-administered

The CAGE-AID is a modified version of the CAGE that is used to screen for substances other than alcohol. The CAGE-AID also focuses on lifetime use, which means that individuals who are at risk of developing a substance use problem may not be identified through the use of the screening instrument.

The CAGE-AID has a lower success rate than the CAGE due to its focus on illicit substances rather than alcohol. Many patients are less willing to disclose other substance use than they are to discuss alcohol use.
due to the stigma attached to the former. The CAGE-AID has a sensitivity of 79 % and a specificity of 77 %.

In addition the administration formats listed above, the CAGE-AID can also be structured as a parent report-screening tool to assess adolescent substance use. This format is especially useful with adolescents in mental health care. While the CAGE and CAGE-AID are considered valid and useful screening instruments for alcohol and substance use, there are three primary concerns regarding the assessment tools:

- The CAGE or CAGE-AID is not gender-sensitive, and women who are problem drinkers and/or substance users are less likely to screen positive than men.

- The instrument identifies alcohol use and substance use in individuals, but may not identify binge drinkers.

- The CAGE asks about “lifetime” experience rather than current drinking and substance use, so a person who no longer drinks or uses substances may screen positive unless the clinician directs the questions to focus on a more current timeframe.

**CAGE or CAGE-AID Scoring**

One or more “yes” responses constitute a positive screening test. It should be noted, however, that due to language barriers, individual interpretation of the questions, or other confounding factors, individuals answering “no” to all CAGE or CAGE-AID questions, may still be at risk due to elevated drinking or drug use levels.
CAGE Substance Use Screening Tool

Directions: Ask patients these four questions and use the scoring method described below to determine if substance use exists and needs to be addressed.

**CAGE Questions**
1. Have you ever felt you should cut down on your drinking?

2. Have people annoyed you by criticizing your drinking?

3. Have you ever felt bad or guilty about your drinking?

4. Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover (eye-opener)?

**CAGE Questions Adapted to Include Drug Use (CAGE-AID)**
1. Have you ever felt you ought to cut down on your drinking or drug use?

2. Have people annoyed you by criticizing your drinking or drug use?

3. Have you felt bad or guilty about your drinking or drug use?

4. Have you ever had a drink or used drugs first thing in the morning to steady your nerves or to get rid of a hangover (eye-opener)?

Score: ___ /4

2/4 or greater = positive CAGE, further evaluation is indicated.
Scoring: Item responses on the CAGE questions are scored 0 for “no” and 1 for “yes”.

Alcohol Use Disorders Identification Test (AUDIT)

The Alcohol Use Disorders Identification Test (AUDIT) is a screening instrument that was developed by the World Health Organization (WHO). Its primary purpose is to identify patterns of alcohol use in patients, with the goal of determining if the patient’s level of use is harmful and/or excessive. It is used frequently in primary care settings as an initial screening instrument to identify individuals who may benefit from a reduction or cessation of alcohol consumption. If a patient is identified as a risk, he or she will require additional assessments to determine the specific level of treatment needed.

The AUDIT, as a valid screening tool, can be used successfully with various populations. The AUDIT is intended as a screening tool to be used by practitioners and clinicians in various health care settings; however, it can be self-administered or used by non-health care professionals in other settings. The instrument does not require any specific training to be administered, so individuals in community crisis centers and social service organizations often use it. The following is a description of the screening instrument and how it is scored.

The test uses a 10-item scale, takes 2-4 minutes to complete and is quick and simple to score. The test is in the public domain and can be used without cost with acknowledgement of the
source. Guidelines for use of the screening test in primary care propose that, ideally, all patients should be screened for alcohol use once a year. This can be done by administering the tool on its own, or by combining the AUDIT with other questions as part of a general health interview or medical history. Each question has a set of possible responses and each response has a score ranging from 0-4 (items 1 to 8 are scored on a 0-4 scale and items 9 and 10 are scored 0, 2, 4). Scores are added together and the total score can be compared with the cut-off scores provided to identify hazardous and harmful drinkers, and those with established alcohol use. A cut-off score of 8 or more indicates a hazardous or harmful pattern of drinking.

In addition to the total AUDIT score, a subtotal of an alcohol use disorder can be calculated by adding the scores of questions 4 to 6. If this subtotal score is 4 or more, the patient is likely to have an alcohol use disorder and further assessment should be considered.

The Alcohol Use Disorders Identification Test (AUDIT)

Please circle the answer that is correct for you.

1. How often do you have a drink containing alcohol?
   - Never
   - Monthly or less
   - 2-4 times a month
   - 2-3 times a week
   - 4 or more times a week

2. How many standard drinks containing alcohol do you have on a typical day when drinking?
• 1 or 2
• 3 or 4
• 5 or 6
• 7 to 9
• 10 or more

3. How often do you have six or more drinks on one occasion?
   • Never
   • Less than monthly
   • Monthly
   • Weekly
   • Daily or almost daily

4. During the past year, how often have you found that you were not able to stop drinking once you had started?
   • Never
   • Less than monthly
   • Monthly
   • Weekly
   • Daily or almost daily

5. During the past year, how often have you failed to do what was normally expected of you because of drinking?
   • Never
   • Less than monthly
   • Monthly
   • Weekly
   • Daily or almost daily

6. During the past year, how often have you needed a drink in the morning to get yourself going after a heavy drinking session?
   • Never
   • Less than monthly
   • Monthly
7. During the past year, how often have you had a feeling of guilt or remorse after drinking?
   - Never
   - Less than monthly
   - Monthly
   - Weekly
   - Daily or almost daily

8. During the past year, have you been unable to remember what happened the night before because you had been drinking?
   - Never
   - Less than monthly
   - Monthly
   - Weekly
   - Daily or almost daily

9. Have you or someone else been injured as a result of your drinking?
   - No
   - Yes, but not in the past year
   - Yes, during the past year

10. Has a relative or friend, doctor or other health worker been concerned about your drinking or suggested you cut down?
    1. No
    2. Yes, but not in the past year
    3. Yes, during the past year

**Scoring the AUDIT**
Scores for each question range from 0 to 4, with the first response for each...
question (i.e., never) scoring 0, the second (i.e., less than monthly) scoring 1, the third (i.e., monthly) scoring 2, the fourth (i.e., weekly) scoring 3, and the last response (i.e., daily or almost daily) scoring 4. For questions 9 and 10, which only have three responses, the scoring is 0, 2 and 4 (from left to right). A score of 8 or more is associated with harmful or hazardous drinking, a score of 13 or more in women, and 15 or more in men, is likely to indicate an alcohol use disorder.

**Michigan Alcoholism Screening Test (MAST)**

The most researched diagnostic instrument is the self-administered Michigan Alcoholism Screening Test (MAST), which was created in 1971 by M. L. Selzer. The 22-item MAST correctly identifies up to 95% of alcoholics, and the SMAST, an even shorter 10-question form of the MAST, has also been shown to identify over 90% of the alcoholics entering general psychiatric hospitals. The MAST was originally validated with treatment-seeking alcoholics. Numerous studies have used it to assess both adolescent and adult populations in a variety of settings. The MAST may realistically and effectively be used with virtually any population.

The MAST is simple to administer; clients are instructed to answer all questions either yes or no. After clients complete the test, the points assigned to each question are totaled. The MAST text indicates a number of points assigned for each question. A total of 4 points is presumptive evidence of alcoholism and a total of 5 or more points makes it extremely unlikely that the individual is not an alcoholic. In addition, given the scoring values, a positive (yes) response to three test questions - 10, 23, or 24 - is enough to diagnose alcohol addiction.

Three questions from the MAST that quickly diagnose potential alcohol problems are:
• Has your family ever objected to your drinking?
• Did you ever think you drank too much in general?
• Have others said you drink too much for your own good?

These three questions can be easily incorporated into the interview process to serve as indicators for a more thorough evaluation. The above questions may also be adapted to use with clients who may be using other substances by inserting the term “using” (to address the substances used) instead of limiting each question to “drinking.”

The questions used on the MAST specifically utilize the patient’s self-appraisal of social, vocational, and family issues that can often be associated with alcohol use. It is used in the general population as an initial assessment and is considered very effective in identifying alcohol addiction. However, there are two primary drawbacks associated with the MAST that are not present with other alcohol screening instruments. The standard test is very lengthy, which makes it difficult to administer to patients in emergency room settings or during short visits in primary care offices. To address this concern, shorter versions of the MAST have been developed, including the brief MAST, the short MAST, and the self-administered MAST.

The second concern with the MAST is that the questions used in the screening tool attempt to discern the presence of alcohol issues throughout the duration of the patient’s lifetime, rather than in the recent timeframe. As a result, the test may not detect problems while they are in the early stages of addiction.

The following is the 22-question, self-administered MAST.
Michigan Alcoholism Screening Test (MAST)

This test is nationally recognized by alcoholism and drug use professionals. You may substitute the words “drug use” in place of “drinking”.

1. Do you feel you are a normal drinker? ("normal" - drink as much or less than most other people)
   Circle Answer: YES NO

2. Have you ever awakened the morning after some drinking the night before and found that you could not remember a part of the evening?
   Circle Answer: YES NO

3. Does any near relative or close friend ever worry or complain about your drinking?
   Circle Answer: YES NO

4. Can you stop drinking without difficulty after one or two drinks?
   Circle Answer: YES NO

5. Do you ever feel guilty about your drinking?
   Circle Answer: YES NO

6. Have you ever attended a meeting of Alcoholics Anonymous (AA)?
   Circle Answer: YES NO

7. Have you ever gotten into physical fights when drinking?
   Circle Answer: YES NO

8. Has drinking ever created problems between you and a near relative or close friend?
9. Has a family member/close friend gone to anyone for help about your drinking?
Circle Answer: YES NO

10. Have you ever lost friends because of your drinking?
Circle Answer: YES NO

11. Have you ever gotten into trouble at work because of drinking?
Circle Answer: YES NO

12. Have you ever lost a job because of drinking?
Circle Answer: YES NO

13. Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking?
Circle Answer: YES NO

14. Do you drink before noon fairly often?
Circle Answer: YES NO

15. Have you ever been told you have liver trouble such as cirrhosis?
Circle Answer: YES NO

16. After heavy drinking have you ever had delirium tremens (D.T.'s), severe shaking, visual or auditory (hearing) hallucinations?
Circle Answer: YES NO

17. Have you ever gone to anyone for help about your drinking?
Circle Answer: YES NO

18. Have you ever been hospitalized because of drinking?
Circle Answer: YES NO

19. Has your drinking ever resulted in your being hospitalized in a psychiatric
20. Have you ever gone to any doctor, social worker, clergyman or mental health clinic for help with any emotional problem in which drinking was part of the problem?
Circle Answer: YES NO

21. Have you been arrested more than once for driving under the influence of alcohol?
Circle Answer: YES NO

22. Have you ever been arrested, even for a few hours because of other behavior while drinking? (If Yes, how many times ________)
Circle Answer: YES NO

**SCORING**

Please score one point if you answered the following:

1. No
2. Yes
3. Yes
4. No
5. Yes
6. Yes
7 through 22: Yes

Add up the scores and compare to the following score card:

0 - 2 No apparent problem
3 - 5 Early or middle problem drinker
6 or more Problem drinker
Short Michigan Alcoholism Screening Test (SMAST)

The Short Michigan Alcoholism Test (SMAST) can be administered in the same manner as the MAST, or it can be given verbally. It consists of thirteen questions selected from the twenty-two questions that comprise the MAST.

