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# MENTAL HEALTH PROFESSIONALS' GUIDE TO UNDERSTANDING HARMFUL SUBSTANCE USE

Confusion is common about what constitutes harmful substance use and addiction. On the one hand, there are some reports that moderate amounts of alcohol can be beneficial. More and more states are legalizing marijuana for medical or recreational use. Heavy drinking is common on college campuses. On the other hand, the dangers of alcohol and drugs are readily apparent in society, through drug overdoses, drunk driving, and health problems. It's not surprising, then, that most laypeople are unsure of the guidelines surrounding low-risk drinking and drug use. Many providers are also unsure of what to recommend to patients with the literature and popular media filled with seemingly contradictory points of information.

This chapter is written with clinicians who are not experts in substance use assessment and treatment in mind. It is intended as an easy-to-read reference guide that will give mental health professionals a basic working knowledge of the distinction between substance use and harmful substance use as well as the signs and symptoms of substance use disorders.

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*Psychological Treatment of Medical Patients Struggling With Harmful Substance Use*,  
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## TERMINOLOGY

We begin with definitions of terms that are used in substance use treatment. Terms such as *alcoholic* and *addict* are commonly used in everyday language, but they are likely to feel judgmental to patients. The exception to this rule is that some patients, many of whom are actively involved in 12-step programs, have embraced these terms as part of their recovery. We recommend allowing patients to dictate the terms by which they are identified.

Other terms that are used in the literature are defined here for your reference:

- *Substance use disorder*: Meeting *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (*DSM-5*; American Psychiatric Association, 2013a) criteria for a substance-related disorder.
- *Substance abuse*: Old *DSM-IV* (American Psychiatric Association, 2000) terminology, now referred to as a *use disorder*.
- *Substance dependence*: Old *DSM-IV* terminology, now referred to as a *use disorder*. Currently used by the *International Statistical Classification of Diseases and Related Health Problems* (ICD-10; World Health Organization, 1992) for a *use disorder*.
- *Physiological dependence*: Alcohol, most illicit drugs, and some medications, even when taken as prescribed, can lead to tolerance and withdrawal.
- *Binge drinking*: Males consuming five or more drinks per occasion, females consuming four or more drinks per occasion.
- *Low-risk drinking*: Males consuming no more than four drinks per day, 14 drinks per week. Females consuming no more than three drinks per day, seven drinks per week.
- *At-risk substance use*: For alcohol, drinking more than the low-risk drinking guidelines. For drugs, any use of illicit drugs, taking medications not as prescribed.
- *Hazardous substance use*: A term used by the World Health Organization for use that increases the risk of negative consequences to the user, but sub-threshold for a substance use disorder.
- *Harmful substance use*: A term used by the ICD-10 for a pattern of use that is causing damage to health physically or mentally.

## SUBSTANCE USE DISORDER DIAGNOSTIC CRITERIA

Many psychologists who have been in practice for some time are familiar with the distinction within *DSM-IV* between *substance abuse* and *substance dependence*. Previously, substance use disorders were thought to fall within two categories—abuse and dependence—with abuse being less severe and dependence being more severe. Research on substance use and the problems that develop as a result of chronic substance use, however, did not support this binary distinction (Hasin et al., 2013). Instead, research supports thinking of substance use disorders on a continuum—a conceptualization that was adopted for *DSM-5*. Within this framework, the severity level is determined on the basis of the number of diagnostic criteria met: Two to three criteria are classified as a mild disorder, while four to five is considered moderate, and six or more is classified as severe. Although the overarching conceptualization of substance use disorders transitioned from a categorical to a continuous framework, with two exceptions noted below, the symptom criteria are largely identical between *DSM-IV* and *DSM-5*.

According to *DSM-5*, the 11 criteria for diagnosing substance use disorders can be thought of as grouping within four broad categories: impaired control, social impairment, risky use, and pharmacological symptoms. Craving, long recognized as an associated feature of substance use disorders, is a new symptom criterion in the impaired control category introduced in *DSM-5*. Craving is a key reason that the continuing care and relapse prevention strategies discussed in Chapter 9, this volume, may be important for many patients following initial treatment for a substance use disorder; craving is a symptom that may persist well into periods of abstinence. Recurrent substance-related legal problems, which were a symptom criterion for *DSM-IV* substance abuse, are excluded from the *DSM-5* social impairment category. The criteria in the risky use and pharmacological symptoms categories were all maintained from *DSM-IV*.

