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Substance Abuse and Chemical Dependency Education for TN Prescribers

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Objectives

Upon completion of this course, the dental professional will be able to:

- Identify epidemiological factors related to chemical dependency.
- Describe signs that may indicate that a patient is chemically dependent.
- List components of chemical dependency treatment.
- Discuss modifications in dental treatment that may be necessary when treating a patient who is chemically dependent or recovering from chemical dependency.
- Describe how drugs and alcohol may interact with dental therapeutic agents.
- State the nine steps for prescribing controlled substances.

Policy Statement on Controlled Substance Continuing Education Requirement

Pursuant to T.C.A. 63-1-402, on or after July 1, 2014, all prescribers who hold a current federal drug enforcement administration (DEA) license and who prescribe controlled substance shall be required to complete a minimum of two (2) hours of continuing education related to controlled substance prescribing biennially to count toward the licensees'' mandatory continuing education.

The continuing education must include instruction in the department's treatment guidelines on opioids, benzodiazepines, barbiturates, and carisoprodol, and may include such other topics as medicine addiction, risk management tools, and other topics as it pertains to dentistry.

The two (2) hours of continuing education required by this law will count for the two (2) hour of continuing education pertaining to chemical dependency as required by Rule 0460-01-05 (TN BOD 2018).

Introduction

Substance abuse occurs at an alarming rate in today's society.

According to the Center for Disease Control & Prevention, "From 2000 to 2015 more than half a million people died from drug overdoses. 91 Americans die every day from an opioid overdose. We now know that overdoses from prescription opioids are a driving factor in the 15-year increase in opioid overdose deaths. Since 1999, the amount of prescription opioids sold in the U.S. nearly quadrupled, yet there has not been an overall change in the amount of pain that Americans report. Deaths from prescription opioids—drugs like oxycodone, hydrocodone, and methadone—have more than quadrupled since 1999."

In 2015, the National Survey on Drug Use and Health (https://www.samhsa.gov/data/sites/default/files/NSDUH-FFR1-2015/NSDUH-FFR1-2015/NSDUH-FFR1-2015.pdf) adopted a revised definition of prescription drug misuse, ”which defined misuse as use in any way not directed by a doctor, including use without NSDUH obtains information on the following 10 categories of drugs: marijuana, cocaine (including crack), heroin, hallucinogens, inhalants, and methamphetamine, as well as the misuse of prescription pain relievers, tranquilizers, stimulants, and sedatives. Estimates of "illicit drug use" reported from NSDUH reflect the use of drugs in any of these 10 categories: a prescription of one’s own; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor.”

Though abuse of readily available drugs such as nicotine and alcohol remains constant, in recent years the misuse of prescription medications, particularly pain relief and cold medications such as Vicodin, Oxycontin, and Dextromethorphan, is on the rise. The most common substance abusing patients seen in a dental practice involves the use of alcohol, tobacco, sedative/hypnotics, barbiturates, and narcotics. Although the scope of dental practice does not include diagnosis or treatment of chemical dependency, the dental team must be aware of signs and symptoms of substance abuse and addiction. As health professionals we can provide education, early intervention, and provide motivation for the patient to seek help before abuse becomes dependency.

The dental professional’s clinical role includes:

- Assistance in recognition of a substance abuse problem.
- Relapse prevention for patients recovering from chemical dependency.
- Treatment modifications to ensure that each patient receives safe and effective dental care.

This course will also assist you in understanding:

- Prevalence and incidence of substance abuse.
- Pathophysiological and psychological features of substance abusers.
- Clinical manifestations of substance abuse.
- Treatment options available for substance abuse.
- Dental treatment modifications for patients who are abusing or recovering from substance abuse.
- Protocols if a member of the oral health team is impaired.

This course is informational only and provides an overview of Substance Abuse and Chemical Dependency. This course is not intended to provide legal advice or set a standard for dental care. The oral health team must comply with state and federal laws, as well as ethical standards within their respective professional organizations.

Background Terminology

This section will introduce you to a few key terms that will be used throughout the course. Words printed in bold text can be found in Appendix A.

Three important terms to remember:

- Substance Abuse
- Chemical Dependence
- Drug Addiction

These terms are often used interchangeably. And while related, it is important to know the differences in their core definitions.

Substance abuse

Substance abuse can be defined as "the use of a substance to modify or control mood or state of mind in a manner that is illegal or harmful to oneself or others".

It is also defined as: the use of illegal drugs or the inappropriate use of legal drugs; or the repeated use of drugs to produce pleasure, to alleviate stress, or to alter or avoid reality (or all three). Many times the term substance abuse is loosely defined and may take on a different meaning given the set of circumstances in which it is used. However, generally, the term refers to the excessive use of drugs.

Chemical dependence

Chemical dependence is a physical and psychological habituation to a mood- or mind-altering drug. The term is also used to describe the compulsive use of chemicals (such as drugs or alcohol) and the inability to stop using them despite all of the problems caused by their use. The illness is determined by genetic, physiological, biochemical, and emotional vulnerability.

Drug addiction

Drug addiction is a complex brain disease. It is characterized by compulsive, at times uncontrollable, drug craving, seeking, and use that persist even in the face of extremely negative consequences. Addiction involves the progression of acute drug use to the development of drug-seeking behavior, the vulnerability to relapse, and the decreased, slowed ability to respond to naturally rewarding stimuli. For many, drug addiction becomes chronic, with relapses possible even after long periods of abstinence.

Epidemiology

Epidemiology as it relates to substance abuse and dental patients can be loosely defined as the study of factors affecting the health and well-being of populations. The studies of such factors help to establish the foundations for identifying risk factors for disease and determining optimal treatment approaches. Studying statistics related to substance abuse within specific populations should give you a better understanding of your clientele base thus enabling more accurate diagnoses when determining chemical dependency in patients.

Prevalence

The prevalence of substance abuse within a population is defined as the number of individuals currently abusing drugs and/or alcohol. To measure prevalence, the National Survey on Drug Use and Health (NSDUH) is conducted annually by the Substance Abuse and Mental Health Service Administration (SAMHSA). This representative survey provides an estimate of the prevalence of illicit drug, alcohol, and tobacco use in the United States (U.S.). The sample population consists of non-institutionalized individuals age twelve or older. Although this survey gives a general description of drug and alcohol use in the U.S., it should not be used solely to judge individuals for risk of substance abuse.

With these statistics, a strong possibility is that many of the patients in your practice use either tobacco, alcohol, or both on a regular basis. The dental team must take the time to complete a proper history with each patient to determine if chemical dependency or substance abuse is an issue prior to treatment.

General Overview of statistics

Statistics below are taken from online source: (https://www.samhsa.gov/data/sites/default/files/NSDUH-FFR1-2015/NSDUH-FFR1-2015/NSDUH-FFR1-2015.pdf) in January 2017 titled, *Key Substance Use and Mental Health Indicators in the United States: Results from the 2015 National Survey on Drug Use and Health.*

This report was prepared for the Substance Abuse and Mental Health Services Administration (SAMHSA) by RTI International under Contract No. HHSS283201300001C with SAMHSA, U.S. Department of Health and Human Services (HHS).

- In 2015, an estimated 27.1 million Americans aged 12 or older were current (past month) illicit drug users, meaning that they had used an illicit drug during the month prior to the survey interview (Figure 1). The most commonly

used illicit drug in the past month was marijuana, which was used by 22.2 million people aged 12 or older. An estimated 6.4 million people reported misusing psychotherapeutic drugs in the past month, including 3.8 million people who were misusers of prescription pain relievers. Thus, the number of current misusers of pain relievers was second to marijuana among specific illicit drugs.

- Changes in measurement for 7 of the 10 illicit drug categories—hallucinogens, inhalants, methamphetamine, and the misuse of prescription pain relievers, tranquilizers, stimulants, and sedatives—may have affected the comparability of the measurement of these illicit drugs.Therefore, only 2015 estimates are presented for these seven illicit drug categories and for the use of any illicit drug.
- In 2015, 27.1 million people aged 12 or older used an illicit drug in the past 30 days, which corresponds to about 1 in 10 Americans (10.1 percent). The illicit drug use estimate for 2015 continues to be driven primarily by marijuana use and the misuse of prescription pain relievers, with 22.2 million current marijuana users aged 12 or older (i.e., users in the past 30 days) and 3.8 million people aged 12 or older who reported current misuse of prescription pain relievers.
- The 2015 estimate of current marijuana users was similar to the estimate in 2014, but it was higher than the estimates from 2002 to 2013. This increase in marijuana use among people aged 12 or older reflects the increase in marijuana use by adults aged 26 or older and, to a lesser extent.
- An increase in the abuse of pain medications, like oxycodone (brand names such as Oxycontin, Percocet, Percodan, Tylox, and hydrocodone (Lortab, Vicodin, many other brand names.) is well documented. Beginning in 2002, new items were added to the, 2005 Monitoring the Future (MTF) Survey, asking specifically about the use of OxyContin and Vicodin.
- In 2015, an estimated 52.0 million people aged 12 or older were current cigarette smokers. Although about 1 in 5 people aged 12 or older were current cigarette smokers, cigarette use generally declined between 2002 and 2015 across all age groups.
- In 2015, there were 138.3 million Americans aged 12 or older who reported current use of alcohol, including 66.7 million who reported binge alcohol use in the past month and 17.3 million who reported heavy alcohol use in the past month. Past month binge drinkers and heavy alcohol users represented 24.9 and 6.5 percent of people aged 12 or older, respectively.

Additionally, the use of illicit drugs has declined particularly cocaine, methamphetamines, and hallucinogens. The one area of particular concern is the continued climb in the non-medical use of prescription drugs. Seven of the top ten drugs

abused by 12th graders in the year prior to the survey were prescribed or purchased over the counter.

Many factors affect drug use and abuse. Age, gender, ethnicity, geography, education, and employment are among the top determining factors that contribute to the epidemiology of drug use.

For example:

- Young adults, ages 18-25 are more likely to use illicit drugs than those younger or older.
- American Indians and Alaskan Natives have the highest rate of use among adults while Asians have the lowest rate.
- Men are more likely than women to use illicit drugs.
- Highest rates of drug use are on the Coasts. The Midwest and South remain the same.
- New 2016 Press Release: "Teen use of any illicit drug other than marijuana at new low, same true for alcohol. Vaping, hookah use by US teens declines for first time. Marijuana use remains on the rise among US college students, but narcotic drug use declines."

All of these statistics and more can be found online at: http://www.drugabuse.gov and http://monitoringthefuture.org.