The SMAST is very easy to score. One point is given for each of the following answers: no on questions 1, 4, and 5; yes on all other questions (2, 3, and 6–13). A score of 0–1 indicates a low probability of alcoholism, a score of 2 points indicates the client is possibly alcoholic, and a score of 3 or more points indicates a strong probability of alcoholism.

SHORT MICHIGAN ALCOHOL SCREENING TEST (SMAST)

The following questions concern information about your involvement with alcohol during the past 12 months. Carefully read each question and decide if your answer is “YES” or “NO”. Then, check the appropriate box beside the question. Please answer every question. If you have difficulty with a question then choose the response that is mostly right. These questions refer to the past 12 months only.

YES NO
1. Do you feel that you are a normal drinker? (by normal we mean do you drink less than or as much as most other people.) _____ _____
2. Does your wife, husband, a parent, or other near relative ever worry or complain about your drinking? _____ _____
3. Do you ever feel guilty about your drinking? _____ _____
4. Do friends or relatives think you are a normal drinker? _____ _____
5. Are you able to stop drinking when you want to? ____ ____
6. Have you ever attended a meeting of Alcoholics Anonymous (AA)? ____ ____
7. Has your drinking ever created problems between you and your wife, husband, a parent or other near relative? ____ ____
8. Have you ever gotten into trouble at work because of your drinking? ____ ____
9. Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking? ____ ____
10. Have you ever gone to anyone for help about your drinking? ____ ____
11. Have you ever been in a hospital because of drinking? ____ ____
12. Have you ever been arrested for drunken driving, driving while intoxicated, or driving under the influence of alcoholic beverages? ____ ____
13. Have you ever been arrested, even for a few hours, because of other drunken behaviors? ____ ____

<table>
<thead>
<tr>
<th>SMAST Score</th>
<th>Degree of Problem</th>
<th>Suggested Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>No problems reported</td>
<td>None at this time.</td>
</tr>
<tr>
<td>3</td>
<td>Borderline alcohol</td>
<td>Further investigation problem reported is required.</td>
</tr>
<tr>
<td>4 or more</td>
<td>Potential Alcohol Abuse</td>
<td>A full assessment reported is reported.</td>
</tr>
</tbody>
</table>

**Drug Abuse Screening Test (DAST)**

The Drug Abuse Screening Test (DAST), which was developed in 1982, has been widely used to screen for substance use. The instrument consists of twenty-eight items that the patient self-reports on. These items are similar to those found on the Michigan Alcohol Screening Test, but the focus is on substances other than alcohol. The DAST has proven to be highly reliable and valid as a screening instrument for identifying a substance use issue. It can be administered in one of two
ways: the patient can provide a self-report using the twenty-eight items, or the clinician can conduct the assessment using an interview format. The purpose of the assessment is twofold:

1) To provide a brief, simple, practical, yet valid method for identifying individuals who are using psychoactive drugs.
2) To yield a quantitative index score of the degree of problems related to drug use and misuse.

Although the DAST is highly reliable and corresponds well with the DSM diagnosis of substance use, the instrument is somewhat limited. It does not obtain information regarding the specific substances the patient is using. However, it does attempt to discern if the patient is using multiple substances. In addition to drug use, the DAST also identifies the severity of the problem in regard to the impact the patient’s use is having on other areas of his or her life. Specifically, the instrument surveys the following life areas:

- Marital-family relationships
- Social relationships
- Employment
- Legal
- Physical (medical symptoms and conditions)

A description of how the DAST is scored and the ways in which it identifies substance use issues in patients is explained below, along with the DAST screening tool, which is shown below as well.

A factor analysis of the 20 items has indicated that the DAST is essentially a unidimensional scale. Accordingly, it is planned to yield only one total or summary score ranging from 0 to 20,
which is computed by summing all items that are endorsed in the direction of increased drug problems. Only two items are keyed for a "No" response: "Can you get through the week without using drugs?" and "Are you always able to stop using drugs when you want to?"

A DAST score of six or above is suggested for case finding purposes, as it increases the sensitivity of not missing a case of substance use. It is also suggested that a score of 16 or greater be considered to indicate a very severe substance use disorder condition. The DAST is one of the few instruments for the assessment of drug use and related problems, which may be of interest to those programs that are more diagnostically or psychiatrically oriented. The DAST provides a score that should be sensitive to changes in substance using experiences over a 6 and 12-month follow-up period; however, no studies have been published using the DAST as an outcome measure.

Drug Abuse Screening Test (DAST)

Directions: The following questions concern information about your involvement with drugs. Drug abuse refers to (1) the use of prescribed or “over-the-counter” drugs in excess of the directions, and (2) any non-medical use of drugs. Consider the past year (12 months) and carefully read each statement. Then decide whether your answer is YES or NO and check the appropriate space. Please be sure to answer every question.

YES NO

1. Have you used drugs other than those required for medical reasons? ___ ___
2. Have you abused prescription drugs? ___ ___
3. Do you abuse more than one drug at a time? ___ ___
4. Can you get through the week without using drugs (other than those required for medical reasons)? ___ ___
5. Are you always able to stop using drugs when you want to? ___ ___
6. Do you abuse drugs on a continuous basis? ___ ___
7. Do you try to limit your drug use to certain situations? ___ ___
8. Have you had “blackouts” or “flashbacks” as a result of drug use? ___ ___
9. Do you ever feel bad about your drug abuse? ___ ___
10. Does your spouse (or parents) ever complain about your involvement with drugs? ___ ___
11. Do your friends or relatives know or suspect you abuse drugs? ___ ___
12. Has drug abuse ever created problems between you and your spouse? ___ ___
13. Has any family member ever sought help for problems related to your drug use? ___ ___
14. Have you ever lost friends because of your use of drugs? ___ ___
15. Have you ever neglected your family or missed work because of your use of drugs? ___ ___
16. Have you ever been in trouble at work because of drug abuse? ___ ___
17. Have you ever lost a job because of drug abuse? ___ ___
18. Have you gotten into fights when under the influence of drugs? ___ ___
19. Have you ever been arrested because of unusual behavior while under the influence of drugs? ___ ___
20. Have you ever been arrested for driving while under the influence of drugs? ___ ___
21. Have you engaged in illegal activities in order to obtain drug? ___ ___
22. Have you ever been arrested for possession of illegal drugs? ___ ___
23. Have you ever experienced withdrawal symptoms as a result of heavy drug intake? ___ ___
24. Have you had medical problems as a result of your drug use (i.e., memory loss, hepatitis, convulsions, bleeding, etc.)? ___ ___
25. Have you ever gone to anyone for help for a drug problem? ___ ___
26. Have you ever been in a hospital for medical problems related to your drug use? ___ ___
27. Have you ever been involved in a treatment program specifically related to drug use? ___ ___
28. Have you been treated as an outpatient for problems related to drug abuse? ____

Scoring and interpretation:
A score of “1” is given for each YES response, except for items 4, 5, and 7, for which a NO response is given a score of “1.” Based on data from a heterogeneous psychiatric patient population, cutoff scores of 6 through 11 are considered to be optimal for screening for substance use disorders.

Using a cutoff score of 6 has been found to provide excellent sensitivity for identifying patients with substance use disorders as well as satisfactory specificity (i.e., identification of patients who do not have substance use disorders). Using a cutoff score of <11 somewhat reduces the sensitivity for identifying patients with substance use disorders, but more accurately identifies the patients who do not have a substance use disorders. Over 12 is definitely a substance use problem. In a heterogeneous psychiatric patient population, most items have been shown to correlate at least moderately well with the total scale scores. The items that correlate poorly with the total scale scores appear to be items 4, 7, 16, 20, and 22.

Summary

An individual who uses two or more substances or substance groups within a 12-month period can be diagnosed with a substance use disorder of each type. The DSM-5 defines varied categories of substance use disorders and explains overarching criteria of each, depending on the substance used. Although there are similarities between substance use of one type and substance use of multiple types, the latter may present unique challenges and a lengthier detoxification period, including an increase in physical side effects of the substances consumed. However, in some cases, individuals who
use multiple substances, with an issue of cross-addiction, may be more tolerant of the detoxification process since their bodies may not have developed a reliance on any singular substance, which tends to lead into a more complicated clinical course of care and outcome. As a result, each individual using one or multiple substances requires a personalized treatment plan developed according to their unique medical, psychiatric, and substance use history. The treatment plan will need to consider resources available within the patient’s support network, hospital or treatment facility, and community.

It is important to understand the distinction between single substance use and multiple substance use, as those using multiple substances will require different diagnostic and treatment strategies than those who use a single substance. However, there are some similarities between the conditions, and those using multiple substances will benefit from some of the strategies used with single substance users, such as treatment approaches. This study introduced the learner to overlapping factors and comorbid conditions often seen in those using multiple substances. It also aims to inform health professionals of the various screening tools available to identify an issue of one or more substances. The second part of this course, *Substance Use And Addiction Disorders: Patient Health History, Evaluation And Diagnosis*, will discuss additional aspects of the evaluation process important in the diagnosis of a substance use disorder and development of an individualized treatment plan.