As in *DSM-IV*, assigning the symptom criterion of withdrawal requires that either the individual meets the criteria for the withdrawal syndrome for that substance as specified in *DSM-5* or the individual takes a substance to relieve or avoid withdrawal. Withdrawal syndromes are specified for alcohol and all drugs except inhalants and hallucinogens. Knowledge of withdrawal symptoms is an important competency for psychologists and all mental health providers given the high prevalence of substance use disorder and the risk for serious and even life-threatening withdrawal symptoms associated with substances such as alcohol and benzodiazepines if

withdrawal is not completed under appropriate medical supervision. When in doubt, refer to a medical colleague for evaluation of withdrawal symptoms (see Wood et al., 2018, for a medical review of alcohol withdrawal assessment).

In considering whether a patient meets criteria for a substance use disorder, it is important to note that tolerance and withdrawal are expected to occur with appropriate medical use of some prescription medications, such as benzodiazepines and opioid analgesics. When these symptoms occur within the context of appropriate medical treatment, they are not considered toward diagnosing a substance use disorder. For example, if a patient with panic disorder is prescribed a benzodiazepine and takes it consistently, it would be expected that over time the original dose would not have the same anxiolytic effect and the patient may require higher doses to maintain the original response. It would also be expected that if the patient abruptly stopped taking the medication, there would be physiological withdrawal symptoms, such as sweating, insomnia, anxiety, agitation, and even seizures (American Psychiatric Association, 2013a). However, in the absence of use of the benzodiazepine that was in excess of prescribed amounts or that resulted in other symptoms of substance use disorder, a substance use disorder would not be diagnosed.

Given that the *International Classification of Disorders* (ICD; World Health Organization, 1992) is used for billing purposes, it also is important for clinicians to be familiar with their classification system as well. The ICD is created by the World Health Organization in order to have a universal diagnostic classification system and classifies substance use disorders as “mental and behavioral disorders due to psychoactive substance use.” ICD terminology is different than both *DSM-IV* and *DSM-5* classifications, instead using the term *harmful use* to refer to *DSM-IV* abuse and the term *dependence syndrome* to refer to *DSM-IV* dependence.

## HAZARDOUS AND HARMFUL SUBSTANCE USE

The *DSM-5* does not have any criteria related to quantity of use or specify guidelines for low-risk alcohol or drug use. Nonetheless, many patients who do not meet diagnostic criteria for a substance use disorder may use drugs and alcohol in ways that place them at risk for acute accidents or injuries, chronic diseases, or developing substance use disorders. They also may use substances as a way of regulating their emotional responses to other psychiatric disorders or previous traumatic experiences. Thus, it is also important

for clinicians to be able to identify and intervene with patients engaging in hazardous or harmful substance use who do not meet *DSM-5* diagnostic criteria.

## Alcohol

Because there is general consensus that for most patients some amount of alcohol may be consumed without substantially increasing risk for alcohol-related problems, several factors must be considered in determining whether a particular patient's alcohol use is problematic. Next, we outline the factors and guidelines that must be considered in evaluating a particular patient's risk level.

### Standard Drink Conversion

Different kinds of alcoholic drinks containing different amounts of alcohol can be consumed in a variety of different quantities. To have a standardized metric for comparison, a "standard drink" has been established (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2010). One standard drink is equivalent to 14 grams of ethanol, which is 12 ounces of beer (5% alcohol content), 5 ounces of wine (12% alcohol content), or 1.5 ounces of liquor (40% alcohol content or 80 proof). The drinking guidelines presented here use standard drinks as the basis for their recommendations (see Exhibit 1.1).