Tennessee Statistics

- In 2015 TN had the second highest per capita prescription rate for opiods in the US.
- Unintentional overdose deaths increased more than 250% from 2001 – 2015.
- The number of babies born dependent to drugs who suffered from Neonatal Abstinence Syndrome (NAS) grew tenfold from 2001-2011.
- Worker's compensation programs for people treated for substance abuse increased five-fold in ten years (TN BOD 2018).

Incidence

Incidence is the frequency with which something, such as a disease, appears in a particular population or area. In disease epidemiology, the incidence is the number of newly diagnosed cases during a specific time period. The incidence is distinct from the prevalence which refers to the number of cases current on a specific day. The incidence of drug and alcohol abuse provides a useful measure of emerging patterns of substance abuse. These estimates are for 2022 NSDUH. In 2020, an estimated 2.7 million persons aged 12 or older used an illicit drug for the first time within the past 12 months; this

averages to more than 7,000 initiates per day. As in years past, most initiates (60.1 percent) were younger than age 18 when they first used, and the majority of the new users were female. The average age at initiation among persons aged 12 to 49 was 18.0 years.

Table 1: Incidence of Substance Abuse, 2019 National Survey of Drug Use and Health	
Substance	New Users During 2019
Alcohol	4.6 million
Prescription Drug Abuse	2.5 million
Cigarettes	2.2 million
Marijuana	2.1 million
Hallucinogens	1.1 million
Inhalants	775,000
Cocaine	906,000
Methamphetamine	157,000
Heroin	106,000

Nine Steps for Prescribing Controlled Substances

The following information is to assist dental professionals in prescribing controlled substances (TN BOD 2018). Additional information on each step can be found throughout the course and the below guidelines, in their entirety, can be found here: https://www.tn.gov/content/dam/tn/health/documents/Den_Pol092105.pdf

1. Start with a diagnosis supported by history and physical findings, and by the results of appropriate tests.
2. Create a treatment plan that includes the use of appropriate non-addictive modalities. Make referrals to appropriate specialists when indicated and include the referral in the patient's chart.
3. Before beginning a regimen of controlled drugs make a determination through trial and/or documented history that non-addictive modalities are not appropriate or do not work.
4. Make sure you are not dealing with a drug seeking patient. Review the prescription records in the patient's chart and discuss his/her chemical history. If the patient is new or unknown to you obtain a drug history, discuss chemical use and family chemical history.
5. Obtain informed consent from the patient before prescribing a drug known to cause dependency problems. Be sure to explain the relative risks and benefits of the drug and document this discussion in the patient's chart.

6. Maintain regular monitoring of the patient. If the regimen is for a prolonged period it is very important to monitor the patient for the root condition which necessitates the drug and for the side effects of the drug itself.
7. Make sure you are in control of the drug supply. Personally control all refills and periodically require the patient to return to obtain a refill authorization. Maintain detailed records of the type, dose and amount of drug prescribed. Also check with pharmacies and other health care providers to make sure the patient is not obtaining drugs from other sources.
8. Maintain regular contact with the patient's family as their observations may be more accurate and objective than feedback from the patient alone. The family is also a good reference to find if the patient is obtaining drugs from other sources.
9. Maintain up-to-date, accurate records that reflect all the steps that went into the process.

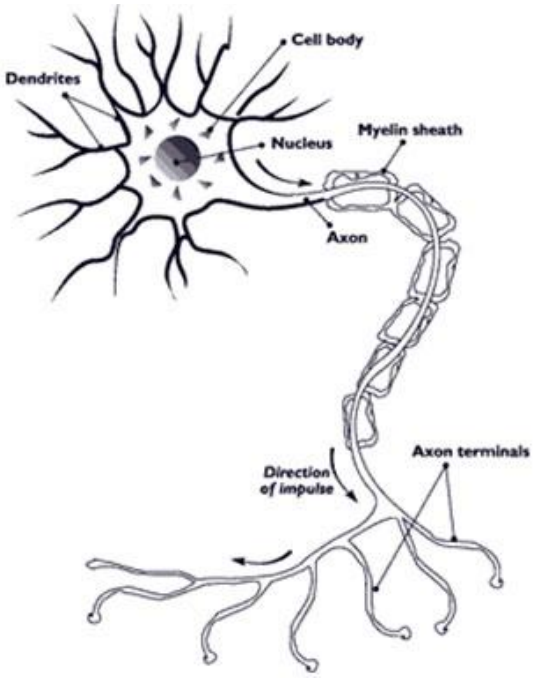
Pathophysiology of Addiction

The human body suffers significant changes which occur when a patient is suffering from addiction. Pathophysiology is the branch of medicine that deals with any disturbances of body functions, caused by disease or prodromal symptoms. The following section deals with the physiological aspects of addiction and how specific drugs affect the dental patient.

Anatomy: Diagram of a Neuron

An understanding of brain anatomy is the next important component of learning how the addiction process occurs. The brain is made up of millions of nerve cells, or neurons, which act as the body's communication system. Neurons are made up of four basic parts, (a) the cell body, or soma, (b) dendrites, (c) an axon, or nerve fiber, and (d) axon terminals (Figure 1).

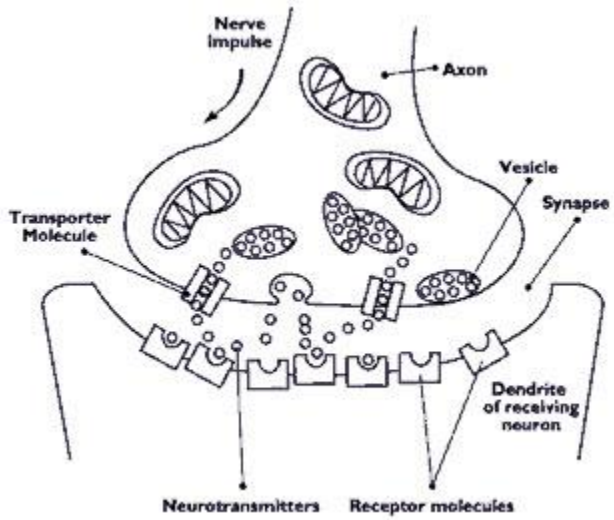
Figure 1: Anatomy of a Neuron



The cell body and dendrites are primarily responsible for receiving messages from other neurons. The axon is the transmitter, taking messages away from the cell body. The message transfer from the axon of one nerve cell to the dendrites of another nerve cell is called neurotransmission. When action potentials (or nerve impulses) reach axon terminals neurotransmitters are released. Neurotransmitters are chemical messengers of neurologic information released from a nerve cell, which thereby transmit an impulse from one nerve cell to another nerve, muscle, organ, or other tissue. Next, neurotransmitters diffuse across the synaptic cleft to bind with specific receptors on the dendrite of the message receiving' neuron.

The neurotransmitter stimulates or inhibits an electrical response in the receiving neuron. It is important to appreciate that it is the receptor that dictates the neurotransmitter's effect.

Figure 2. Neurotransmission (NIDA, 2018)



More than forty neurotransmitters have been identified within the central nervous system. **Psychoactive** drugs can change the properties of neurotransmitter release, neurotransmitter reuptake, and the availability of receptor binding sites. Table 2 lists several neurotransmitters, their function and the drugs that affect them.

Table 2: Neurotransmitters and their function, NIDA, 2020

Neurotransmitter	Distribution in the Central Nervous System	Functions Affected	Drugs That Affect It
Dopamine	Midbrain, Ventral tegmental area (VTA), Cerebral cortex, Hypothalamus	Pleasure and reward Movement, Attention, Memory	Cocaine, Methamphetamine, Amphetamine. In addition, virtually all drugs of abuse directly or indirectly augment dopamine in the reward pathway
Serotonin	Midbrain, VTA, Cerebral cortex, Hypothalamus	Mood, Sleep, Sexual desire, Appetite	MDMA (ecstasy), LSD, Cocaine
Norepinephrine	Midbrain, VTA, Cerebral cortex, Hypothalamus	Sensory processing, Movement, Sleep, Mood, Memory, Anxiety	Cocaine, Methamphetamine, Amphetamine
Endogenous opioids (endorphin and enkephalin)	Widely distributed in brain but regions vary in type of receptors, Spinal cord	Analgesia, Sedation, Rate of bodily functions, Mood	Heroin, Morphine, Prescription painkillers (Oxycodone)
Acetylcholine	Hippocampus, Cerebral cortex, Thalamus, Basal ganglia, Cerebellum	Memory, Arousal, Attention, Mood	Nicotine
Endogenous cannabinoids (anandamide)	Cerebral cortex, Hippocampus, Thalamus, Basal ganglia	Movement, Cognition and memory	Marijuana
Glutamate	Widely distributed in brain	Neuron activity (increased rate), Learning, Cognition, Memory	Ketamine, Phencyclidine, Alcohol
Gamma-aminobutyric acid (GABA)	Widely distributed in brain	Neuron activity (slowed), Anxiety, Memory, Anesthesia	Sedatives, Tranquilizers, Alcohol

Epidemiology

Biological factors are that of cellular alteration. Change at the cellular level can lead to tolerance, dependence and eventually create withdrawal symptoms if the cellular affecting substance is no longer used. The National Institute of Drug Abuse provides extensive information on physiological aspects of addiction. Drug addiction results from adaptations in specific brain neurons caused by repeated exposure to a drug of abuse. These adaptations combine to produce the complex behaviors that define an addicted state.

The behavioral or environmental process of addiction holds that a person goes through specific behavioral stages when suffering from addiction (Table 3). According to Nakken, (1996) during Stages one and two it is possible for the individual to abstain from use of the drug. However, once the individual enters Stage three, it is nearly impossible for the addict to choose abstinence without intervention, treatment, and long-term after care.

Table 3: Stages of Addiction (Nakken, 2016)

Stage	Name	Description
1	Internal Change	• Changes occur within the individual. • May not be noticeable to others
2	Life Style Change	• Lifestyle changes occur. • Intoxication occurs often. • May encounter consequences for use.
3	Life Breakdown Stage	• Addicts want to stop but cannot. • Suicide and accidental death more frequent.

Brain Disease

Drug addiction is a brain disease that develops over time as a result of the initially voluntary behavior of using drugs. The consequence is virtually uncontrollable compulsive drug craving, seeking, and use that interferes with, if not destroys, an individual's functioning in family and in society. Drugs are very powerful reinforcers, and even in conditions of limited access drugs, they can motivate high rates of favorable response by invoking what is known as the brain's drug reward system. Perhaps the most powerful entity that can reinforce behavior is pleasure. The brain's pleasure center, the ventral tegmental area (VTA), is part of the "survival center" of our brain. Although it is not the only brain system involved in giving a person the feeling of pleasure, the ventral tegmental system can be activated by both **exogenous** and **endogenous** stimuli. In addition to artificial stimulation through drugs, this system also offers natural rewards associated with eating and sexual and maternal behaviors. Once

activated, the brain reward systems can produce a range of mood changes from slightly elevated to euphoric.