**SUBSTANCE USE AND ADDICTION DISORDERS**

*Part 2: Patient Health History, Evaluation, And Diagnosis*
Introduction to Part 2

The diagnosis and treatment of a substance use disorder requires a personalized recovery plan in order to address an individual’s unique medical, psychiatric, and substance use history. The course *Substance Use And Addiction Disorders: Merging DSM-5 With Standard Screening Methods For Single and Multiple Substance Use* highlighted the distinctive similarities and differences between single substance and multiple substance use and the unique screening tools useful to diagnostic and treatment strategies. If the initial screening process indicates the presence of a multiple substance use disorder or cross addiction, the patient will require further assessment to diagnose a problem, to identify comorbid or complicating medical or emotional conditions, and to determine the appropriate treatment setting and level of treatment intensity for the patient.

A comprehensive assessment is often necessary in order to achieve an in depth assessment. The level and extent of assessment will depend on the type of substances used and the patient’s physical and mental status. Therefore, the clinician will develop an individual assessment plan for each patient.\(^{31}\)

Assessment Of A Substance Use Disorder

Comprehensive assessments may take a number of weeks to complete, as the patient will be required to undergo a number of assessment procedures to accurately identify the scope of the problem and specific treatment needs. Patients will typically be assessed during several office visits. In most instances, assessment will continue after
the onset of treatment and will evolve into standard patient monitoring.

The goals of medical assessment of a patient who shows signs of a substance use disorder are to:\(^2\)

- Establish the diagnosis or diagnoses.
- Determine appropriateness for treatment.
- Make initial treatment recommendations.
- Formulate an initial treatment plan.
- Plan for engagement in psychosocial treatment.
- Ensure that there are no contraindications to the recommended treatments.
- Assess other medical problems or conditions that need to be addressed during early treatment.
- Assess other psychiatric or psychosocial problems that need to be addressed during early treatment.

The components of the assessment of a patient with a substance use disorder should include:

- Complete history
- Physical examination
- Mental status examination
- Relevant laboratory testing
- Formal psychiatric assessment (if indicated)

**Communication with the Patient and Significant Others**

Communication with the patient is one of the most important components of the assessment process. Throughout the process, it will be necessary to obtain information from the patient, which will only happen if the patient feels comfortable with the clinician. The primary
goal of communication is to gain the patient’s trust and to ensure the patient is able to provide the necessary information to develop an appropriate treatment plan. Communication with the patient will also provide a means of monitoring their progress throughout the treatment process. If a patient is unable to communicate with the clinician, he or she will be less apt to disclose any issues related to treatment and progress.

Given the prevalence of denial on the part of an individual with a substance use disorder, if there is any suspicion about a possible substance use problem, it is important in the first interview to request permission to involve family members, friends, co-workers, and others who may be able to provide more objective information about the client’s pattern of substance use and related behaviors. Collateral interviews often help to give a more complete picture of both the user and the impact they are having on others in their environment. Partners and family members of a patient with an alcohol and drug addiction often want to be helpful in the patient’s treatment.

If either the person using a substance, or a close family member, is describing examples of domestic violence, legal problems, financial problems, medical complications, or other issues that are often related to substance use, it is important to determine if they think the problem would have occurred if alcohol or drugs were not a factor. Questions for family members include:

- Does the user’s personality change while using?
- Has anyone been concerned or embarrassed about the use?
• Has the user or others been uncomfortable about the user’s safety in circumstances such as riding in a car when the user has been driving after having a drink?

It is important to note that family members and significant others may be unaware of, or reluctant to divulge, information about the patient’s substance use patterns. Like the patient, they are often experiencing denial or avoiding a confrontation with the user. Common misinformation about substance use may divert the focus of the problem to other factors that are then presented as the primary problem. Due to the shame and embarrassment that frequently accompany the admission of substance use, the clinician may need to reassure everyone involved in the assessment that appropriate help can only be made available if an understanding of the problem is accurate and complete.

The Diagnostic Interview

The most important aspect of any assessment of a substance use disorder is the diagnostic interview. A carefully planned and conducted interview is the cornerstone of the diagnostic process. The initial contact with someone for the assessment of substance use may occur within the context of individual, family, group, or marital counseling. The clinician may be aware of the possible problem by the nature of the referral, or it may be discovered within the context of a family or marital problem. Referrals from health providers, other clinicians, or the legal system may be clearly for the purpose of assessing a drug or alcohol problem. Many assessments, however, will initially be undertaken as a part of the clinicians’ normal interviewing procedure.
A routine clinical interview should include questions about clients’ habits of using prescription and/or illicit drugs, alcohol, tobacco, and caffeine. An important part of the diagnostic interview is an assessment of the client’s readiness for change. The transtheoretical model offers a clinician very useful guidelines and information to assist in evaluating where the client is in the process of change. This model describes a series of six stages people experience in making changes, whether the changes are in therapy or not, which are: precontemplation, contemplation, determination, action, maintenance, and relapse. By determining the stage where the client is at the therapist can focus treatment on helping the client proceed through the various stages of change.

The transtheoretical model has been incorporated into the principles of motivational interviewing with substance use clients. It elaborates on targeting specific questions and responses to the stages of change, which can be very helpful in the process of diagnostic interviewing. A clinical interview that incorporates motivational interviewing techniques sets the stage for a successful counseling relationship and helps with treatment planning. Therapists who plan to work with clients using substances benefit greatly from familiarity with the model and techniques of interviewing.34

Given the frequency of denial and minimization encountered with clients who are experiencing substance use problems, having a supportive, respectful, effective strategy for interviewing is essential. Initially, it is still important to ask the client directly about his or her use of drugs or alcohol. Many clinicians find it helpful to assure the client that they are not asking questions about substance use in order
to make judgments. People will often respond less defensively if they are reassured that the clinician is trying to determine the impact of drugs and alcohol on the patient’s life, rather than trying to determine if he or she is an addict. If either a substance user or family member is describing examples of domestic violence, legal problems, financial problems, medical complications, or other issues that are often related to substance use, it is important to determine if they think the problem would have occurred if alcohol or drugs were not a factor.27

An interview format that gathers information specific to substance use should be a standard part of the assessment process. An example of a structured interview format is the Substance Use History Questionnaire. It may be given to the client to complete, or the questions can be asked during the interview. The information from this procedure will help in determining what additional assessment instruments to use. Information regarding work habits, social and professional relationships, medical history, and previous psychiatric history are also necessary for the assessment. Questions related to each of these areas should be included as a part of the standard intake.2

<table>
<thead>
<tr>
<th>Substance Use History Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part I: Substance Abuse History</strong></td>
</tr>
<tr>
<td><strong>Substance</strong></td>
</tr>
<tr>
<td>Alcohol</td>
</tr>
<tr>
<td>Barbiturates</td>
</tr>
<tr>
<td>Benzodiazepines</td>
</tr>
<tr>
<td>Caffeine</td>
</tr>
<tr>
<td>Drug Type</td>
</tr>
<tr>
<td>-------------------------------</td>
</tr>
<tr>
<td>Cocaine</td>
</tr>
<tr>
<td>Crack</td>
</tr>
<tr>
<td>Ecstasy</td>
</tr>
<tr>
<td>Ephedra</td>
</tr>
<tr>
<td>Gasoline</td>
</tr>
<tr>
<td>Glue</td>
</tr>
<tr>
<td>Heroin</td>
</tr>
<tr>
<td>Other inhalants</td>
</tr>
<tr>
<td>LSD</td>
</tr>
<tr>
<td>Marijuana or hash</td>
</tr>
<tr>
<td>Methadone</td>
</tr>
<tr>
<td>Methamphetamine</td>
</tr>
<tr>
<td>Mescaline</td>
</tr>
<tr>
<td>Mushrooms</td>
</tr>
<tr>
<td>Nicotine</td>
</tr>
<tr>
<td>Nitrous Oxide</td>
</tr>
<tr>
<td>Opiates</td>
</tr>
<tr>
<td>Opium</td>
</tr>
<tr>
<td>PCP</td>
</tr>
<tr>
<td>Peyote</td>
</tr>
<tr>
<td>Poppers</td>
</tr>
<tr>
<td>Prescription Drugs</td>
</tr>
<tr>
<td>Psilocybin</td>
</tr>
<tr>
<td>Quaaludes</td>
</tr>
<tr>
<td>Seconao1</td>
</tr>
<tr>
<td>Speedballs</td>
</tr>
<tr>
<td>Steroids</td>
</tr>
<tr>
<td>Tuinol</td>
</tr>
</tbody>
</table>
How did you get started using drugs/alcohol?

When you consume alcohol, what do you usually drink (circle)? Beer  Wine  Vodka  Gin  Tequila  Whiskey  Scotch  Rum  Other:
How many drinks do you usually have per day? _______ Per week? _______

How much (name of drug) do you usually have per day? ___________________
Per week? __________________

How have you ingested (the drug)? Swallow  Smoke  Sniff  Inject  Mix with other

What is the best thing about getting high?

What is your favorite thing to do when drinking or using drugs?

Are there any times you tend to use these substances less? More? When?

Are there any times you have successfully stopped? When? For how long?

How much do you spend each week on your drugs/alcohol?

Do you usually drink/use drugs alone or with others? At home or elsewhere?

What time of day do you usually start using drugs/drinking? Is there a pattern to your use?

What effects does drinking/using drugs have on you? (circle)
Feel happier  Feel more important  Feel more alert  Reduces physical discomfort  Increased irritability  Less shy  Think more clearly  More creative  Have more fun  Reduce stress/tension  Help to sleep
Relax socially  Express self more easily  Avoid negative emotions (depression, anger, grief, boredom)  Forget something that happened  Concentrate better
Have you ever experienced any of the following symptoms when you use drugs or alcohol (circle)?

Seizures    Blackouts    Hallucinations    Paranoia    Personality changes
Decreased need for sleep    Increased aggression    Increased sexual arousal
Severe weight loss    Ulcers or other stomach problems    Headaches
Excessive bleeding    Sinus problems    Heart palpitations    Suicidal thoughts
Panic attacks    Memory problems    Depression    Loss of sex drive
Sex with strangers    Other: ______________________________

Do you or have you ever experienced any physical symptoms when you try to stop drinking or use drugs?    Yes    No
If so, which ones?