### Low-Risk Drinking Guidelines

NIAAA (2010) has established low-risk drinking guidelines. These guidelines are adjusted for age and sex and focus on both daily and weekly limits for drinking. For men between ages 21 and 65, low-risk drinking is defined

#### EXHIBIT 1.1. Tips for Assessing Alcohol Consumption

When assessing for alcohol use, it is important to translate what a patient considers one drink to standard drinks to objectively determine whether the patient is drinking within recommended limits. If a patient reports drinking "three beers," but each beer is 22 ounces, then the patient is actually consuming nearly six standard drinks. Here are a few practical tips when working with patients:

- When asking about alcohol use, show a picture of standard drink conversions so that the patient can visually understand.
- Mixed drinks contain other beverages, such as soda or juice, in addition to alcohol. If you don't subtract the other beverages from the alcohol in your calculation, you will overestimate the amount of alcohol in the drink.
- "Solo" cups—the colored cups often used at parties—have lines designating standard drinks and can be a useful comparison for estimating alcohol with patients.

as no more than four standard drinks per day and no more than 14 standard drinks per week. For women, low-risk drinking is no more than three drinks per day and no more than seven drinks per week. For men 65 and older, low-risk drinking guidelines reduce in quantity to no more than three drinks per day and no more than seven drinks per week. Research shows that drinking at this level, only 2% of individuals will develop an alcohol use disorder (NIAAA, 2010).

To stay within low-risk drinking guidelines, both the daily and weekly limits must be kept. The daily limits are primarily focused on the dangers inherent in physical and cognitive impairment resulting from increasing blood alcohol levels and are designed to prevent drinkers from reaching blood alcohol concentration at the 0.08 level. Drinking at this level increases risk for injuries, such as car accidents, falls, burns, and drownings. It also increases risk for risky behaviors, such as unprotected sex, sexual assault, and violence. The weekly limits, on the other hand, are focused on the accumulative negative effects from drinking. These include a variety of health problems, such as liver and heart disease, sleep disorders, stroke, cancer, and the management of chronic conditions such as diabetes or hypertension. Chronic violation of the low-risk guidelines also increases risk for developing an alcohol use disorder.

### **Binge Drinking**

Binge drinking, according to the NIAAA (2010), is defined as drinking that leads to a blood alcohol concentration of 0.08g/dL, which is generally the DUI limit in many states (NIAAA, 2010). The National Survey on Drug Use and Health defines binge drinking as four or more standard drinks for women, and five or more standard drinks for men, on the same occasion (Center for Behavioral Health Statistics and Quality, 2016). Binge drinking is associated with a variety of health complications and injuries (World Health Organization, 2014), such as car accidents, falls, burns, domestic violence, sexual assault, sexually transmitted diseases, fetal alcohol spectrum disorders, a variety of cancers, chronic health conditions such as diabetes and hypertension, cognitive problems, and alcohol use disorder.

### **People Who Should Not Drink at All**

For individuals with some health conditions, abstinence from drinking is recommended. That includes individuals under age 21, pregnant women, and individuals with liver problems such as hepatitis C or cirrhosis. Individuals who plan to operate a vehicle or engage in activities that require full levels of coordination should abstain from alcohol. Also, a large number of

medications—both prescribed and over the counter—interact with alcohol in dangerous ways. Common classes of medications, which interact with alcohol in problematic ways, include nonsteroidal anti-inflammatory drugs, antibiotics, anticonvulsants, antihistamines, anticoagulants, benzodiazepines, and antidiabetic agents (Weathermon & Crabb, 1999). For example, alcohol and acetaminophen interact to increase toxicity to the liver. Patients prescribed medications with negative alcohol interactions are commonly unaware of this potential problem (Brown, Dimond, Hulisz, Saunders, & Bobula, 2007).

### **Underage Drinking**

Findings from the Youth Risk Behavior Surveillance System (Grunbaum et al., 2004) show that drinking under the age of 21 is common in the United States with 74.9% of students in Grades 9 through 12 having had one or more drinks of alcohol on at least one day in their lifetime and 44.9% within the past month. Having five or more drinks of alcohol within a short period of time occurred in the past month for 28.3% of ninth-graders through 12th-graders surveyed. Underage drinking is particularly risky for the developing brain (Crews, He, & Hodge, 2007) and is associated with a variety of negative consequences (Hingson & White, 2014), such as increased risk of dying in a car accident, substance overdoses, cognitive impairment, and substantial economic costs. Underage drinking that exceeds guidelines for adults greatly increases the odds of having clinically significant anxiety, depression, and suicidal ideation (Richter, Pugh, Peters, Vaughan, & Foster, 2016).