Addictive drugs can activate the VTA's pleasure circuit in a powerful way, creating in the individual a strong desire to repeat the behavior (drug taking). If the individual continues to use the drugs, specifically psychoactive drugs, it is possible that the continued use may eventually alter neurons and their normal functions forever. This alteration causes the user to be less sensitive to "natural activators" of the reward system (e.g.., sex and eating) thus leading the individual to take more drugs to get the stimulation he or she desires. Eventually, the individual will experience drug-seeking behavior.

Figure 3. (NIDA, 2020)

Models of Addiction and Alcoholism

A report put out by the World Health Organization in 2004 states that dependence has not previously been recognized as a disorder of the brain, in the same way that psychiatric and mental illnesses were not previously viewed as being a result of a disorder of the brain. However, with recent advances in neuroscience, it is clear that dependence is as much a disorder of the brain as any other neurological or psychiatric illness. Addiction and Alcoholism are commonly misunderstood and are often not viewed as being disorders of the brain. In addition to neurological factors surrounding addiction and alcoholism, the role of biological, social, and environmental factors are known contributors to the disease process. Alcoholism and addiction are diseases involving biological, environmental, psychosocial, and spiritual factors, yet there is still doubt as to the validity of these diseases in the medical realm.

Models for Additions

Moral Model: Addictions are the result of human weakness, and are defects. Those who advance this model do not accept that there is any biological basis for addiction.

Temperance Model: Began with the prohibition movement in the late 19th century. The movement emphasized that the idea of moderation could not be relied upon as the key to treatment. Abstinence was asserted as the only alternative. The core assumption of

the temperance movement was that the addictive and destructive power of the drug is strong and that it is the drug itself that is the problem.

Disease Model: Maintains that addiction is an illness, and comes about as a result of the impairment of healthy neurochemical or behavioral processes.

The Genetic Model: Proposes a genetic predisposition to certain behaviors. It is frequently noted that certain addictions "run in the family," and while researchers continue to explore the extent of genetic influence, there is strong evidence that genetic predisposition is often a factor in dependency.

Signs and Factors of Addiction

As health care professionals, it is important for the dental team to have the ability to recognize signs of addiction to identify a possibly chemically dependent patient.

Table 4: Signs of Addiction
Increased consumption with increased tolerance
Increased desire for persistent and regular use of the drug
Loss of control, attempts to stop result in inability to stop and/or withdrawal
Continued use despite physical, psychological, social and legal ramifications
Compulsive drug-seeking behavior
Social Isolation
Suicidal thoughts and attempts

Factors that may play a role in making an individual susceptible to chemical dependency and addiction include:

Biological Factors:

- Genetics (heredity)
- Age
- Race/ethnicity
- Gender
- Route of administration (inhalation, oral, mucosal)

Psychosocial Factors:

- Family of Origin
- Education
- Occupation
- Cultural/religious beliefs

Environmental Factors:

- Availability of substance
- Peer pressure
- Media
- Substance abuse by family members
- Community environment (poverty, unemployment, crime)
- Geographic location
- Legal ramifications

Classification and Characteristics of Psychoactive Substances

Familiarity with commonly abused drugs may be helpful in evaluations with patients in your dental practice.. This section provides a general description of several psychoactive substances including: depressants such as opiates, opioids, benzodiazepines, and barbiturates, stimulants including methamphetamine and others, hallucinogens, and inhalants.

The more quickly a drug gives a result, the more likely that substance is to lead to addiction. When prescribing medication to patients who have a history of substance abuse, choosing one with a longer onset of action may be better choice than to risk the more addictive, quicker onset of action medications.

Central Nervous System (CNS) Depressants

CNS depressants include such drugs as alcohol, benzodiazepines, and barbiturates.

These drugs slow nervous system activity and are used to produce sedation, treat pain, reduce anxiety and treat sleep disorders. These drugs have a high potential for abuse and tolerance to the drug develops quickly. These drugs are often abused in combination with alcohol.

Alcohol

Alcohol reaches the bloodstream within five minutes of ingestion and is then carried to all parts of the body. Alcohol affects many neurotransmitter receptors and is believed to activate the pleasure/reward system of the brain. Alcohol is often abused in conjunction with other substances. Alcohol acts to affect other drug's availability meaning that it may increase or decrease the activity and effectiveness of other drugs and may alter the drug into a toxic chemical that can damage the liver and other organs. These results can occur whether the drug is recreational or prescribed.

Some alcohol-drug interactions include antibiotics, anticoagulants, antidepressants, anti-diabetic medications, antihistamines, antipsychotic drugs, anti-seizure medications,

narcotic and non-narcotic pain relievers, and cardiovascular medications.

- **Binge drinking** is defined as consuming more than five drinks or more on one occasion on one day within the past thirty days. This typically happens when men consume 5 or more drinks, and when women consume 4 or more drinks, in about 2 hours
- **Moderate drinking** is defined as two drinks per day for males and one drink per day for females. A drink is defined as a 12-ounce beer or wine cooler or five ounce glass of wine or 1.5 ounces of distilled liquor. (Street Drugs, p 77)

Barbiturates (e.g., Amytal, Phenobarbital, Seconal, Nembutal) are used to treat anxiety, insomnia, and as an anticonvulsant. These drugs produce effects similar to alcohol. These drugs enhance GABA receptors, which inhibit CNS activity. They do not reduce sensations of pain. Medical use of barbiturates has decreased with the introduction of benzodiazepines.

Benzodiazepines (e.g., Valium, Xanax, Ativan, and Halcion) are often abused by both adolescents and adults. These drugs are most commonly used in the treatment of panic disorders with or without agoraphobia, anxiety disorders or for short-term relief of symptoms of anxiety including anxiety associated with depression, and prevention of seizures. Dental patients who abuse or are dependent may complain of TMJ pain or fear of dental treatment. Patients who abuse or are addicted to stimulant drugs may also seek sedatives to abate withdrawal from such drugs as cocaine and methamphetamine. Withdrawal from this drug group can be lethal and should be done under a physician's direction. Alcohol heightens the effects of these drugs and can lead to lethal overdose.

Rohypnol (brand name for flunitrazepam), while illegal in the United States, this is a legal drug in many countries and is used to treat sleep and psychiatric disorders. This drug is commonly taken with other drugs (heroin, cocaine and alcohol) and is ten times stronger than Valium. Rohypnol has become increasingly popular because it is easy to obtain and relatively inexpensive. It is also known as "the date rape drug" because men have been known to drop it into women's drinks causing them to black out and thereby creating a potential rape situation. If given a sufficient dose (2-mg), the woman will have no recollection of events occurred while under the influence.

Ketamine is used in veterinary medicine. It produces a disassociated state and impaired perception and has both analgesic and amnesic properties. With the use of this drug there is no depression of the CNS, but there can be depressed respiratory function. Ketamine goes by the street name "Special K" and has been used in cases of sexual assault.

Table 5: CNS Depressants	
General Effects	• Slow down nervous system activity • Decrease anxiety • Drowsiness • Relax muscles • Sedation • Dilated blood vessels • Dilated pupils
Method(s) of Administration	• Ingested • Injected • Smoked • Snorted
Withdrawal Symptoms	• Seizures • Hallucinations • Tremors • Agitation • Irritability • Sweating • Anxiety

Opioids and Opiates (Narcotics)

Opioids are a synthetic form of opiates and include Darvocet, Vicodin, Dilaudid, Demerol, Percocet, Oxycontin, and Fentanyl. Opioids are commonly prescribed for the relief of dental pain due to their effective analgesic, or pain relieving, properties. Studies have shown that properly managed medical and dental use of opioid analgesic compounds is safe and rarely causes addiction. Taken exactly as prescribed, opioids can be used to manage pain effectively.

Hydrocodone is one of the most abused prescription drugs. It is not uncommon for patients who are addicted to opioids to feign dental pain in an effort to get a prescription. This is one example of substance abuse and drug seeking behavior.

Fentanyl is a potent opioid drug 80-100 times more potent than morphine. This drug is commonly used during surgery and may lead to addiction and even death of health care workers who have access to it. Because Fentanyl is used for chronic pain, it has been formulated into a “lolli-pop” specifically intended for use by chronic pain patients. Several narcotics are now available in transdermal patches and are also intended for management of chronic pain. Abuse of both these patches and “lolli-pops” by both teens and adults is increasing at alarming rates.

The opiate class includes such drugs as opium, codeine, morphine, and heroin. Opium, codeine and morphine can be extracted directly from the opium plant. Heroin is the most addictive opiate known because it penetrates the brain the fastest. There is no therapeutic use for heroin. There has been an increase in the use of heroin in the past few years to the modification of heroin into a more pure form that can be smoked or ingested rather than injected intravenously.

Table 6: Opiates & Opioids (Narcotics)	
Action & Use	These drugs (along with amphetamines and cocaine) offer the most powerful activation of the drug reward system. Activation of opiate receptors in the brain produces sensations of pleasure (reward) and pain relief (analgesic). Opiates may also be used as antidiarrheal and antitussive agents.
Method(s) of Administration	• Oral (ingested and transmucosal) • Snorted • Smoked • Injected (increased risk of hepatitis, HIV and blood poisoning)
Effects	• Vomiting • Drowsiness • Depressed respiration • Constricted (pinpoint) pupils
Prolonged Use/Abuse	• Physical and psychological dependence • Constipation • Congested lungs • Peptic and duodenal ulcers • Diabetes • Liver disease* • Death *narcotics pain relievers are commonly made with acetaminophen; abuse of these drugs expose the user to prolonged doses of acetaminophen.
Withdrawal Symptoms A careful review of opiate withdrawal symptoms is important for dental professionals. Persons seeking drugs in the dental office often present with these clinical manifestations.	(Usually begin within 24 hours after the last use and may last up to 10 days) • Yawning • Diarrhea • Runny, itchy nose • Uneasiness • Weight loss • Abdominal cramps

Dextromethorphan

News reports have addressed the abuse of DMX found in over the counter (OTC) cough depressants At the doses recommended for treating coughs (1/6 to 1/3 ounce of medication, containing 15 mg to 30 mg dextromethorphan), the drug is safe and effective. At much higher doses (4 or more ounces), dextromethorphan produces dissociative effects similar to those of PCP and ketamine. One slang term for DMX use is “skittling” since pills resemble Skittles candy. Additionally a “Robo shake is described as drinking large amounts of cough syrup, followed by inducing vomiting so as to absorb DMX through the stomach lining to achieve desired effects.