Shakes/tremors    Sweating    Seizures    Continuous vomiting    Sleeplessness
Disorientation    Hallucinations    Depression    Hypersomnia
Increased appetite    Other: ________________________

Do you gamble when you drink or use drugs?    Yes    No

Is your gambling out of control or excessive?    Yes    No

Have you ever had an eating disorder (bulimia, anorexia, obesity)?    Yes    No
### Part II: Family History

Which family members have had a drug or alcohol problem (circle)?
None  Mother  Father  Brother(s)  Sister(s)  Stepparent  Grandparent  Uncle/Aunt

How were you affected by your family member’s drug abuse?

Does anyone in your current household use drugs or drink?  Yes  No
If so, who?

Do most of your friends drink or use drugs?  Yes  No

### Part III: Consequences Related to Alcohol or Drug Use

Please circle any problems that have persisted following your use of drugs or alcohol:
Hepatitis or liver problems  Persistent cough  Hallucinations  Strange thoughts  Congestion or wheezing  Heart problems  Depression  Mania  Loss of sex drive

Please circle any social or relationship problems that have resulted from your use of alcohol or drugs:
Arguments with spouse or partner  Thrown out of house  Social isolation  Arguments with parents or siblings  Loss of friends  Spouse or partner left you  Other: ____________________________

Please circle any job or financial problems caused or worsened by your use of drugs or alcohol:
Lost a job  Less productive at work  Behind in paying bills  Late to work  In debt  Missed days at work  Missed opportunities for raise or promotion  Other: ____________________________
Please circle any legal problems caused or worsened by your use of alcohol or drugs:
- Arrest for possession
- Arrest for forging prescriptions
- Auto accident while intoxicated
- Arrested for assault
- Arrested for embezzlement or forgery
- Arrested for selling drugs
- Arrested for driving under the influence
- Arrested for theft or robbery

### Part IV: Treatment History

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever attended a 12-step program?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you ever attended an outpatient program for drugs or alcohol?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you ever been treated in an inpatient facility for drugs or alcohol?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you ever been given a medication to help you abstain from drinking or using drugs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you ever been treated in an emergency room for a drug overdose or alcohol poisoning?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you ever made a suicide attempt while intoxicated or using?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What is the longest you have been able to stop drinking/using drugs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How were you able to remain abstinent or sober this long?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Why do you want to stop drinking or using drugs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What do you think will happen if you do not stop drinking or using drugs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part V: True/False Questions</td>
<td>True</td>
<td>False</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------------------</td>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>I drink/use drugs when I feel anxious.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I often try to hide or minimize my drinking/drug use.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Many of my friends drink or use drugs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I sell, or used to sell drugs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would never consider going to a 12-step program.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drinking or using drugs has never really caused me any problems.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have tried to stop using drugs/drinking in the past.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I drink/use drugs when I feel depressed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When I drink, I usually get drunk.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel more confident when I drink or use drugs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sometimes I use drugs or drink in the morning.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friends/family have told me I should stop drinking/using drugs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I spend too much time thinking about drinking or using drugs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I become very anxious if unable to have a drink or do drugs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have never stolen in order to buy drugs or alcohol.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am an alcoholic.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am a drug addict.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have experienced the need to use more drugs to get the effect I had the first time I used them.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If I stopped using drugs or drinking, I would lose many friends.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am not a religious person.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think better when I have a few drinks or use drugs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I enjoy sex more when I’m high.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drinking or using drugs helps me forget about my problems and relax.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have never used drugs and alcohol at the same time.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have sometimes alternated taking uppers and downers.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Patient And Provider Relationship

A crucial element in the assessment process is the relationship between the patient and the provider. Patients are often hesitant to disclose their substance use status, and will experience even greater difficulty if the relationship with the clinician is lacking. It is the responsibility of the provider to establish a relationship with the patient and maintain a treatment environment that provides the greatest opportunity for success. Therefore, the approach and attitude of the provider is an important element in the treatment process. Clinicians, physicians, and other practitioners should approach patients who have an addiction in an honest and respectful manner. It is the responsibility of the provider to deal appropriately with his or her own attitudes and emotional reactions to a patient. For assessment to be effective, personal biases and opinions about drug use, individuals who have addictions, sexual behavior, lifestyle differences, and other emotionally laden issues must be set aside or dealt with openly and therapeutically.\textsuperscript{35,36}

Certain characteristics of treatment providers facilitate effective evaluation and treatment of addiction. The following is a list of the attributes of an effective addiction treatment provider:

- Ability to establish a helping alliance
- Good interpersonal skills
- Non-possessive warmth
- Friendliness
- Genuineness
- Respect
- Affirmation
- Empathy
- Supportive style
- Patient-centered approach
- Reflective listening
- Targeted, open-ended questions about the use of drugs and alcohol will elicit more information than simple, closed-ended, “yes” or “no” or single-answer questions

The success of the structured interview relies greatly on the type of questions asked. Most patients are willing and able to provide reliable, factual information regarding their drug use; however, many cannot articulate their reasons or motivation for using drugs. An effective interview should focus on drug use, patterns and consequences of use, past attempts to deal with problems, medical and psychiatric history (the “what, who, when, where, how”) — not on the reasons (the “why”) of addiction problems. Questions should be asked in a direct and straightforward manner, using simple language and avoiding street terms. Assumptive or quantifiable questions, as shown in the section below, yield more accurate responses in the initial phases of the interview.

Targeted, open-ended questions about drug and alcohol use would include:

- “How has heroin use affected your life?”
- “How has hydrocodone affected your life?”
- “In the past, what factors have helped you stop using?”
- “What specific concerns do you have today?”

Quantifiable interview questions include such examples as:

- “At what age did you first use alcohol or other drugs?”
• “How many days of the week do you drink alcohol?”
• “How often do you use heroin?”
• “When was the last time you were high?”
• “How many times did you use last month?”

**Comprehensive Health History**

A key component of the structured interview involves a thorough and comprehensive medical, social, and drug use history. This is crucial for determining the patient’s use patterns and previous attempts at recovery. Components of a complete substance use assessment history include those listed below.37

- Substance use history (*i.e.*, age of first time substances used, change in effects over time, history of tolerance, overdose, withdrawal, attempts to quit, current problems with compulsivity or cravings).

- Addiction treatment history (*i.e.*, previous treatments for addiction, types of treatments tried, outcomes of treatment attempts).

- Psychiatric history (*i.e.*, patient’s diagnoses, psychiatric treatments recommended or attempted, outcomes of treatments).

- Family history (*i.e.*, substance use disorders in family, family medical and psychiatric history).
• Medical history (*i.e.*, detailed review of systems, past medical or surgical history, sexual history [for women, determine likelihood of pregnancy], current and past medications, pain history).

• Social history (*i.e.*, quality of recovery environment, family or living environment, substance use by members of support network).

• Readiness to change (*i.e.*, patient’s understanding of his or her substance use problem, stage of change the patient is in, patient’s current interest in treatment, whether treatment is coerced or voluntary).

**Laboratory Tests**

An important element in the assessment process is laboratory testing. While laboratory tests are not used to diagnose addiction, they will help determine the physical status of the patient and guide treatment decisions. They will also provide a baseline evaluation for future treatment monitoring.

The following section refers to the various laboratory tests that may be used in patient assessment. However, it is important to note that the specific tests used will vary between patients. Some substances have a greater physical impact on the patient and will require more extensive screening than other substances. It is important that the provider identify the necessary laboratory tests during the interview process.38
Primary laboratory tests include:

- Serum electrolytes
- BUN and creatinine
- CBC with differential and platelet count
- Liver function tests (GGT, AST, ALT, PT or INR, albumin)
- Lipid profile
- Urinalysis
- Pregnancy test (for women of childbearing age)
- Toxicology tests for drugs of abuse
- Hepatitis B and C screens

Additional laboratory evaluations should be considered and offered as indicated:

- Blood alcohol level (using a breath testing instrument or a blood sample)

- Infectious disease evaluation:
  - HIV antibody testing
  - Hepatitis B virus (HBV) and hepatitis C virus (HCV) screens
  - Serology test for syphilis — Venereal Disease Research Laboratories (VDRL)
  - Purified protein derivative (PPD) test for tuberculosis, preferably with control skin tests

In addition to the laboratory test listed above, additional laboratory screens may be required based upon the patient’s medical and/or substance use history, as well as the physical examination. If other conditions or medical problems are identified, those should be addressed and treated alongside the substance use treatment.
Laboratory findings are especially relevant in multiple substance use cases, as the presence of certain conditions or complications may affect treatment.

**Physical Examination**

Every patient assessment should include a thorough physical examination to identify any medical complications related to substance use. This is necessary for three reasons (as listed below), which should be kept in mind by the clinician during aspects of the physical examination and any findings suggestive of addiction or its complications.38

1. The patient may be suffering from physical complications that require immediate medical attention. This is especially common in patients who have been using opioids.

2. The patient may have a medical condition that can be exacerbated by detoxification or medication assisted therapy. Prior to starting either, it is important to determine the patient’s physical status.

3. Several physical findings may lead the health provider to suspect addiction in patients who deny drug use or have equivocal screening results.