### **Moderate Drinking Guidelines**

In addition to the NIAAA low-risk drinking guidelines, the U.S. Department of Health and Human Services and the U.S. Department of Agriculture (2015) have developed guidelines for moderate drinking. These guidelines are embedded within a broader set of dietary guidelines designed to prevent chronic health-related problems. Given the caloric content of alcohol and the health-related problems that excessive alcohol use can cause, moderate drinking guidelines have been developed in order to maintain a healthy lifestyle. One standard drink, based purely on alcohol, contains 98 calories. Most alcohol beverages contain more calories due to the addition of other ingredients. For example, a 12-oz beer has about 150 calories, 5 oz of wine has about 120 calories, and adding fruit juice or soda to liquor (e.g., rum and coke) adds additional calories. As a result, drinking can easily lead to unhealthy caloric intake if not monitored.

Based on these dietary factors, moderate drinking is defined as one standard drink per day for women and two standard drinks per day for men.

They also recommend that nondrinkers don't start drinking for any reason. They define high-risk drinking as any drinking higher than the daily or weekly limits outlined by NIAAA above.

## Drugs

While drug use disorders occur much less frequently than alcohol use disorders, drug use is much more common than many realize. Nearly half of all individuals ages 12 and older, in the United States, have used illicit drugs or misused prescription medications in their lifetime (Center for Behavioral Health Statistics and Quality, 2016). The remainder of this chapter briefly reviews the use of illegal drugs and the misuse of over-the-counter drugs and prescription medications. Currently established guidelines encourage abstinence from all illicit drugs, including marijuana, or misuse of over-the-counter or prescription medications (National Institute on Drug Abuse, 2012b).

### Illicit Drug Use

We use the term *illicit drugs* to refer to drugs that are illegal to use or possess according to U.S. law. At the writing of this book, that includes marijuana under most circumstances. Illicit drug use is highest among emerging adults (ages 18–25; Substance Abuse and Mental Health Services Administration, 2017).

**Marijuana.** The mostly commonly used illicit drug is marijuana. As reviewed in the recent landmark report of the National Academies of Science, Engineering, and Medicine (2017) titled *The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research*, marijuana is derived from the *Cannabis sativa* plant. This plant contains more than 100 chemical compounds called cannabinoids. The only compound in marijuana that makes people feel “high” is tetrahydrocannabinol (THC). The potency of cannabis has been increasing over the past 2 decades from approximately 4% THC in 1995 to 12% THC in 2014, and strains of cannabis with higher THC levels are increasingly available. The term *medical marijuana*, particularly when it appears in popular media, is somewhat confusing because it is often used to refer to marijuana, specific cannabinoids or cannabinoid combinations, and even synthetic cannabinoids. Most studies of the potential medical uses of marijuana or marijuana derivatives do not focus on smoked marijuana. Instead, much of this research focuses on one to two isolated cannabinoids or synthetic cannabinoids, which may

or may not include THC (National Academies of Science, Engineering, & Medicine, 2017). Thus, it is important for psychologists and other health-care providers to read this research carefully, so they are equipped to address the many questions patients may have or comments they may make about “medical marijuana.”

Attitudes toward marijuana use have evolved over time, with many states loosening regulations for medical or recreational use of marijuana. Nonetheless, there are a variety of risks associated with marijuana use (National Academies of Science, Engineering, & Medicine, 2017; Volkow, Baler, Compton, & Weiss, 2014). Short-term negative effects include impaired short-term memory, impaired motor coordination, increased risk of acute myocardial infarction, altered judgment, and paranoia and psychosis in high doses. Long-term consequences include altered brain development, increased likelihood of dropping out of school, cognitive impairment, diminished life satisfaction and achievement, symptoms of chronic bronchitis, and increased risk of a chronic psychotic disorder in individuals predisposed to psychosis. There is also evidence that regular or heavy marijuana use may increase symptoms of mania and hypomania in individuals with bipolar disorders and increase suicide attempt and completion. Despite its reputation as a “safe drug,” the risk of addiction exists as well, with about 10% of individuals who experiment with cannabis becoming daily users, and 20% to 30% becoming weekly users (Hall & Degenhardt, 2009). While the risk for developing a cannabis use disorder is lower than other drugs, it is still significant. Research shows that about 9% of cannabis users in the United States will eventually develop a cannabis use disorder (Anthony, 2006; Anthony, Warner, & Kessler, 1994). Rates increase to 16% for those who initiate use as an adolescent (Anthony, 2006), and a 3-year prospective study of daily cannabis users 18 and older revealed that 37% developed dependence (van der Pol et al., 2013). This stands in stark contrast to public perceptions of the safety of cannabis use, where only 34% of people age 12 and older perceive weekly use of marijuana to be a “great risk” (Lipari, Ahrnsbrak, Pemberton, & Porter, 2017).