Central Nervous System Stimulants

Cocaine, amphetamines, methamphetamines, nicotine and even caffeine stimulate brain and/or spinal cord activity. The physiologic process for each drug is slightly different, but the outcome is similar. These substances (along with opiates and opioids) powerfully activate the brain’s reward system and decrease the rewarding effect of normal behavior.

Action & Use

Cocaine prevents the reabsorption of dopamine, which results in intense feelings of pleasure. Effects occur within a few minutes and disappear within an hour. Because of its immediate effects, and short duration of pleasure, the user continuously needs to take the drug, making cocaine highly addictive.

Crack is an even more addictive form of cocaine. Unlike cocaine, the effects of crack only last a few minutes and many users become addicted after their first use of the drug.

Amphetamines may be used medically to treat attention deficit disorders (ADD) and obesity in addition to other conditions. They are also used to avoid sleep and improve performance. Amphetamines operate by altering the amount of neurotransmitters in the brain.

Methamphetamine initially causes release of dopamine and norepinephrine from their storage vesicles in the neuron. Once released, methamphetamine prevents the breakdown of dopamine and norepinephrine within the nerve cell. The excess of neurotransmitters is then carried into the synapse. Increased, synaptic concentrations of dopamine cause feelings of euphoria, while excess norepinephrine may be responsible for the alertness and anti-fatigue effects of methamphetamine.

Nicotine is only found in the tobacco plant. Nicotine stimulates acetylcholinergic receptors located in the pleasure center of the brain. Nicotine is highly addictive.

Caffeine, the most widely used stimulant, inhibits an enzyme that acts as a messenger for several neural transmission systems including norepinephrine. It does not ordinarily pose a threat to health unless consumed in massive quantities over time.

Adderall®, a single-entity amphetamine product, was introduced in 1996 as instant-release tablets, which have since become available as the generic formulation "mixed amphetamine salts." The active ingredients of Adderall include a combination of dextroamphetamine and racemic amphetamine salts. The sale of Adderall XR has been suspended in Canada due to fatalities related to its use. Reports of misuse by children and teens include crushing the drug and snorting or smoking the resulting powder.

Ritalin® (methylphenidate hydrochloride), Concerta® (methylphenidate hydrochloride), and Strattera®, (atomoxetine hydrochloride) are other drugs commonly prescribed to children to control attention deficit disorder (ADD).

Table 7: CNS Stimulants

General Effects	• Increase nervous system activity • Increase heart rate and blood pressure • Increase gastric and adrenal secretions • Nausea, vomiting, diarrhea • Xerostomia • Headache • Fever • Loss of coordination • Mood swings • Loss of appetite • Dilated pupils • Long periods without sleep (24-120 hours) followed by long periods of sleep (24-48 hours) (methamphetamine)
Method(s) of Administration	• Snorted • Smoked • Injected • Ingested • Rubbed into gums • Rectal insertion
Withdrawal Symptoms	• Depression • Severe hunger • Exhaustion
Mental Symptoms	• Paranoia • Anxiousness • Nervousness • Agitation • Extreme Mood Swings • Hallucinations • Delusions

Hallucinogens (Psychedelics)

These drugs can cause an altered state of perception and distortion of reality. There is no physical or psychological need to repeat drug use, but individuals often desire to repeat the experience. Hallucinogens have no medical purpose and can be man-made or grown naturally.

Action & Use

The effect hallucinogens have on brain chemistry varies depending on the substance. Generally, these substances activate serotonin receptors to the point that excess dopamine may be released.

LSD (Acid) is produced from a fungus that grows on grain, especially rye. It produces widespread hallucinogenic effects by binding with serotonin receptors causing greatly increased activation.

MDMA (Ecstasy) is a synthetic drug similar to methamphetamine that causes an increase in the release of serotonin and dopamine. This drug is believed to permanently destroy serotonin receptors. (See Appendix B)
http://www.nida.nih.gov/infofacts/ecstasy.html

PCP is not considered a true hallucinogen, but is included in this group due to the similar effects it has on the body compared with hallucinogenic drugs. Though it may affect the body similarly in many ways it rarely produces hallucinations. PCP alters body perception and may mimic symptoms of schizophrenia. Long-term use may cause permanent memory loss and difficulty with speech.

Salvinia divinorum is an herb common to southern Mexico and Central and South America. The main active ingredient in Salvia, salvinorin A, is a potent activator of kappa opioid receptors in the brain. It is usually smoked and causes a dissociative or hallucinogenic episode lasting less than 30 minutes.

Table 8: Hallucinogens	
General Effects	• Visual and/or auditory distortions • Rapid emotional swings • Delusions • Sexual dysfunction • Decreased muscle coordination • May develop chronic mental disorders following long term use
Method(s) of Administration	• Injected • Ingested • Swallowed (e.g., paper soaked with LSD) • Ocular (LSD dropped into eyes with an eyedropper) • Smoked • Sniffed
Withdrawal Symptoms	Although psychological dependence is likely, no withdrawal symptoms occur when use is discontinued.

Cannabis (Marijuana)

Marijuana is the most commonly abused illicit drug in the United States. It is a dried shredded green and brown mix of flowers, stems, seeds, and leaves of the cannabis sativa plant. The main active chemical in marijuana is delta-9-tetrahydrocannabinol (THC). Marijuana cigarettes contain more of the known carcinogen, benzopyrene, than tobacco cigarettes. Considered a gateway drug in that an individual is likely to begin experimentation with other illicit drugs once he or she has tried marijuana. In recent years the THC content of marijuana has increased from approximately one percent in 1974 to 6-33% today. (SD page 69).

Action & Use

Once ingested, THC binds to cannabinoid receptors and interferes with the part of brain that is responsible for muscle movement, sensory perception, and memory. While Marijuana is an illegal drug, THC has been used in prescription form to counteract the nausea an individual may experience while undergoing chemotherapy, provide relief from glaucoma, stop convulsions, reduce muscle spasms, and stimulate appetite. The use of marijuana for medical purposes is a highly controversial issue and the addictive potential of marijuana continues to be under debate.

Table 9: Cannabis	
General Effects	• Increased pulse rate • Bronchial passages relax and expand • Blood vessels of eyes dilate • Xerostomia • Increased appetite • Apathy • Impaired immune symptoms • Confusion • Impaired coordination • Increased risk of lung cancer, chronic bronchitis • Impaired memory (temporary and permanent)
Method(s) of Administration	• Smoked • Oral ingestion • Withdrawal Symptoms • Irritability • Sleeplessness • Anxiety Increased aggression has been displayed peaking approximately one week after the last use of the drug ref 32 Kouri EM, Pope HG, Lukas SE. Changes in aggressive behavior during withdrawal from long-term marijuana use. Psychopharmacology 143(3):302–308, 1999. 33 Haney M, Ward AS, Comer SD, et al. Abstinence symptoms following smoked marijuana in humans. Psychopharmacology 141(4):395–404, 1999.

"**Spice**" is used to describe a diverse family of herbal mixtures marketed under many names, including K2, fake marijuana, Yucatan Fire, Skunk, Moon Rocks, and others. These products contain dried, shredded plant material and presumably, chemical additives that are responsible for their psychoactive (mind-altering) effects.it may appear in the form of potpourri with a warning "not for human consumption." It is usually smoked and may appear as incense. Five forms are now Schedule 1 drugs in the United States.

Inhalants

Inhalants are a diverse group of volatile substances whose chemical vapors can be inhaled to produce psychoactive (mind-altering) effects. While other abused substances can be inhaled, the term “inhalants” is used to describe substances that are rarely, if ever, taken by any other route of administration Inhalants are a diverse group of substances whose chemical vapors can be inhaled to produce psychoactive effects. While it is true that other abused substances can be inhaled, the term “inhalants” is often used to describe substances that are rarely taken by another route of administration. Because many of the most common inhalants are available in the household, they are often among the first drugs used by children and teens. One national survey indicates that about 3 percent of U.S. children have tried inhalants by the time they reach fourth grade. Today 46 states have induced legislation to prevent sell of inhalants to minors.

Actions & Use

Most inhalants slow down body function yet the individual user may, depending on dosage levels, feel stimulated. Inhalants affect both the Central Nervous System (CNS) and the peripheral nervous system (PNS). Inhalants are attracted to fatty tissues within the body leading to the absorption of the chemical agent into myelin (fatty tissue surrounding the nerve axon). The result of this absorption may lead to polyneuropathy. As described later in this section, inhalants are often used for legitimate medical purposes. Medical/Dental uses of inhalants include nitrous oxide (conscious sedation) and amyl nitrite (treatment of angina pectoris). Interestingly, individuals do not develop a tolerance to inhalants as when an individual continues use and doses are increased, immediate death is very likely. Users may suffer asphyxia, suffocation, choking on their own vomit, or sudden sniffing death syndrome (SSD). SSD is the result of a sudden and unexpected disturbance of the heart's rhythm. All inhalants, including nitrous oxide, can produce SSD.

Volatile solvents (Paint thinners, gasoline, glue, cleaning solutions, nail polish, etc.): Commonly found in the workplace, home and at school, volatile solvents contain toluene. Vital organs rapidly absorb and store toluene, causing serious tissue damage and alteration. SSD caused by cardiac arrhythmia can also occur. Serious burn injury is common due to the highly flammable nature of these substances.

Aerosols (Spray paint, hairspray, air fresheners, lighter fluid, etc.): Individuals abusing these substances risk permanent damage to vital organs and SSD due to the likelihood of cardiac arrhythmia and pulmonary collapse during or after use.

Nitrous oxide mixed with oxygen provides effective analgesia for dental and medical procedures. Nitrous oxide is also used as a propellant for whipped cream and as a

source of injected oxygen in the automotive industry. Nitrous oxide is easily procured at restaurant supply stores and specialty coffee shops. In these situations, the abuser uses the nitrous oxide cartridges in what is referred to as a “whippet.” A "high" can be reached in less than 30 seconds when inhaling 50 to 75 percent nitrous oxide. In the incidents where users attempt to achieve a higher state of euphoria by breathing higher concentrations or pure N2O, usually by placing their head inside an N2O filled plastic bag, deaths are common.

The Compressed Gas Association, OSHA, and NIOSH are just a few of the reputable agencies that provide information on how to protect personnel from accidental exposure and how to prevent nitrous oxide abuse in the dental practice setting. (See Appendix D)

Nitrites: Amyl nitrite (poppers) was once used to treat angina pectoris. Nitrites are most often abused to enhance sexual experiences. Combining “popper” use with Viagra is very dangerous and has been reported with subsequent deaths.