Aspects of the physical examination include:

- General
  - Odor of alcohol on breath
  - Odor of marijuana on clothing
- Odor of nicotine or smoke on breath or clothing
- Poor nutritional status
- Poor personal hygiene

- **Behavior**
  - Intoxicated behavior during exam
  - Slurred speech
  - Staggering gait
  - Scratching

- **Skin**
  - Signs of physical injury
  - Bruises
  - Lacerations
  - Scratches
  - Burns
  - Needle marks
  - Skin abscesses
  - Cellulitis
  - Jaundice
  - Palmar erythema
  - Hair loss
  - Diaphoresis
  - Rash
  - Puffy hands

- **Head, Eyes, Ears, Nose, Throat (HEENT)**
  - Conjunctival irritation or injection
  - Inflamed nasal mucosa
- Perforated nasal septum
- Blanched nasal septum
- Sinus tenderness
- Gum disease, gingivitis
- Gingival ulceration
- Rhinitis
- Sinusitis
- Pale mucosae
- Burns in oral cavity

- Gastrointestinal
  - Hepatomegaly
  - Liver tenderness
  - Positive stool hemoccult

- Immune
  - Lymphadenopathy

- Cardiovascular
  - Hypertension
  - Tachycardia
  - Cardiac arrhythmia
  - Heart murmurs, clicks
  - Edema
  - Swelling

- Pulmonary
  - Wheezing, rales, rhonchi
  - Cough
- Respiratory depression

- Female reproductive/endocrine
  - Pelvic tenderness
  - Vaginal discharge

- Male reproductive/endocrine
  - Testicular atrophy
  - Penile discharge
  - Gynecomastia

- Neurologic
  - Sensory impairment
  - Memory impairment
  - Motor impairment
  - Ophthalmoplegia
  - Myopathy
  - Neuropathy
  - Tremor
  - Cognitive deficits
  - Ataxia
  - Pupillary dilation or constriction

**Evaluation Of Multiple Substance Use And Cross Addiction**

There are a number of evaluation factors that should be considered when assessing a patient with suspected multiple substance use and cross addiction. The following section provides an overview of the specific factors that should be considered and the rationale.
Substances Consumed

It is important to understand and be able to identify the various drugs that may be used. The following chart, from the National Institute on Drug Abuse, is provided here as a quick reference for clinicians. The chart outlines the different substances, commercial and street names, Drug Enforcement Administration (DEA) schedule, and how the substances are used.\textsuperscript{39}

Tobacco

<table>
<thead>
<tr>
<th>Category &amp; Name</th>
<th>Examples of Commercial &amp; Street Names</th>
<th>DEA Schedule</th>
<th>How Administered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine</td>
<td>Found in cigarettes, cigars, bidis, and smokeless tobacco (snuff, spit tobacco, chew)</td>
<td>Not scheduled</td>
<td>Smoked, snorted, chewed</td>
</tr>
</tbody>
</table>

Alcohol

<table>
<thead>
<tr>
<th>Category &amp; Name</th>
<th>Examples of Commercial &amp; Street Names</th>
<th>DEA Schedule</th>
<th>How Administered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol (ethyl alcohol)</td>
<td>Found in liquor, beer, and wine</td>
<td>Not scheduled</td>
<td>Swallowed</td>
</tr>
</tbody>
</table>

Cannabinoids

<table>
<thead>
<tr>
<th>Category &amp; Name</th>
<th>Examples of Commercial &amp; Street Names</th>
<th>DEA Schedule</th>
<th>How Administered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marijuana</td>
<td>Blunt, dope, ganja, grass, herb, joint, bud, Mary Jane, pot, reefer, green, trees, smoke, sinsemilla, skunk, weed</td>
<td>Schedule I drugs have a high potential for a substance use disorder. They require greater storage security and have a quota on</td>
<td>Smoked, swallowed</td>
</tr>
</tbody>
</table>
Schedule I drugs are available for research only and have no approved medical use. Schedule I drugs have a high potential for a substance use disorder. They require greater storage security and have a quota on manufacturing, among other restrictions. Schedule I drugs are available for research only and have no approved medical use.

**Opioids**

<table>
<thead>
<tr>
<th>Category &amp; Name</th>
<th>Examples of Commercial &amp; Street Names</th>
<th>DEA Schedule</th>
<th>How Administered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heroin</td>
<td>Diacetylmorphine: smack, horse, brown sugar, dope, H, junk, skag, skunk, white horse, China white; cheese (with OTC cold medicine and antihistamine)</td>
<td>Schedule I drugs have a high potential for a substance use disorder. They require greater storage security and have a quota on manufacturing, among other restrictions. Schedule I drugs are available for research only and have no approved medical use.</td>
<td>Injected, smoked, snorted</td>
</tr>
</tbody>
</table>
Opium

*Laudanum, paregoric:* big O, black stuff, block, gum, hop

Schedule II drugs have a high potential for a substance use disorder. They require greater storage security and have a quota on manufacturing, among other restrictions. Schedule II drugs are available only by prescription (nonrefillable) and require a form for ordering. Schedule III drugs are available by prescription, may have five refills in 6 months, and may be ordered orally. Some Schedule V drugs are available over the counter.

<table>
<thead>
<tr>
<th>Category &amp; Name</th>
<th>Examples of Commercial &amp; Street Names</th>
<th>DEA Schedule</th>
<th>How Administered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cocaine</td>
<td><em>Cocaine hydrochloride:</em> blow, bump, C, candy, Charlie, coke, crack, flake, rock, snow, toot</td>
<td>Schedule II drugs have a high potential for a substance use disorder. They require greater storage security and have a quota on manufacturing, among other restrictions. Schedule II drugs are available only by snorted, smoked, injected</td>
<td></td>
</tr>
<tr>
<td>Drug Class</td>
<td>Common Names</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>--------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>Amphetamine</td>
<td>Biphetamine, Dexedrine: bennies, black beauties, crosses, hearts, LA turnaround, speed, truck drivers, uppers</td>
<td>Schedule II drugs have a high potential for a substance use disorder. They require greater storage security and have a quota on manufacturing, among other restrictions. Schedule II drugs are available only by prescription (nonrefillable) and require a form for ordering.</td>
<td></td>
</tr>
<tr>
<td>Methamphetamine</td>
<td>Desoxyn: meth, ice, crank, chalk, crystal, fire, glass, go fast, speed</td>
<td>Schedule II drugs have a high potential for a substance use disorder. They require greater storage security and have a quota on manufacturing, among other restrictions. Schedule II drugs are available only by prescription (nonrefillable) and require a form for ordering.</td>
<td></td>
</tr>
</tbody>
</table>
### Club Drugs

<table>
<thead>
<tr>
<th>Category &amp; Name</th>
<th>Examples of Commercial &amp; Street Names</th>
<th>DEA Schedule</th>
<th>How Administered</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MDMA</strong> (methylene-dioxy-methamphetamine)</td>
<td>Ecstasy, Adam, clarity, Eve, lover's speed, peace, uppers</td>
<td>Schedule I drugs have a high potential for a substance use disorder. They require greater storage security and have a quota on manufacturing, among other restrictions. Schedule I drugs are available for research only and have no approved medical use.</td>
<td>swallowed, snorted, injected</td>
</tr>
<tr>
<td><strong>Flunitrazepam</strong></td>
<td><em>Rohypnol</em>: forget-me pill, Mexican Valium, R2, roach, Roche, roofies, roofinol, rope, rophies</td>
<td>Schedule IV drugs are available by prescription; five refills in 6 months, and may be ordered orally.</td>
<td>swallowed, snorted</td>
</tr>
<tr>
<td><strong>GHB</strong></td>
<td><em>Gamma-hydroxybutyrate</em>: G, Georgia home boy, grievous bodily harm, liquid ecstasy, soap, scoop, goop, liquid X</td>
<td>Schedule I drugs have a high potential for a substance use disorder. Require greater storage security; have a quota on manufacturing; are available for research only and have no approved medical use.</td>
<td>Swallowed</td>
</tr>
</tbody>
</table>
# Dissociative Drugs

<table>
<thead>
<tr>
<th>Category &amp; Name</th>
<th>Examples of Commercial &amp; Street Names</th>
<th>DEA Schedule</th>
<th>How Administered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ketamine</td>
<td><strong>Ketalar SV:</strong> cat Valium, K, Special K, vitamin K</td>
<td>Schedule III drugs are available by prescription, may have five refills in 6 months, and may be ordered orally.</td>
<td>injected, snorted, smoked</td>
</tr>
<tr>
<td>PCP and analogs</td>
<td><strong>Phencyclidine:</strong> angel dust, boat, hog, love boat, peace pill</td>
<td>Schedule I &amp; II drugs have a high potential for a substance use disorder. They require greater storage security &amp; have a quota on manufacturing. Schedule I drugs are available for research only &amp; have no approved medical use; Schedule II drugs are only by prescription.</td>
<td>swallowed, smoked, injected</td>
</tr>
<tr>
<td>Salvia divinorum</td>
<td>Salvia, Shepherdess’s Herb, Maria Pastora, magic mint, Sally-D</td>
<td>Not Scheduled</td>
<td>chewed, swallowed, smoked</td>
</tr>
<tr>
<td>Dextromethorphan (DXM)</td>
<td>Found in some cough and cold medications: Robotripping, Robo, Triple C</td>
<td>Not Scheduled</td>
<td>Swallowed</td>
</tr>
</tbody>
</table>
# Hallucinogens

<table>
<thead>
<tr>
<th>Category &amp; Name</th>
<th>Examples of Commercial &amp; Street Names</th>
<th>DEA Schedule</th>
<th>How Administered</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSD</td>
<td><em>Lysergic acid diethylamide</em>: acid, blotter, cubes, microdot yellow sunshine, blue heaven</td>
<td>Schedule I drugs have a high potential for a substance use disorder. They require greater storage security and have a quota on manufacturing, among other restrictions. Schedule I drugs are available for research only and have no approved medical use.</td>
<td>Swallowed, absorbed through mouth tissues</td>
</tr>
<tr>
<td>Mescaline</td>
<td>Buttons, cactus, mesc, peyote</td>
<td>Schedule I drugs have a high potential for a substance use disorder. They require greater storage security and have a quota on manufacturing, among other restrictions. Schedule I drugs are available for research only and have no approved medical use.</td>
<td>Swallowed, smoked</td>
</tr>
<tr>
<td>Psilocybin</td>
<td>Magic mushrooms, purple passion, shrooms, little smoke</td>
<td>Schedule I drugs have a high potential for a substance use disorder. They require greater</td>
<td>Swallowed</td>
</tr>
</tbody>
</table>
storage security and have a quota on manufacturing, among other restrictions. Schedule I drugs are available for research only and have no approved medical use.