**Hallucinogens.** Hallucinogens are substances that create significant distortions in a person’s perceptions of reality (National Institute on Drug Abuse, 2015). This class includes classic hallucinogens, such as d-lysergic acid diethylamide (LSD) and mescaline (peyote), as well as dissociative drugs such as phencyclidine (PCP), salvia, and ketamine. Some hallucinogens do not have an established withdrawal syndrome, but tolerance is often quickly

developed. Although some of the short-term effects of hallucinogens are described as pleasurable, aversive psychological and physiological reactions may occur, including panic and fear, anxiety, paranoia, and aggression. Negative long-term effects include ongoing psychotic symptoms (e.g., disorganized thinking, paranoia), as well as hallucinogen persisting perception disorder (i.e., ongoing reexperiencing of hallucinogen-related perceptual symptoms; American Psychiatric Association, 2013a).

**Stimulants.** Cocaine and methamphetamine are stimulants—meaning they enhance activity in the central nervous system. Stimulants create a sense of euphoria, with the fastest administration routes being smoking and injecting, whereas snorting has a slower onset of euphoria but a longer euphoric episode (National Institute on Drug Abuse, 2013, 2016). In addition to euphoria, stimulants may be used for the purpose of losing weight, increasing energy, and improving attention and concentration. Stimulant use can lead to acute medical problems, such as heart arrhythmia and attacks, seizures and strokes, and death. Paranoia, disorganized thinking, mood swings, and aggressive behavior may occur.

**Inhalants.** Inhalants cover a variety of different substances that produce vapors that can be inhaled and used in harmful ways (National Institute on Drug Abuse, 2012a). Inhaling these substances results in rapid absorption into the bloodstream, leading to quick but short-lasting euphoric effects. The effects of inhalants most closely resemble those of alcohol intoxication. Inhalants are extremely toxic and can lead to significant impairment in cognitive functioning, neurological problems, and death. The acute effects of intoxication (Humeniuk, Henry-Edwards, Ali, Poznyak, & Monteiro, 2010a) can include dizziness, drowsiness, disorientation, blurred vision, poor coordination, gastrointestinal problems (nausea and vomiting, ulcers, diarrhea), and unpredictable behavior. These effects increase the risk of accidents and injuries resulting from use.

### Over-the-Counter Drugs

In addition to alcohol and illicit street drugs, some over-the-counter medications can be used in harmful ways. Dextromethorphan is a cough suppressant that creates a dissociative hallucinogenic effect (Conca & Worthen, 2012). Caffeine is a stimulant consumed by most children and adults on a regular basis. While the *DSM-5* does not recognize a caffeine use disorder, it does recognize caffeine intoxication, withdrawal, and caffeine-induced disorders. Excessive caffeine consumption can result in nausea, vomiting, abdominal

pain, diarrhea, headache, insomnia, agitation, tremor, abnormally high muscle tension, tinnitus, elevated heart rate, and delirium (Conca & Worthen, 2012). Caffeine, particularly in energy drinks, is also mixed with alcohol to counteract the sedative effects of alcohol, making users subjectively feel less intoxicated and maintaining desire to continue drinking (Heinz, de Wit, Lilje, & Kassel, 2013). While newer antihistamines (e.g., loratadine, cetirizine) are not often associated with misuse, older ones such as diphenhydramine, pheniramine, and cyclizine are often implicated in misuse (Conca & Worthen, 2012).