Studies have linked the chronic abuse of solvents to severe, long-term damage to the brain, the liver, and the kidneys.

Harmful irreversible effects that may be caused by abuse of specific solvents include:

- Hearing loss - toluene (spray paints, glues, dewaxers) and trichloroethylene (dry-cleaning chemicals, correction fluids)
- Peripheral neuropathies, or limb spasms - hexane (glues, gasoline) and nitrous oxide (whipped cream dispensers, gas cylinders)
- Central nervous system or brain damage - toluene (spray paints, glues, dewaxers)
- Bone marrow damage - benzene (gasoline)

Table 10: Inhalants	
General Effects	• Loss of appetite • Dizziness • Slurred Speech • Halitosis • Eye Irritation • Headache • Tinnitus • Chest pain • Muscle weakness • Permanent damage to nervous system • Brain, liver, kidney, blood and bone marrow damage
Peri-oral signs	• Chemical burns and/or sores around nose and mouth • Colored areas (paint and other inhalants around nose and mouth)
Method(s) of Administration	• Inhaling • Bagging (inhaling fumes from a plastic bag or balloon) OR placing bag over head and releasing inhalant • Huffing (stuffing an inhalant soaked rag into the mouth)
Withdrawal Symptoms	Although psychological dependence is likely, no withdrawal symptoms occur when use is discontinued.

Treatment

Perhaps the most complex aspect of substance abuse or addiction lies in identifying treatment options. While treatment is desirable, the individual who requires treatment must be a willing participant. Keep an updated list of a variety of local drug treatment organizations and appropriate contact information for those patients identified as having a problem, and who is willing to seek treatment. Confidentiality must be maintained and a non-judgmental attitude cultivated.

Stages of Treatment

Prochaska, DiClemente and Norcross have studied the process of change known as the Transtheoretical Model of Change or TTM.14 TTM assesses an individual's readiness to act on a new healthier behavior and provides strategies or processes of change to guide the individual through the stages of change to action and maintenance. Although this change model was originally designed for smoking cessation it is known as the

dominant model of health behavior change, and is applicable to any form of substance abuse.

The six stages of change in the TTM model include:

1. **Pre-contemplation** - an individual may be unaware of a problem and is aware, has no intention of changing.
2. **Contemplation**- an individual devotes serious thought to overcoming the problem but has not yet committed to any action.
3. **Preparation**- an individual plans to take action within a certain time frame.
4. **Action**-an individual is successful in modifying their behavior
5. **Maintenance**- an individual continues to change and takes action to prevent relapse. An individual who has been drug free post-6 months to 5 years is considered in this stage.
6. **Relapse**- recovery from addiction is considered a continuous process rather than a discrete event. By definition, relapse is expected in and defined as, a criterion for chemical dependency and addiction.

An understanding of user stages assists in effective communication with the patient. Pre-contemplators have no interest in changing behavior and are also known as contented users. Remember that you must never be judgmental or critical as outside influence is at its peak during the Contemplative and Maintenance phases.

Precontemplation (Not Ready)

People in the Precontemplation stage do not intend to take action in the foreseeable future, usually measured as the next six months. Being uninformed or under informed about the consequences of one's behavior may cause a person to be in the Precontemplation stage. Multiple unsuccessful attempts at change can lead to demoralization about the ability to change. Precontemplators are often characterized in other theories as resistant, unmotivated, or unready for help. The fact is, traditional programs were not ready for such individuals and were not designed to meet their needs.

Contemplation (Getting Ready)

Contemplation is the stage in which people intend to change in the next six months. They are more aware of the pros of changing, but are also acutely aware of the cons. In a meta-analysis across 48 health risk behaviors, the pros and cons of changing were equal (Hall & Rossi, 2019). This weighting between the costs and benefits of changing can produce profound ambivalence that can cause people to remain in this stage for long periods of time. This phenomenon is often characterized as chronic contemplation or behavioral procrastination. Individuals in the Contemplation stage are not ready for

traditional action-oriented programs that expect participants to act immediately.

Preparation (Ready)

Preparation is the stage in which people intend to take action in the immediate future, usually measured as the next month. Typically, they have already taken some significant action in the past year. These individuals have a plan of action, such as joining a gym, consulting a counselor, talking to their physician, or relying on a self-change approach. These are the people who should be recruited for action-oriented programs.

Action

Action is the stage in which people have made specific overt modifications in their lifestyles within the past six months. Because action is observable, the overall process of behavior change often has been equated with action. But in the TTM, Action is only one of five stages. Typically, not all modifications of behavior count as Action in this Model. In most applications, people have to attain a criterion that scientists and professionals agree is sufficient to reduce risk of disease. For example, reduction in the number of cigarettes or switching to low-tar and low-nicotine cigarettes were formerly considered acceptable actions. Now the consensus is clear—only total abstinence counts.

Maintenance

Maintenance is the stage in which people have made specific overt modifications in their lifestyles and are working to prevent relapse; however, they do not apply change processes as frequently as do people in Action. While in the Maintenance stage, people are less tempted to relapse and grow increasingly more confident that they can continue their changes. Based on self-efficacy data, researchers have estimated that Maintenance lasts from six months to about five years. While this estimate may seem somewhat pessimistic, longitudinal data in the 1990 Surgeon General's report support this temporal estimate. After 12 months of continuous abstinence, 43% of individuals returned to regular smoking. It was not until 5 years of continuous abstinence that the risk for relapse dropped to 7% (USDHHS).

Decisional Balance

Decision making was conceptualized by Janis and Mann (1977) as a decisional "balance sheet" of comparative potential gains and losses. Two components of decisional balance, the pros and the cons, have become core constructs in the Transtheoretical Model. As individuals progress through the Stages of Change, decisional balance shifts in critical ways. When an individual is in the Precontemplation

stage, the pros in favor of behavior change are outweighed by the relative cons for change and in favor of maintaining the existing behavior. In the Contemplation stage, the pros and cons tend to carry equal weight, leaving the individual ambivalent toward change. If the decisional balance is tipped however, such that the pros in favor of changing outweigh the cons for maintaining the unhealthy behavior, many individuals move to the Preparation or even Action stage. As individuals enter the Maintenance stage, the pros in favor of maintaining the behavior change should outweigh the cons of maintaining the change in order to decrease the risk of relapse.

Self-Efficacy

The TTM integrates elements of Bandura's self-efficacy theory (Bandura, 1977, 1982). This construct reflects the degree of confidence individuals have in maintaining their desired behavior change in situations that often trigger relapse. It is also measured by the degree to which individuals feel tempted to return to their problem behavior in high-risk situations. In the Precontemplation and Contemplation stages, temptation to engage in the problem behavior is far greater than self-efficacy to abstain. As individuals move from Preparation to Action, the disparity between feelings of self-efficacy and temptation closes, and behavior change is attained. Relapse often occurs in situations where feelings of temptation trump individuals' sense of self-efficacy to maintain the desired behavior change.

Processes of Change

While the Stages of Change are useful in explaining when changes in cognition, emotion, and behavior take place, the processes of change help to explain how those changes occur. These ten covert and overt processes need to be implemented to successfully progress through the stages of change and attain the desired behavior change. These ten processes can be divided into two groups: cognitive and affective experiential processes and behavioral processes.

Cognitive and Affective Experiential Processes

1. Consciousness Raising (Get the Facts)
2. Dramatic Relief (Pay Attention to Feelings)
3. Environmental Reevaluation (Notice Effect on Others)
4. Self-Reevaluation (Create a New Self-Image)
5. Social Liberation (Notice Public Support) Processes

Behavioral Processes

6. Self-Liberation (Make a Commitment)
7. Counter Conditioning (Use Substitutes)

8. Helping Relationships (Get Support)
9. Reinforcement Management (Use Rewards)
10. Stimulus Control (Manage Environment)

In an online source accessed February 2020 (http://www.prochange.com/transtheoretical-model-of-behavior-change) many current exceptional strides are being made to bring intervention to patients:

Critical Assumptions of the TTM

The Transtheoretical Model is also based on critical assumptions about the nature of behavior change and population health interventions that can best facilitate such change. The following set of assumptions drives Transtheoretical Model theory, research, and practice:

- Behavior change is a process that unfolds over time through a sequence of stages. Health population programs need to assist people as they progress over time.
- Stages are both stable and open to change, just as chronic behavior risk factors are both stable and open to change.
- Population health initiatives can motivate change by enhancing the understanding of the pros and diminishing the value of the cons.
- The majority of at-risk populations are not prepared for action and will not be served by traditional action-oriented prevention programs. Helping people set realistic goals, like progressing to the next stage, will facilitate the change process.
- Specific principles and processes of change need to be emphasized at specific stages for progress through the stages to occur.
- Transtheoretical Model Research Breakthroughs

1980s

Discovered the Stages of Change and the dynamic principles and processes of change related to each stage

1990s

Developed the first computer-tailored intervention based on the Transtheoretical Model of Behavior Change

Demonstrated tailored interventions for smoking cessation effective even when more than 80% were not ready to quit

Applied the Transtheoretical Model to a variety of behaviors beyond smoking cessation

2000s

Demonstrated that Transtheoretical Model-based interventions for simultaneous multiple behavior change are effective

Applied the Transtheoretical Model to a wide variety of new behavior change challenges

Served entire populations with inclusive proactive and home-based care

2010s

Implemented innovative strategies to ensure greater impact on multiple behaviors with fewer demands on patients and providers

Designed a more cost-effective delivery for coaching and online programs

Gained synergistic insights into how changing one behavior increases the chance of changing other behaviors (coaction)

Improved well-being by increasing productivity and thriving

Increased the efficacy of our best practices by 26% as a result of adding tailored text messages

Developed a Clinical Dashboard to provide evidence-based stage matched behavior change messages for clinicians to deliver to patients.

Helping patients can now include digital technology (and mobile devisces) to easily access intervention and with discretion!

Pro-Change Behavior Systems, Inc. was well represented at the 2019 Connected Health Symposium. The theme of this year's meeting,"Digital Technology that Cares: Bringing the Human Element to Life," resonates with Pro-Change's philosophy-it's what they strive for in each of their products.

Three team members are slated to present posters on the development, acceptability, and outcomes of Pro-Change's latest digital health technology solutions.

Deborah Levesque, Ph.D., Chief Science Officer, will present a poster entitled "A Stage-Based Mobile Intervention for Substance Use Disorders in Primary Care." Dr. Levesque's poster outlines the development and acceptability testing of a mobile-delivered substance use risk intervention for primary care patients as well as a Clinical

Dashboard for primary care providers that can address major barriers to using Screening, Brief Intervention, and Referral to Treatment (SBIRT) for risky drug use.