### Other Compounds

<table>
<thead>
<tr>
<th>Category &amp; Name</th>
<th>Examples of Commercial &amp; Street Names</th>
<th>DEA Schedule</th>
<th>How Administered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anabolic steroids</td>
<td>Anadrol, Oxandrin, Durabolin, Depo-Testosterone, Equipoise: steroids, juice, gym candy, pumpers</td>
<td>Schedule III drugs are available by prescription, may have five refills in 6 months, and may be ordered orally.</td>
<td>Injected, swallowed, applied to skin</td>
</tr>
<tr>
<td>Inhalants</td>
<td>Solvents (paint thinners, gasoline, glue); gases (butane, propane, aerosol propellants, nitrous oxide); nitrites (isoamyl, isobutyl, cyclohexyl): laughing gas, poppers, snappers, whippets</td>
<td>Not scheduled</td>
<td>Inhaled through nose or mouth</td>
</tr>
</tbody>
</table>

In addition to the substances listed above, many individuals use prescription drugs. Prescription drug use and drug diversion is a significant problem that affects numerous individuals. As the
availability and scope of prescription drugs has expanded to include a range of opiates, non-opiate depressants, stimulants, and potent cold medicines so has the use of these substances and the tendency to use them recreationally.

Drug diversion (the illegal or other use than as prescribed) can occur with a wide range of drugs. However, it is most common for diverters to seek out drugs in the categories listed below:

- Opioids
- Pseudoephedrine and Ephedrine
- Dextromethorphan
- Central Nervous System Depressants
- Stimulants

**Physical Effects and Organ Damage**

The cause and effect relationship between drug use and specific medical syndromes may not always be clear. Yet, there are certain generalizations that can be made between specific drugs, or drug groups, and related medical problems. In general, the following medical problems, described on a drug-group by drug-group basis, may occur as a result of drug use or addiction. The examining provider should investigate a medical problem potentially linked to substance use and closely consider the patient's use of psychoactive substances, including alcohol and tobacco.

The following table outlines particular substance use and physical conditions associated with each.
**Alcohol-Related Problems**

**Malnutrition**

Individuals with an alcohol use disorder, as well as other substance use, entering treatment may present with malnutrition. They may require a formal nutritional assessment in some cases, however, height/weight ratio and serum albumen will be sufficient in most cases. Multivitamins and thiamin are generally a good addition during and after detoxification, while other supplements, such as niacin, pyridoxine, folic acid, and/or magnesium may be required. Care should be taken in supplementing vitamin A, which may become toxic in high doses, and calcium and vitamin D for possible hypercalcemia and calcium nephrolithiasis. Ideally, a dietitian/nutritionist should be part of the treatment team.

**Neurological Problems**

Neurological problems may include periods of memory loss, or blackouts during heavy drinking episodes. Wernicke-Korsakoff syndrome and dementia are common, but care should be taken to distinguish alcohol-induced dementia, hypothyroidism, syphilis, vitamin B12 deficiency, central nervous system lesions, infections or degenerative conditions.

Other alcohol related problems may include alcoholic cerebellar degeneration, marchiafava-bignami disease and other degenerations of the corpus callosum, central pontine myelinolysis, and such neuropathies as tobacco alcohol amblyopia (double vision and decreased acuity), sensory neuropathy (burning dysesthesias of the feet and hands), motor neuropathy (proximal weakness), and autonomic neuropathy (with abnormalities). The most common neurologic problems involve orthostatic hypotension and possible seizures; prescribing drugs to reduce seizure threshold should be done with care. Underlying hypertension and coagulopathies may lead to hemorrhagic and thrombotic strokes.
Gastrointestinal System
Alcohol is particularly irritating to the gastrointestinal (GI) system and can produce stomatitis, esophagitis, gastritis and duodenitis, exacerbate and retard healing of peptic ulcers and promote the development of Helicobacter pylori. Patients with dysphagia, early satiety, early morning abdominal pain, and/or anemia should be evaluated for alcoholism.

Hepatic Problems
The liver, which does much of the work in digesting alcohol, is highly vulnerable to acute fatty metamorphosis, alcoholic hepatitis, perivenular fibrosis, and cirrhosis. Enzyme studies should be repeated every 2 to 4 weeks with such patients.

Hematological Problems
Alcohol can produce a variety of anemias; such as, microcytic from upper gastrointestinal blood loss and iron deficiency, macrocytic secondary to membrane defects, premature release of red cells from bone marrow, liver disease or folate deficiency, or normochromic secondary to marrow suppression and/or chronic disease. Mild thrombocytopenia is often seen in alcoholics and usually returns to normal within a week of abstinence.

Cardiovascular Problems
Alcohol ingestion can result in supraventricular arrhythmias, including paroxysmal atrial fibrillation or `holiday heart.' Increased levels of catecholamines during withdrawal can precipitate supraventricular and ventricular arrhythmias. Long-term heavy drinking can result in congestive cardiomyopathy characterized by signs of congestion including insidious but progressive dyspnea, intolerance to exercise and edema. Chronic alcohol use is also associated with arterial hypertension, while withdrawal can significantly elevate blood pressure.
**Endocrine, Metabolic, and Miscellaneous Problems**

Various endocrine and metabolic comorbidities can result from acute alcohol ingestion, which may produce pyertriglyceridemia, lipemic serum and in some, painful abdominal crises. Hyperuricemia resulting in gout and other sequelae may occur when alcohol interferes with urate excretion, while a myriad of metabolic imbalances including hypoglycemia, inhibited vasopressin levels and elevated release of corticotrophin may occur. Loss of magnesium through increased urination may reduce parathyroid hormone secretion and hypocalcemia, while loss of both magnesium and calcium can lead to muscle weakness, tetany, seizures, and cardiac arrhythmias.

Production of male and female sex hormones can be reduced, resulting in impaired fertility, menstrual irregularities or amenorrhea in women and decreased spermatogenesis, infertility and erectile dysfunction in men. Miscellaneous problems related to alcohol addiction include aspiration pneumonia, nocturnal sleep apnea, long abscess, pulmonary tuberculosis, acute and chronic myopathy, rhabdomyolysis, myoglobinuria, hypophosphatemia, osteoporosis with resulting fractures, and a number of cancers, including oropharyngeal, esophageal, gastric, pancreatic, hepatic, colon, and breast cancer.

<table>
<thead>
<tr>
<th>Other Sedative-Hypnotic Drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>While these drugs have similar effects to those of alcohol, they have not been identified with the scope of related medical problems that alcohol has. One property that can be considered a sequelae is the synchronistic effect these drugs may have when taken with alcohol or one another. Essentially, drugs such as the benzodiazepines, which may be safe at relatively high dosages when taken on their own, can become deadly when taken in combination with alcohol or other drugs in this group, producing respiratory depression, coma and death.</td>
</tr>
</tbody>
</table>
This reaction has to do with variable rates of metabolization and how these affect blood-brain levels of different drugs.

The liver is preferential in its digestion of certain chemicals, and given a choice between breaking down alcohol and a benzodiazepine it will concentrate on the alcohol, allowing the benzodiazepine to build up to a potentially fatal level in the brain. Sedative hypnotics can produce cognitive impairments including amnesia, visual tracking, and reflex responses.

Meprobamate overdose can cause a gelatinous bezoar in the gut that may require endoscopic removal, while glutethimide can produce marrow suppression and pancytopenia.

<table>
<thead>
<tr>
<th>Opioids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aside from causing sedation and constipation, opioids are relatively non-toxic when used as prescribed. In a substance use disorder, non-cardiac pulmonary edema and heroin-induced nephropathy with glomerulonephritis leading to renal insufficiency, and various neurological syndromes including multifocal leukoencephalopathy and myelopathies may occur. The metabolites of meperidine, propoxyphene and pentazocine can result in seizures, even at therapeutic levels.</td>
</tr>
</tbody>
</table>

In the late 1970s, faulty synthesis of a street-preparation of meperidine introduced an industrial neurotoxic called MPPP. That neurotoxic contaminate directly attacked dopamine-producing cells in the *substantia nigra* area of users' brains, producing Parkinson-like sequelae that paralyzed its victims.

Parkinson medication provided some relief and paradoxically the cases and a study of the MPPP action provided much information on how Parkinson disease develops.
| **Stimulant Drugs** | Cocaine and other stimulants, including amphetamine and methamphetamine are capable of producing serious and extensive organ toxicity.  

These drugs produce extensive vasoconstriction and can produce profound acute vascular and cardiovascular problems: severe hypertension, cardiac arrhythmias, angina, myocardial infarction, and sudden death are seen as well as cerebrovascular accident with stroke.  

Seizures are common with cocaine injection or smoking and may be accompanied by acute hyperthermia, muscle rigidity, severe rhabdomyolysis myoglobinuria, and renal failure. Metabolites produced by the combining of cocaine and alcohol may exacerbate these problems. Chronic nasal insufflation of cocaine can produce ischemic necroses resulting in septum perforation, while smoking can result in reduced pulmonary diffusing capacity with hypoxia, dyspnea and potential pulmonary edema.  

Other problems can include pneumothorax and pneumomediastinum from vigorous inhalation, pulmonary infarction, alveolar hemorrhage, vascular thrombosis, ischemia of the GI tract and hepatic damage. The main difference between cocaine and the amphetamines is that the latter has a longer half-life or effectiveness and may have correspondingly longer periods of complications. |
| **Tobacco** | The smoked stimulant nicotine is in and of itself a systemic poison that can produce or exacerbate a full spectrum of pulmonary diseases including emphysema and lung cancer. It is also responsible for producing cancers of the mouth, esophagus, and other organs. It has also been implicated in a variety of heart ailments. |
Overall, it has been reported by a number of sources that tobacco is responsible for over 400,000 deaths annually in the United States alone.

**Marijuana**  
The smoking of marijuana can produce a variety of respiratory and pulmonary sequelae. Older users may experience tachycardia and angina while increased head and neck cancers have been reported in some users. A number of other problems have been claimed for relation to gonadal dysfunction, immune suppression, and long-term psychiatric problems but such have not been proven.

**Hallucinogens**  
Similarly, medical problems resulting from hallucinogen use appear to be rare. LSD, mescaline, psilocybin, and psilocin may produce tachycardia and the possibility of cerebrovascular constriction. Evidence that MDMA and other psychedelic stimulants may be necrotic to serotonin receptor sites is still controversial. Several deaths have occurred that are related to idiosyncratic reactions to these drugs. The most problems have been seen with phencyclidine (PCP), which is often included with the hallucinogens. Besides severe psychotic reactions, PCP can cause hyperthermia, rhabdomyolysis, renal failure, and intractable seizures.