### **Prescription Drugs**

Whereas all illegal drugs are designated as Schedule I substances by the Drug Enforcement Agency, indicating that they have high potential for harmful use and no established medical use in the United States (e.g., heroin, gamma-hydroxybutyrate), drugs that have scientifically established medical use but also have potential for harmful use are designated Schedule II to V based on the potential for harmful use and public health risk tied to each substance (Drug Enforcement Agency, 2017). Lower numbers indicate increasing abuse potential and decreasing legal access than higher numbers, so drugs such as morphine and cocaine are Schedule II, whereas cough medicines with codeine are Schedule V. In Chapters 6 and 7, we discuss implications for treatment of anxiety and sleep problems in patients with co-occurring harmful substance use, given that some of the most widely prescribed medications for anxiety and sleep are Schedule IV drugs.

Detecting and understanding harmful use of prescription medications is more complex than with illicit drugs because often these medications are originally prescribed for legitimate medical conditions and the typical transition from appropriate medication use to a drug use disorder can be gradual. There are a variety of somewhat contradictory definitions for various types of inappropriate use of prescription drugs (Zacny et al., 2003). According to the National Institute on Drug Abuse (2018c), prescription drug misuse means “taking a medication in a manner or dose other than prescribed; taking someone else’s prescription, even if for a legitimate medical complaint such as pain; or taking a medication to feel euphoria (i.e., to get high)” (p. 3).

The most commonly abused prescription medications include opioid analgesics (i.e., pain medications such as Percocet [oxycodone/acetaminophen] or Norco [hydrocodone/acetaminophen]), benzodiazepines (i.e., antianxiety medications such as Xanax [alprazolam] and Valium [diazepam]), sleep aids that are similar chemically to benzodiazepines

(e.g., Ambien [zolpidem]), and stimulants (i.e., ADHD medications such as Adderall [dextroamphetamine/amphetamine]). Problems related to misuse of opioids have gained national attention as rates of opioid overdose deaths have grown significantly, with 46 individuals dying every day due to prescription opioid overdoses (Hedegaard, Warner, & Miniño, 2017). About 85% of treatment-seeking heroin users began opioid use with a prescription opioid (Cicero, Ellis, Surratt, & Kurtz, 2014). Opioids disproportionately account for the highest number of deaths due to risks for respiratory depression, particularly when samples are tainted with extremely powerful opioids such as fentanyl and carfentanyl. The acute effects of opioid misuse include nausea and vomiting, drowsiness, poor memory and concentration, and reduced sexual functioning. Misuse of prescription opioids frequently results in financial difficulties and criminal behavior to obtain opioids.

Sedatives, such as benzodiazepines and sleep aids, are prescribed as anti-anxiety and sleep medications, as well as for seizures, muscle pain, and surgical procedures (Humeniuk et al., 2010a). These medications can quickly lead to tolerance and extremely aversive withdrawal syndromes. When combined with alcohol, opioids, or other respiratory depressants, the risk of death from overdose rises significantly. The acute effects of misuse include drowsiness and confusion, poor memory and concentration, and poor coordination.

Prescription stimulants are generally prescribed for attention-deficit/hyperactivity disorder and include drugs such as Adderall [dextroamphetamine/amphetamine], Ritalin [methylphenidate], and Concerta [methylphenidate] (National Institute on Drug Abuse, 2018a). These drugs are sometimes misused by students to improve performance on exams or reduce need for sleep. They also may be misused as diet aids. Crushing the pills to snort or inject can lead to intense euphoric reactions and increased alertness and energy, similar to illicit stimulants such as cocaine. Health-related problems are similar as well, including heart arrhythmia and failure, seizures, paranoia, and psychotic symptoms.

## SUMMARY

Alcohol and drug use occur on a continuum. Given how common drinking and drug use are, it is important for psychologists and other mental health professionals to be able to identify whether a patient's use of alcohol and drugs is placing them at risk, already causing problems, or needs specialized

treatments. Some patients stay within low-risk or moderate drinking guidelines and do not take any medications or have medical conditions that contraindicate alcohol use. Others are not yet having any significant problems but are using alcohol or drugs in ways that are risky or hazardous. Still others are using in ways that have begun to cause problems ranging from mild and infrequent to severe and recurrent and may need specialty care. The next three chapters provide further guidance on how and why harmful substance use develops, how to determine what type of treatment a patient needs, and how to talk to patients about their alcohol and drug use.