Deborah Van Marter, M.P.H., Senior Manager, Research & Development, will present "Acceptability of Responsible Drinking, a Theoretically Tailored mHealth Intervention to Target Risky Drinking among Employed Adults." Ms. Van Marter's poster details the evaluation of the acceptability of a stage-matched and individually tailored behavior change mobile health intervention for employed adults who exceed the recommended weekly and/or daily limits for alcohol consumption (defined by the National Institutes of Health for men as drinking more than 14 drinks per week or more than 4 in a day and for women or anyone over 65 as drinking more than 7 drinks per week or more than 3 drinks in a day).

Lynne Broderick, M.P.H., Senior Manager, Research & Development, will present a poster entitled "Health eRide: Outcomes of a pilot program leveraging principles of gamification and SMS messaging to help Veterans self-manage chronic pain." Ms. Broderick's poster highlights the design, development, and feasibility of a theoretically-grounded, mobile-optimized, interactive pain self-management intervention for Veterans with chronic pain. The Health eRide leverages text messaging for multiple behaviors and principles of gamification."

Each project was supported by the National Institutes of Health, per Pro-Change Behavior Systems, Inc.

There are several components and combinations of care commonly offered to individuals seeking or requiring treatment for substance abuse, dependency and addiction.

Options may include:

- Detoxification programs
- Intensive treatment
- Residential programs
- Outpatient services
- Pharmacotherapy (Antabuse®, Methadone®, naltrexone, buprenorphine, Chantix®, nicotine replacement products)
- Aftercare
- Maintenance
- Education
- Adjunctive services
- Combination of above listed treatment modalities

Non-traditional treatments may include:

- Self-help groups (Alcoholics Anonymous, Narcotics Anonymous, Cocaine Anonymous, Rational Recovery, etc.)
- Biofeedback

Behavioral Treatments: Patients engage in the treatment process, modify their attitudes and behaviors related to drug abuse, and increase healthy life skills.

Pharmacotherapy: Initially, pharmacotherapies for substance abuse were aimed at controlling withdrawal symptoms and deterring relapse. Some of the more common drugs used in pharmacotherapy include Buprenorphine, methadone, Naltrexone, and Chantix. Dental clinicians must understand the effects of different agents used in pharmacotherapy, and the interaction with common drugs used in dental treatment.

Buprenorphine: A relatively new and important treatment medication used in pharmacotherapy. NIDA-supported basic and clinical research has led to the development of buprenorphine (Subutex or, in combination with naloxone, Suboxone), and has demonstrated it to be a safe and acceptable addiction treatment commonly used for opioid addiction. While these products were being developed in concert with industry partners, Congress passed the Drug Addiction Treatment Act (DATA 2000), permitting qualified physicians to prescribe narcotic medications (Schedules III to V) for the treatment of opioid addiction. This legislation created a major paradigm shift by allowing access to opiate treatment in a medical setting rather than limiting it to specialized drug treatment clinics.

Methadone: A synthetic narcotic commonly used in the treatment of narcotic addiction. Methadone is usually taken once per day and can almost completely block the euphoric effect of heroin. The downside of this pharmacotherapy drug is that individuals can become addicted to the Methadone.

Naltrexone: (Depade®, ReVia®) may also be useful in treating alcoholics. There is now an injectable long-acting form of naltrexone (Vivitrol®) available for treatment. The medication acts in the brain to reduce craving for alcohol after someone has stopped drinking.

Acamprosate: (Campral®) is now commonly used in the treatment of alcoholism. It is thought to work by reducing symptoms that follow lengthy abstinence, such as anxiety and insomnia.

Chantix: (varenicline) is used in conjunction with nicotine replacement therapy and behavioral counseling has been scientifically evaluated and shown to increase success among individuals seeking to cease smoking. According to Gonzales et al., varenicline

was significantly more effective than placebo for smoking cessation throughout the entire study and significantly more successful than bupropion SR at the end of twelve weeks of drug treatment and again at twenty-four weeks.

A once commonly used medication for treatment of alcoholism, disulfiram (Antabuse®), is infrequently used today. It does not block cravings but discourages drinking by causing a patient to feel sick after drinking alcohol.

Tennessee Department of Health Treatment Guidelines

The Tennessee Department of Health provides the following guidelines for outpatient management of chronic non-malignant pain.

Prior to initiating opiod therapy for chronic non-malignant pain it is important for dental health professionals so realize that:

- A patient having been prescribed opioids by a previous provider is not, in and of itself, a reason to continue opioids.
- Reasonable non-opioid treatments should be tried before opioids are initiated. Opioids should be initiated only after other reasonable, appropriate and available treatments for the pain condition have been considered.
- All newly pregnant women should have a urine drug test administered by the appropriate women's health provider.
- The provider should discuss a birth control plan to prevent unintended pregnancy with every woman of child-bearing age who has reproductive capacity when opioids are initiated.
- The patient's medical history, physical examination, laboratory tests, imaging results, electro-physiologic testing, and other elements supporting the plan of care, should be documented in the medical record prior to initiating opioid therapy.
- Chronic pain shall not be treated by the use of controlled substances through telemedicine (TN DOH, 2016)

Next, conduct an initial evaluation that includes:

- A specific evaluation and history of the patient's pain condition including the nature and intensity of the pain, past and current treatments for pain, any co-occurring disorders and the effect of the pain on the patient's life functioning
- Assess and take into consideration the presence of important co-morbid medical conditions when deciding whether to initiate opioids.
- Conduct a condition-appropriate physical examination of the patient and a systems review

- Consider any possible presence of co-occurring mental health disorders when deciding whether to initiate a trial of opioids. Screen for disorders such as depression, anxiety and current or past substance abuse and, if present, address them in the creation of a treatment plan (See Mental Health Appendix).
- Review of prior records directly related to the patient's chronic pain condition before prescribing opioids.
- Ask women of child-bearing age who have reproductive capacity if there is a possibility she could be pregnant (TN DOH, 2016).

After assessing the above criteria establish a diagnosis that justifies the need to prescribe opiods. Then assess the risk for abuse using the tool in the Risk Assessment Tools Appendix and obtain a Urine Drug Test and/or comparable test on oral fluids before initiating opiod therapy (TN DOH, 2016).

As outlined in the Tennessee Department of Health's Tennessee Chronic Pain Guidelines, *Clinical Practice Guidelines for Outpatient Management of Chronic Non-Malignant Pain*:

Key Principles When Considering Prescribing Opioids

1. National data suggests risk of overdose death starts at 40 MEDD in opioid naive patients with the greatest risk in the population is in the first two weeks of treatment. The risk of overdose for all patient populations increases tenfold at 100 MEDD. Tennessee data suggests the tenfold risk may start closer to 81MEDD.

2. When opioids are used for acute pain, clinicians should prescribe the lowest effective dose of immediate-release opioids and should prescribe no greater quantity than needed for the expected duration of pain severe enough to require opioids. Three days or less will often be sufficient; more than seven days in some instances is appropriate and shall be documented in the medical record.

3. When starting opioid therapy as a primary care provider for chronic pain, clinicians should generally prescribe immediate-release opioids instead of extended-release or long acting opioids. Some deviations are expected and the reason should be documented.

4. Any product containing buprenorphine, whether with or without naloxone, may only be prescribed for a use recognized by the federal food and drug administration. Unless there is a documented diagnosis of opiate addiction in medical record, the patient received treatment from a provider practicing under a 21 U.S.C. § 823(g)(2) and who is counted toward the total of number of patients set forth in that statute.

5. Benzodiazepines should be generally avoided in combination with chronic opioid therapy. When the opioid dose reaches 120mg MEDD and the benzodiazepines are being used for mental health purposes, the provider shall refer to a mental health professional to assess necessity of benzodiazepine medication. 6. Buprenorphine/naloxone combinations shall be avoided for the treatment of chronic pain. 7. Should treatment deviate from recommended guidelines, the reasons shall be documented in the medical record.

Upon Initiating Opioid Therapy

1. The initiation of opioids should be presented to the patient as a therapeutic trial.

2. When initiating opioid therapy, the lowest dose of opioids should be given to an opioid- naïve patient and then titrated to effect.

3. Informed consent for the use of opioids in treating pain must be obtained prior to initiating treatment. Informed consent documents typically cover: potential risks and anticipated benefits of opioid therapy, potential side effects, likelihood of physical dependence, risk of over-sedation, pregnancy, risk of impaired motor skills, risk of addiction and death. (See Sample Informed Consent Appendix)

4. A written treatment agreement should be used with the patient at the time opioids are first prescribed for chronic pain. Treatment agreements typically cover reasons, for which opioids may be discontinued, the practice policy on early refills, policy on lost prescriptions or medications, expectation for safe storage of medications, use of one pharmacy and expectations about periodic drug testing. The treatment agreement shall include an expectation that a female patient will tell the provider if she wishes to avoid unintended pregnancy and if she becomes pregnant. (See Sample Patient Agreement Appendix)

5. As these new guidelines are implemented, practitioners may provide a bridge of opioids for up to six months while the assessment process is carried out. During this time a patient may be continued on a trial of opioids without a fully completed assessment. No provider is obligated to continue opioid therapy that has been initiated by another provider. If the initial evaluation of the patient does not support the need for opioids, a discussion about risks and possible treatment of withdrawal shall be included in the documentation of clinical reasoning for opioid cessation.

6. Providers must continually monitor the patient for signs of abuse, misuse or diversion. An unannounced UDT (or a comparable oral fluids test) should be done twice a year at a minimum.

Women's Health

1. The provider should discuss a method to prevent unintended pregnancy with every woman of child-bearing age who has reproductive capacity before opioids are initiated.

2. The practitioner should obtain a signature indicating that any woman who wishes to become or is at risk to become pregnant has been educated about the risks and benefits of opioid treatment during her pregnancy.

3. Women of child-bearing age who have reproductive capacity shall undergo a pregnancy test prior to the initiation of opioids.

4. Women of child-bearing age who have reproductive capacity should be asked about the possibility of pregnancy at each visit. For women who wish to avoid unintended pregnancy, use of long acting reversible contraceptives should be discussed, or referral to appropriate high risk obstetrician made. (See Women of Child Bearing Age Appendix and Pregnant Women Appendix)

In the event of ongoing opiod therapy for chronic non-malignant pain prescribers should keep in mind:

- All chronic opioid therapy should be handled by a single provider or practice and all prescriptions should be filled in a single pharmacy, unless the provider is informed and agrees that the patient can go to another pharmacy for a specific reason.
- Opioids should be used at the lowest effective dose.
- A provider should not use more than one short-acting opiate concurrently. If a provider deems it necessary to do so then the medical reasons shall be clearly documented (TN DOH, 2016).