**Inhalants**  
The volatile substances that include organic solvents, anesthetic gases, nitrites, glues, refrigerants, and other industrial materials can produce extreme neurotoxicity up to and including permanent cognitive dysfunction and neuropathy. Propellant fluorocarbons can produce cardiac arrhythmias and sudden death. Paint thinner, gasoline, butane, etc., may produce pulmonary, hepatic, renal, and hematologic toxicity. Misuse of anesthetic gases can cause asphyxiation and arrhythmias. The nitrites can produce profound cyanosis and dyspnea as well as dangerously low blood pressure due to their vasorelaxant properties.
Some of the medical complications found in substance users are the result of needle use or of substances used to cut or bulk out drugs. These complications are responsible for long-term damage to the individual and also provide some of the most easily recognizable signs of substance use:

1) Needle-track scars are caused by unsterile techniques and the injection of fibrogenic particulate matter.

2) Attempts to sterilize the needle by heating the tip with a match causes the deposit of carbon, which causes mild inflammatory reaction; subsequent repeated injection with such a needle causes tattooing or dark pigmentation at the point of entry of the needle. However, macrophages pick up the carbon, and the tracks become progressively lighter.

Although most common on the arms, tracks can be found on almost any part of the body, because substance users realize that the arms are the first area to be checked. Even the penile veins have been used for injection. The subcutaneous scars found on the thighs and arms are due to chronic abscesses.

3) Abscess formation (the most common septic problem) is usually easy to recognize. Repeated injections without cleansing the skin around the injection sites produce infections that are most commonly due to skin flora such as staphylococci and streptococci. Anaerobic infections, however, occur at a much higher rate in the drug user who injects. These abscesses may sometimes be recognized by the presence of a foul-smelling
discharge, less often by gas formation, and by a bizarre type of cellulitis.

4) Cellulitis is characterized by a stony or wooden-hard tenseness, which progresses rapidly on an extremity, and not necessarily in association with a recent needle puncture or an infected site. Cellulitis occurs when sedative-hypnotics are injected subcutaneously. The tissue becomes reddened, hot, painful, and swollen.

5) Another complication in an extremity may be caused by intra-arterial injection. Intense pain is usually produced distal to the site of injection. Swelling, cyanosis, and coldness of the extremity indicate the onset of a medical emergency. If this condition is untreated, gangrene of the hands or fingers may develop with consequent loss of these parts.

6) Camptodactyly or permanent flexion of the fingers can result from recurrent use of the hand veins for injection. Irreversible contracture of the fingers and lymphedema may result.

Mental Illness And Substance Use

Individuals with mental illness are at an increased risk of developing substance use problems, especially if their mental illness is severe. Substance use is highest among individuals with schizophrenia, bipolar disorder, depression, and other similar conditions. Individuals who have mood or anxiety disorders are twice as likely to develop some form of substance use disorder. These individuals are especially prone
to a tobacco use disorder. According to the 2010 National Survey on Drug Use and Health, there were 9.2 million adults who have both mental illness and substance use disorders.\textsuperscript{42}

According to recent data, people with severe mental illness were about 4 times more likely to be heavy alcohol users (four or more drinks per day); 3.5 times more likely to use marijuana regularly (21 times per year); and 4.6 times more likely to use other drugs at least 10 times in their lives. Patients with severe mental illness were 5.1 times more likely to be daily smokers.\textsuperscript{43} The psychiatric disorders most often seen in dual diagnosis in combination with drug use are:\textsuperscript{44}

- major depression
- schizophrenia (thought disorder)
- bipolar disorder (manic-depression)

Many treatment professionals also include other mental disorders in their definition of dual diagnosis. These include:

- anxiety disorders, \textit{i.e.,} panic disorders, obsessive compulsive disorders, post-traumatic stress syndromes
- organic disorders
- attention deficit hyperactivity disorder (ADHD)
- developmental disorders
- somatoform disorders
- rage disorders
- other disorders, such as sexual dysfunction and anorexia

\textbf{Four Patterns of Dual Diagnosis}

Psychoactive substance use can be related to four different patterns of dual diagnosis. These are listed below as:
1. Pre-existing mental illness:

One kind of dual diagnosis involves the person who has a clearly defined mental illness and then gets involved in drugs, for example the teen with major depression that discovers amphetamines.

2. Potential mental illness:

Another kind of dual diagnosis associated with the use of psychoactive drugs occurs when there might be an underlying psychiatric problem that is not fully developed as yet. There is no clear-cut depression nor clear-cut schizophrenia before drug use begins. There may be some unusual thought patterns but these are not significant enough to be recognized as a mental illness. When that person starts to use psychoactive drugs, the effects of those substances activate or accelerate the development of the underlying mental disturbance.

3. Permanent drug-induced mental illness:

The third kind of dual diagnosis happens when there is not a pre-existing problem, but as a result of years of use or some extreme reaction to the drug. The user develops a chronic psychiatric problem because the toxic effects of the drug permanently imbalance the brain chemistry.

4. "Temporary" drug-induced mental illness:

There is a fourth condition that is not really dual diagnosis which occurs when the drug itself or withdrawal from the drug causes a transient depression, temporary psychosis, or other apparent mental illness. The imbalance in the brain chemistry in this type of diagnosis is usually temporary and, with abstinence, the mental illness will
disappear within a few months to a year. This is not true with dual diagnosis but only a temporary condition resulting from the toxic emotional effects of the drug.

The prevalence of dual diagnosis depends on when the diagnosis is made. Since many mental symptoms are a temporary result of drug toxicity or drug withdrawal, an early diagnosis may merely be drug toxicity rather than dual diagnosis. Hence, the prudent chemical dependency clinician treats all dangerous symptoms but holds off making a psychiatric diagnosis until the drug user has had time to get sober and out of a state of drug intoxication or drug withdrawal.

The growth of licensed professionals working in the field of chemical dependency treatment has resulted in greater recognition and documentation of dual diagnosis. Increased use of cocaine and amphetamines has also increased the problem of dual diagnosis. A larger number of substance users mean that more of them will also be dual diagnosed. Also, since stimulants are more toxic to brain chemistry than most substances, those with fragile brain chemistry are more likely to be pushed over the edge into chronic neurochemical imbalance and mental illness.45

It is crucial to the treatment process that an accurate diagnosis for patients with comorbid substance use and mental health conditions is made. Part of the diagnosis includes the differentiation between acute primary psychiatric disorders and psychiatric symptoms that may be caused by the use of alcohol and other substances.46 There are several possible relationships between substance use and psychiatric symptoms and disorders. All of these possible relationships must be
considered during the screening and assessment process, and are highlighted below.\textsuperscript{44}

1. Substance use can cause psychiatric symptoms and mimic psychiatric disorders. Acute and chronic substance use can cause symptoms associated with almost any psychiatric disorder. The type, duration, and severity of these symptoms are usually related to the type, dose, and chronicity of the substance use.

2. Acute and chronic substance use can prompt the development, provoke the reemergence, or worsen the severity of psychiatric disorders.

3. Substance use can mask psychiatric symptoms and disorders. Individuals may use substances to purposely dampen unwanted psychiatric symptoms and to ameliorate the unwanted side effects of medications. Substance use may inadvertently hide or change the character of psychiatric symptoms and disorders.

4. Substance withdrawal can cause psychiatric symptoms and mimic psychiatric syndromes. Cessation of substance use following the development of tolerance and physical dependence causes an abstinence phenomenon with clusters of psychiatric symptoms that can also resemble psychiatric disorders.

5. Psychiatric and substance disorders can coexist. One disorder may prompt the emergence of the other, or the two disorders may exist independently. Determining whether the disorders are related may be difficult, and may not be of great significance with
a patient who has long-standing combined disorders. Consider a 32-year-old patient with bipolar disorder whose first symptoms of alcohol use and mania started at age 18, and who continues to experience alcoholism in addition to manic and depressive episodes. At this point, the patient has two well-developed independent disorders that both require treatment.

6. Psychiatric behaviors can mimic behaviors associated with substance problems. Dysfunctional and maladaptive behaviors that are consistent with substance abuse and addiction may have other causes, such as psychiatric, emotional, or social problems. Multidisciplinary assessment tools, drug testing, and information from family members are critical to confirm substance disorders.

The relationship between substance problems and psychiatric disorders can change over time, and will vary throughout the addiction process. Changes in severity, chronicity, disability, and degree of impairment in functioning are common and must be understood as the patient begins the treatment and recovery process.47 Each condition will have an individual effect on the patient that will range in severity, yet both conditions will also affect the other thereby potentially increasing the severity or extent of the symptoms. The extent and severity of both conditions may change over time, depending on the patient’s status and adherence to treatment and recovery.45

It is important to note that patients with mental disorders are at an increased risk of developing substance use. In addition, substance users are at an increased risk of developing mental health issues.48
Each condition must be handled accordingly. When working with patients with comorbid conditions it is important to note the following:

“... compared with patients who have a mental health disorder or an substance use problem alone, patients with dual disorders often experience more severe and chronic medical, social, and emotional problems. Because they have two disorders, they are vulnerable to both substance relapse and a worsening of the psychiatric disorder. Further, addiction relapse often leads to psychiatric decompensation, and worsening of psychiatric problems often leads to addiction relapse. Thus, relapse prevention must be specially designed for patients with dual disorders. Compared with patients who have a single disorder, patients with dual disorders often require longer treatment, have more crises, and progress more gradually in treatment.”