As outlined in the Tennessee Department of Health's Tennessee Chronic Pain Guidelines, *Clinical Practice Guidelines for Outpatient Management of Chronic Non-Malignant Pain* regarding ongoing therapy:

1. Patients on opioid doses of 120mg MEDD or greater should be referred to a pain specialist for a consultation and/or management. If a provider cannot make the required consultation as outlined above, then he/she shall clearly document why not.

2. Clinicians should review the patient's history of controlled substance prescriptions using the Controlled Substance Monitoring Database (CSMD) data to determine whether the patients receiving opioid dosages or potentially dangerous combinations

3. Providers must continually monitor the patient for signs of abuse, misuse or diversion. A UDT (or a comparable oral fluids screen or test) should be done twice a year at a

minimum. (See Urine Drug Testing Appendices)

4. Based on the combined information of patient behavior, collateral information, the CSMD results, the UDT (or Oral Fluids Test) results and past records, an ongoing risk assessment should be made about a patient's risk of misuse, abuse or diversion of medications. The prescribing of opioids, if medically indicated, shall take this risk assessment information into account on an ongoing basis. Adjustments to the patient's treatment should occur in a timely manner based on this information. Inconsistent results from the treatment plan should be addressed immediately and documented action taken as appropriate.

5. Emergency department physicians should keep the specialist and the primary care provider informed about changes in a patient's condition and any emergent incidents or conditions.

6. Opioids are to be discontinued when the risks, side effects, lack of efficacy or presence of medication or aberrant behavior outweigh the benefits. Opioids sometimes have to be discontinued due to financial or third-party coverage issues. A taper of opioids may or may not be indicated, depending on the clinical situation. (see Tapering Protocol Appendix)

7. Appropriate documentation of CSMD query should be included in the medical record. (see CSMD Appendix)

8. Clinicians should offer or arrange evidence based treatment for patients with substance use disorder. Referral to an Addiction Specialist may be appropriate in some cases.

Women's Health

1. The provider should discuss a method to prevent unintended pregnancy with every woman of child-bearing age who has reproductive capacity when opioids are initiated. (See Women of Child Bearing Age Appendix and Pregnant Women Appendix)

2. The provider shall advise every woman of child-bearing potential on opioids that she be on a method to prevent unintended pregnancy specifically considering long acting contraceptive methods.

3. The treatment agreement shall include an expectation that a female patient will tell the provider if she becomes pregnant or plans to become pregnant.

4. If she plans to become or becomes pregnant she shall be referred to an obstetrician.

5. When a UDT is performed, results must be documented in the medical record.

Identification of the Abusing Patient

Understanding the general nature of chemical abuse, dependency, and addiction is critical for any oral health team member. Dental professionals are responsible for recognizing drug-abusing behavior and clinical manifestations of substance abuse and dependency. Every member of the oral health team needs to understand how a patient's substance use or abuse impacts dental care.

There are many implications for oral health professionals in identifying and managing the client who is abusing illegal substances. Management issues include identification of potential drug interactions, consideration of to offer cessation information to receptive patients, and dealing with the possible erratic behavior of a patient currently under the influence of drugs or who presents a pattern of drug seeking behavior during dental treatment.

Screening Methods

Screening for substance abuse is typically a brief verbal interaction that brings focus to the potential harm substance use brings to the quality of dental care. The dental professional will mostly likely rely on observation of behavior, physical findings, and verbal or written tests to aid in identification of substance abusers.

Written Assessments

There are a number of written questionnaires available to determine substance abuse and use. The Drug Abuse Screening Test or DAST is a twenty-question self- test that does not include alcohol, but is otherwise comprehensive in its questions. Studies show that DAST is perhaps the most widely used questionnaire relating to screening for substance abuse. Tests that deal specifically with alcohol abuse include the CAGE Questionnaire and the Michigan Alcohol Screening Test or MAST. CAGE consists of four questions, if two are answered positively, the individual taking the test is said to have issues with alcohol abuse. MAST is a more comprehensive test consisting of twenty-two questions designed to provide a rapid and effective screening for lifetime alcohol-related problems and alcoholism. Examples of these tests can be found at http://counsellingresource.com.

NIDA suggest the following screening questions to be used with adolescent patients:

1. Have you ever ridden in a car driven by someone (including yourself) who had been using alcohol or drugs?
2. Do you ever use alcohol or drugs to relax, feel better about yourself, or fit in?
3. Do you ever use alcohol or drugs when you are alone?
4. Do you ever forget things you did while using alcohol or drugs?

5. Does your family or friends ever tell you to cut down on your drinking or drug use?
6. Have you ever gotten into trouble while you were using alcohol or drugs?

These written screening tools are not generally used in the private dental practice settings.

Health History

Questions regarding current or previous drug and alcohol use (legal or illicit) should be included in the dental health history questionnaire. The American Dental Association is a good resource for such form.19 It is important to reassure patients that honest responses are both kept confidential and are necessary to in order to provide the best oral health care possible, particularly when the patients is reluctant to respond. When patients sign HIPAA documents upon arrival, it may be beneficial for the office manager or receptionist to reiterate this to the patient as well.

Examples of questions that can be included in a dental health questionnaire:

1. Please list all prescription and nonprescription drugs/medications you are currently taking.
2. Have you taken any prescription or nonprescription drugs/medications within the past 48 hours?
3. Do you consume alcoholic beverages?
    a. Type?
    b. Frequency?
4. Do you use tobacco products?
    a. Type?
    b. Frequency?
    c. Are you interested in quitting?
5. Are you currently undergoing treatment for alcohol or drug addiction?
6. Have you ever been treated for alcohol and/or drug addiction?

Verbal questioning should be handled in a private, non-threatening environment to ensure patient confidentiality. An empathic and nonjudgmental style is critical to gathering accurate information regarding drug and alcohol use. The dental professional should convey confidence in the patient's ability to be responsible for their drug and alcohol use. Reinforce your willingness to help and monitor alcohol, tobacco, and drug use at future visits.

Physical Assessment

Certain drug and alcohol-related behaviors may help identify the substance-abusing patient. Alcohol and most other drugs produce intraoral signs and symptoms. Even though a patient may show one or more of the symptoms mentioned below, it does not necessarily mean that he or she is using drugs. Some of these symptoms could be the product of stress, depression, or a host of other issues. As a healthcare professional you must remain open minded.

Signs and Symptoms of Substance Abuse

Behavioral: Changes in work habits such as absenteeism, tardiness, inattention to detail, mood swings, decline in personal hygiene, social isolation, and apathy may appear.

Cognitive and Psychomotor Function: Inability to recall information, slurred speech, uncoordinated body movement, changes in handwriting and instrumentation* (*impaired professional).

Physiological Changes: The particular physiological changes associated with drug use and dependence varies depending on the type of drug. Because of the extensive research, please refer back to the section on Classification and Characteristics of Psychoactive Substances for specific details.

Table 11 is a modified version of The National Institute on Alcohol Abuse and Alcoholism's screening and intervention procedures.

Table 11: Screening and Intervention	
ASK about drug and alcohol use	Use the health history and verbally inquire about drug and alcohol use. CAGE or other screening inventories may be used.
ASSESS for drug and alcohol related problems	Determine whether there is a maladaptive pattern of alcohol use, causing clinically significant impairment or distress. Note any behavioral or clinical manifestations of substance abuse such as premalignant oral lesions or unexpected drug interactions.
ADVISE and **ASSIST**	State your conclusion and recommendation clearly: "You are drinking more than is medically safe." Relate to patient's concerns and medical findings. "I am concerned that that the sore you brought to my attention may be related to your smoking and alcohol intake; we will refer you for a biopsy. I strongly recommend that you quit.") **Gauge readiness** to change abuse status "Are you willing to consider making changes in your drinking and or smoking?"
At Follow-up: **Continue Support**	Provide ongoing support for the patient. Monitor efforts to cut down or abstain. Reinforce positive behavior.

Implications for Dental Treatment

Healthcare providers must be educated to recognize the signs and symptoms of substance abuse. Patients are rarely completely honest about drug and alcohol use and abuse. When treating patients who are either recovering from substance abuse, or are currently abusing, it may be necessary to modify treatment. Keep in mind that patients, who have been through treatment and are in recovery, may be apprehensive about spending time in an environment that may lead to relapse. Consultation with the patient's physician or primary care provider is advised.

The most common drug interactions in dentistry involve tobacco and/or alcohol. While tobacco and nicotine affect oral health more directly, alcohol use puts a patient at higher risk for complications when used in conjunction with common prescription medications. Of the twenty most prescribed drugs, over 50% have at least one ingredient that will negatively react with alcohol.

Alcohol: As a dentist, you must approach patients who abuse alcohol but do not suffer from alcoholic liver disease (ALD) very differently when considering dental treatment

modifications. Patients who suffer from anxiety or fear of dental treatment commonly self-medicate with alcohol to decrease the anxiety prior to their appointment. The oral health team member's role is to discourage this practice by explaining how we are prepared to decrease anxiety through safer techniques such as use of behavior modification and/or pharmacotherapy.

The patient with ALD presents challenges during dental treatment. Elective dental treatment is not recommended for patients who suffer from acute ALD and who are not receiving medical treatment. Patients with from ALD have three major dental treatment issues:

1. Bleeding tendency
2. Unpredictable metabolism of certain drugs
3. The risk of the spread of infection

Bleeding Tendencies: Since the liver is a primary source for agents involved in clotting, ALD patients should have a complete blood count with differential, AST and ALT, prothrombin time and platelet count checked prior to treatment. If treatment will involve excessive bleeding, local hemostatic agents should be used, and treatment avoided if an acute drinking episode has occurred within the last four to five days.

Unpredictable Metabolism: Increased amount of local anesthetic agents and sedatives may be necessary to achieve desired effects based on each individual's metabolic reaction to certain medications. Acetaminophen should be used with caution in both the ALD patient and patients who consume alcohol when fasting. It is important to keep in mind that ALD patients who present with increased lab results related to liver function, ascites, encephalopathy, and/or malnutrition, drug metabolism will most likely be impaired.1

Alcohol acts to decrease or increase the effect of prescribed and non-prescribed drugs. Individuals who are abusing alcohol and have issues with gastric bleeding and other hemostatic problems should avoid aspirin and non-steroidal anti-inflammatory drugs (NSAIDS).