**Mental Disorders Associated with Substance Use**

The following mental health conditions may have overlapping symptoms with a substance use and addiction disorder, and unfortunately have been misdiagnosed as an issue of substance use with treatment for the co-occurring mental health disorder delayed as a consequence. For example, individuals with a diagnosis of schizophrenia or bipolar disorder with mania can appear confused and disorganized similar to those in a state of intoxication or drug-induced symptoms. On the other hand, health providers and clinicians need to be cognizant of the fact that individuals diagnosed with certain mental health disorders are at increased risk of having a substance use and addiction disorder, often using multiple types of substances and with cross addiction, which complicates the clinical presentation, diagnosis and eventual treatment.
Schizophrenia

Schizophrenia is a thought disorder and believed to be mostly inherited. It is characterized by:

- hallucinations (false visual, auditory, or tactile sensations and perceptions)
- delusions (false beliefs)
- an inappropriate affect (an illogical emotional response to any situation)
- autistic symptoms (a pronounced detachment from reality)
- ambivalence (difficulty in making even the simplest decisions)
- poor association (difficulty in connecting thoughts and ideas)
- poor job performance
- strained social relations
- an impaired ability to care for oneself

Several substances of use can mimic schizophrenia and psychosis, producing symptoms that are easily misdiagnosed. Cocaine and amphetamines, especially when used to excess, will cause a toxic psychosis that is almost indistinguishable from a true paranoid psychosis. Steroids can also cause a psychosis. Drug induced paranoia can be indistinguishable from true paranoia. Most drugs, particularly the psychostimulants, such as MDMA (methylendioxy-methamphetamine) also known as ecstasy and related stimulant or hallucinogens, including marijuana, can cause paranoia.

The psychedelics, such as LSD, peyote, psilocybin (mushroom), and the multi-reaction drug PCP, are known to disassociate users from their surroundings. It is critical that healthcare providers be aware that
all hallucinogen abuse can also be mistaken for a thought disorder. Also, withdrawal from depressants (or downers) can be mistaken for a thought disorder because of the extreme agitation that results. Many of the psychiatric symptoms should disappear as the body's drug levels subside upon treatment and detoxification.

Major Depression

Major depression is classified as an affective disorder along with bipolar affective disorder and dysthymia (mild depression). A major depression is likely to be experienced by 1 in 20 individuals in the U.S. during their lifetime. It is characterized by the following:

- depressed mood
- diminished interest and diminished pleasure in most activities
- disturbances of sleep patterns and appetite
- decreased ability to concentrate
- feelings of worthlessness
- suicidal thoughts

All of these symptoms may persist without any life situation to provoke them. For an accurate diagnosis to be made, these feelings have to occur every day and most of the day for at least 2 weeks.

Organic causes, such as an illness or drug abuse, should rule out a diagnosis of major depression, as should natural reactions to the death of a loved one, separation, or a strained relationship. Withdrawal symptoms that occur with most stimulant addictions (cocaine or amphetamine) and the come down or resolution phase of a psychedelic drug, such as LSD, result in temporary drug-induced
depression, which is almost indistinguishable from that of major depression.

*Bipolar Affective Disorder (manic depression)*

This illness is characterized by alternating periods of depression, normalcy, and mania. The depression phase is described above. The depression is as severe as any depression seen in psychiatry. If untreated, many bipolar patients frequently attempt suicide. The mania, on the other hand, is characterized by the following mood symptoms and conditions:

- a persistently elevated, expansive, and irritated mood
- inflated self-esteem or grandiosity
- decreased need for sleep
- more talkative than usual or pressure to keep talking
- flight of ideas
- distractibility
- increase in goal-directed activity or psychomotor agitation
- excessive involvement in pleasurable activities that have a high potential for painful consequences (*i.e.*, drug use, gambling, or inappropriate sexual advances)

These mood disturbances are severe enough to cause marked impairment in job, social activities, and relationships. Bipolar affective disorder usually begins in a person during the second decade of life and it affects men and women equally. Many researchers believe this disease is genetic. When evaluating a mood disturbance, it is important for the health provider to consider potential toxic effects of stimulants or psychedelic drug use, which often resemble a bipolar disorder. Users experience mood swings, from mania to depression,
depending upon the phase of the drug's action, the patient’s surroundings, and the patient’s own subconscious beliefs.

Anxiety Disorders

Anxiety disorders are the most common psychiatric disturbances seen in primary practice and are listed as:

- Panic disorder with and without agoraphobia (fear of open spaces).
- Agoraphobia without history of panic disorder (a generalized fear of open spaces).
- Social phobia (fear of being seen by others to act in a humiliating or embarrassing way, such as eating in public).
- Simple phobia (irrational fear of a specific thing or place).
- Obsessive-compulsive disorder (uncontrollable, intrusive thoughts and irresistible, often distressing actions, such as cutting one's hair or repeated hand washing).
- Post-traumatic stress disorder (persistent re-experiencing of the full memory of a stressful event outside usual human experience, i.e., combat, molestation, car crash). It is usually triggered by an environmental stimulus, i.e., when a car backfires causing the combat veteran's mind to relive the stress and memory of combat. This disorder can last a lifetime and be very disabling.
- Generalized anxiety disorder (unrealistic worry about several life situations that lasts for 6 months or more).

It can be extremely difficult to differentiate between anxiety disorders. Many are defined more by symptoms than specific psychiatric categorizations. Some of the more common symptoms in anxiety
disorders are shortness of breath, muscle tension, restlessness, stomach irritation, sweating, palpitations, restlessness, hypervigilance, difficulty in concentrating, and excessive worry. Often anxiety and depression are mixed together. Some health providers believe that many anxiety disorders are really a symptom of depression. Toxic effects of stimulant drugs and withdrawal from opioids, sedatives, and alcohol or other depressant substance, also cause symptoms similar to those described in anxiety disorders and can be easily misdiagnosed as anxiety.

Organic Mental Disorders and Developmental Disorders

These are problems of brain dysfunction brought on by physical changes in the brain caused by aging, miscellaneous diseases, injury to the brain, or psychoactive drug toxicities. Alzheimer's disease is a condition affecting mostly older individuals. They suffer unusual rapid death of brain cells resulting in memory loss, confusion, and loss of emotion, which leads to gradual loss of the individuals’ ability to care for themselves. Alzheimer’s disease is an example of an organic mental disorder. Mental confusion from heavy marijuana use in an elderly patient may mimic symptoms of this disorder.

Development disorders include conditions such as mental retardation, eating disorders, gender identity disorders, attention deficit disorders, autism spectrum disorders, speech disorders, and disruptive behavior disorders. Heavy and frequent use of psychedelics such as LSD or PCP can be mistaken for developmental disorders.

Somatoform Disorders
These disorders have physical symptoms without a known or discoverable physical cause and are likely to be psychologically caused, such as hypochondria (abnormal anxiety over one's health accompanied by imaginary symptoms of illness). Cocaine, amphetamine, and stimulant psychosis experienced by someone using substances create a delusion that the skin is infested with bugs when no infection exists.

**Passive-Aggressive, Antisocial, and Borderline Personality Disorders**

Passive-aggressive, anti-social and borderline personality disorders are characterized by inflexible behavioral patterns that lead to substantial distress or functional impairment. Most individuals with such behavioral traits exhibit conduct patterns with an angry, hostile tone, and that violate social conventions resulting in negative consequences. Anger is a component of all three of these personality disorders, in addition to chronic feelings of unhappiness and alienation from others, conflicts with authority, and family discord. These disorders frequently coexist with substance use and are particularly hard to treat because of associated conduct by the substance user that may lead to relapse and disruption to the treatment plan.

**Patient Commitment**

Patient commitment is a key factor in the assessment and treatment process. If a patient is unwilling to make changes to his or her lifestyle, the chances of recovery are minimal. Detoxification and recovery require a complete modification to the patient’s daily habits and practices, and they will cause significant physical and emotional symptoms that will be difficult for the patient in terms of coping. If a patient is not committed to the process and goals of the treatment
plan, he or she will be unable to maintain sobriety throughout the detoxification and treatment process. It is important that the clinician include an assessment of the patient’s commitment level as part of the initial evaluation.\textsuperscript{58}

**Support System**

Research indicates that patients who have a strong support system will be better able to manage recovery than those who have no support system in place.\textsuperscript{59} Therefore, part of the initial assessment and evaluation will include attempts to identify and establish a support system for the patient. This system will typically include friends and family members, case managers, self-help groups, and other individuals who will support the individual throughout the recovery process. In addition to establishing a strong support system, it is important to recognize negative influences in the patient’s life. Many patients will struggle with their recovery when spending time with those that they previously joined in substance use activities. Therefore, part of the assessment process includes identifying “triggers” that may cause the patient to resort to using substances.\textsuperscript{38}

**Summary**

Substance use associated with comorbid physical and psychiatric disorders are a common clinical challenge for the health team. Conditions and corresponding symptoms can change and often vary throughout the addiction diagnosis and treatment planning process. The health team must anticipate changes in the severity, chronicity, disability, and degree of functional impairment in the individual addicted to substances all throughout the treatment and recovery process. Multiple substance use and cross addiction treatment and
recovery must be individualized to address the range in symptom severity that may occur.

This study discussed additional aspects of the evaluation process important to the development of an individualized substance use treatment plan. The second course of this series, *Substance Use And Addiction Disorders: Treatment And Goal Of Therapy* will cover approved medical and maintenance treatment programs. Treatment and recovery is presented as an ongoing process that requires continuous monitoring and routine adjustment by the treatment team.

**References Section**

23. Johnson-Greene D, McCaul ME, Roger P. Screening for hazardous drinking using the Michigan Alcohol Screening Test-Geriatric


59. Adoption of Evidence-Based Practices among Substance Abuse Treatment Providers [Internet]. [cited 2014 Feb 15]. Available from: http://baywood.metapress.com/app/home/contribution.asp?referrer=parent&backto=issue,6,6;journal,19,168;linkingpublicationresults,1:300320,1

60. The Substance Abuse and Mental Health Services Administration (SAMHSA) Website [Internet]. [cited 2014 Apr 3]. Available from: http://buprenorphine.samhsa.gov/about.html


74. Alfonso JP, Caracuel A, Delgado-Pastor LC, Verdejo-García A. Combined goal management training and mindfulness meditation improve executive functions and decision-making performance in


77. Adoption of Evidence-Based Practices among Substance Abuse Treatment Providers [Internet]. [cited 2014 Feb 15]. Available from: http://baywood.metapress.com/app/home/contribution.asp?referrer=parent&backto=issue,6,6;journal,19,168;linkingpublicationresults,1:300320,1 (was 109)


82. Kelly TM, Daley DC, Douaihy AB. Treatment of substance abusing patients with comorbid psychiatric disorders. Addictive Behaviors. 2012. p. 11–24. (was 89)