Metronidazole, commonly used to treat periodontitis, can cause a profound reaction if used in combination with alcohol (similar to an alcohol/disufulram reaction). The combination of opioids (e.g. hydrocodone, oxycodone) and alcohol enhances the sedative effect of both and increases the risk of overdose.

Risk of spread of infection: ALD patients may require use of prophylactic antibiotics if a chronic infection is present prior to treatment. While policy does not require use, ALD patients often present with diminished immune response. Coupled with ongoing infection, use of antibiotics should be taken into account on an individual patient basis.

Cocaine and Methamphetamine: A patient under the influence of cocaine, methamphetamine, or other stimulant, should not receive treatment if the patient reports using the drug in the previous 24 hours. Vasoconstrictor drug interactions involving tricyclic antidepressants, nonselective beta-adrenergic blocking drugs, certain general anesthetics, and cocaine are known to have the potential to cause serious morbidity or death. (Bolton 2019) Careful administration of small doses of vasoconstrictors and avoidance of gingival retraction cord containing epinephrine, coupled with the monitoring of a patient's vital signs, should permit vasoconstrictors to be used with little or no risk. Only in the case of cocaine intoxication must adrenergic vasoconstrictors be avoided completely.

Table 12: Intraoral Findings

Drug	Intraoral Manifestations
Alcohol Abuse and Alcoholism	• Oral cancer • Leukoplakia and other premalignant conditions • Oral mucosal changes • Inflammation of one or both parotid glands • Oral ulceration • Glossitis • Angular cheilitis • Candidiasis • Glossodynia • Prolonged bleeding • Facial tics • Oral and facial • High dental caries rate • Dental erosion • Bruxism • Increased calculus deposits • Halitosis (fruity acetone breath) • Delayed wound healing and unpredictable treatment response • Reduced tolerance to pain
Stimulants	• Xerostomia • Clenching, grinding bruxism
Methamphetamine	• Xerostomia • Clenching, grinding bruxism • Extensive and severe dental caries • Tooth loss

Cocaine, crack cocaine	• Xerostomia • Dental caries • Tooth loss • Localized attachment loss (cocaine testing-rubbing on gingival to test potency)
Heroin	• Dental erosion associated with frequent vomiting
Long term opiate or opioid use	• Xerostomia • Clenching, grinding bruxism
Marijuana	• Stains often greenish gold in appearance, xerostomia, halitosis. • Increased caries due to increased appetite and consumption of highly cariogenic foods commonly referred to as the “munchies”.
MDMA (Ecstasy)	• Clenching, grinding bruxism • Xerostomia
Tobacco	• Oral cancer and pre-cancerous lesions • Leading risk factor for tooth loss • Periodontitis • Delayed wound healing • Poorer prognosis following surgical and non- surgical treatment • Implant failure • Abrasion (spit tobacco use) • Increased supra and subgingival calculus deposits • Inhalants • Sores around mouth or nose • Stains from paint, colored markers, etc., around mouth and nose

Methamphetamine: Methamphetamine induced caries is a recent topic of concern among dental professionals. The cause, while under extensive investigation, is not understood. Factors that may attribute to the unique caries pattern include xerostomia, increased sugar intake, and increased ingestion of sodas flavored with citric acid. The use of methamphetamines may result in a chelation reaction that cleaves enamel from dentin, causes severe bruxism, leads to poor oral hygiene, or the patient avoiding dental treatment due to fear of being identified. To date, no studies have been conducted that considered baseline dental caries, decalcification, or dental plaque scores, therefore

baseline dental status is unknown.

Figure 1: Common Caries found in a regular patient.

Figure 2: Caries found in a Meth abusing patient.

Additional Considerations

Alcohol and tobacco are known risk factors for head and neck cancers, including oral cancer. A comprehensive extra and intraoral exam should be included in any patients treatment who is a known alcohol or tobacco user.

Non-alcohol containing rinses and topical agents should be used as a part of daily home care regimens for patients who are chemically dependent. For recovering alcoholics this is an important consideration in the discussion of home mouth rinses.

Anxiety and pain control methods should be carefully considered and discussed with any patient's primary care physician or substance abuse therapist before administration, in cases of known substance abuse or chemical dependency. An open dialog between the recovering patient and the dental practitioner is useful when dealing with an anxious dental patient.

In situations where narcotics prescriptions are necessary for dental treatment or recovery, the number of doses should be limited. Acetaminophen should be limited during chronic and acute episodes of alcohol intake or for any patient over an extended time period. The risk of hepatotoxicity is always present in chronic alcohol users.

Members of the oral health team should be educated about chemical dependency and drug seeking behavior. In many cases, those who are chemically dependent may falsely claim to experience dental pain in an effort to get a prescription for a narcotic. You should be wary of a patient claiming an allergy to a weaker pain reliever, requesting specific drugs, or asking for more than a normal amount of drug to be prescribed. Additionally it is important to keep prescription forms away from areas where patients have access to them. Also, never pre-sign prescription forms. Drugs should be stocked in a locked cabinet away from treatment areas and only in quantities that are sufficient for immediate use. Disposal of unused drugs and spent carpules and needles should be handled according to OSHA guidelines for "sharps". Drug users often search trash

receptacles outside medical and dental offices looking for drugs or drug paraphernalia.

Patients who abuse alcohol and drugs often do not attend scheduled dental appointments and neglect to pay for services. This can cause emotional and financial strain on any dental practice.

Health care professionals have a responsibility to ensure the safety of their patients while in the office, and those who may be affected by their patient's behavior. Legal responsibility in reporting drug or alcohol abuse is uncertain at best. Patient confidentiality laws prevent the health care provider from reporting substance abuse problems, which may become a larger issue if the abuse problem causes an immediate threat to public safety (e.g., airline pilot, health professional). When in doubt, contact your state dental association and legal counsel regarding your obligations under state and federal laws.

Impaired Oral Health Team Members

Dentists and dental auxiliaries are not immune from alcoholism and other drug dependencies. In fact, in the dental community the danger of developing chemical dependency may be greater because of stress from the work environment, accessibility to drugs, and the desire of staff to protect their employers, employees, or co-workers.

Precipitating factors include:

- Genetics
- Family of origin issues
- Substance abuse prior to dental education
- High levels of stress: dental and dental hygiene education
- Dental practice
- Isolated practice settings
- Perceived limitations of reward in providing care to others
- Economic factors
- Access and availability of substances
- Unrealistic expectations of performance by self and others
- Belief in medication as a solution to problems
- Demand for quick results
- Focus on the needs of others

Abuse problems by dental personnel impairs professional competency, ability and judgment. An alcohol or drug problem left untreated may not only cause a dental professional to risk their professional career, but more importantly, endanger the life of a patient. Clues that you may be working with an impaired person are similar to those you may find in a drug seeking or chemically dependent patient. Avenues of communication

need to be open so you can help your colleagues if they are in need.

A few issues to keep in mind include your responsibility for your DEA number and privileges. To prevent employees from obtaining unauthorized prescriptions for hydrocodone and other medications, dental professionals should write and/or call in all narcotic prescriptions and monitor personal prescription activity through the DEA.

Prevent Nitrous Oxide Abuse

In an effort to avoid abuse of nitrous oxide dental professionals should:

1. Monitor purchase frequency and amount
2. Be aware of dentist or staff members in the office after hours, and
3. Confine tanks to an area that can be secured and limit number of personnel who have keys.

Conclusion

Quality dental care, prevention of complications, and helping patients avoid relapse should be the primary goals in the treatment of chemically dependent individuals. It is estimated that 1:5 male patients in a dental practice abuse alcohol. Additionally approximately 1:16 female patients have a substance abuse problem. With alarming rates of increase in non-medical use of prescription drugs, the dental professional's role in identifying and treating chemically dependent patients is important. Familiarity with the signs and symptoms of substance abuse and addiction are important clinical skills. Your role includes identification of substance abuse and dependency, education of the patient regarding risks related to substance abuse, and making necessary modifications in dental treatment to prevent harm or relapse.

Actions you can take include:

- Review your office health questionnaire and make sure it includes questions regarding current and previous drug and alcohol use.
- Ask other dental professionals about ways in which they screen patients for substance abuse.
- Discuss potential drug and alcohol interactions with your patients.
- Offer your patients alternatives for pain and anxiety control.
- Make printed information about substance abuse prevention available in your practice.
- If you educate oral health team members, include courses on chemical dependency in your curriculum.
- Find out what community substance abuse resources are available for information and treatment referral.

- Screen patients for signs of substance abuse and educate patients as to the potential risks of the use and abuse of alcohol, tobacco and drugs.
- Be aware of the connection between alcohol and /or drug abuse and infectious diseases (Hepatitis, tuberculosis, HIV).
- Examine your own health behavior, and do not engage in activity that is illegal or unhealthy.
- Become involved in a peer-assistance program.

A commitment to understanding the nature of addiction, providing a supportive climate, and active participation in efforts to reduce the destructive effect of substance abuse is the obligation of every dental professional.

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www.Street Drugs.org (2006). Street Drugs, A Drug Identification Guide, Publishers Group, LLC, Plymouth, MN. ISBN 0-942677-02-1. sdinfo@streetdrugs.org (763) 473-0646. http://www.drugs.com/search.php?searchterm=Adderall&is_main_search=1 Accessed November, 2021.

Williams NJ and Covington JS (2019). Methamphetamine and meth mouth. *J of the TN Dent Assoc*. Fall Issue: 32-35.

Yagiela JA. (May1999). Adverse drug interactions in dental practice: interactions associated with vasoconstrictors. Part V of a series. *JADA*. 130 (5): 701-9.

Course Test: Substance Abuse and Chemical Dependency

1. According to this text, approximately how many male dental patients abuse alcohol?

    a. 1:5
    b. 1:20
    c. 1:50
    d. 1:100

2. Drug and or alcohol abuse can be defined as:

    a. The use of any drug that deviates from approved medical or social patterns
    b. Physical or psychological reliance on an exogenous substance
    c. Chronic, progressive and compulsive use of a substance
    d. All of the above

3. Considering a patient who has alcoholic liver disease (ALD) the dentist should:

    a. Expect prolonged bleeding times
    b. Expect delayed wound healing
    c. Consult the patient's physician prior to invasive treatment
    d. All of the above

4. According to the 2015 NSDUH: The illicit drug use estimate for 2015 continues to be driven primarily by marijuana use and the misuse of prescription pain relievers.

    a. True
    b. False

5. Extraoral signs of inhalant abuse include:

    a. stained teeth
    b. sores or burns around mouth and/or nose
    c. paint stains around mouth and/or nose
    d. B and C

6. The brain's reward system only responds to exogenous stimuli.

    a. True
    b. False

7. Intraoral signs of methamphetamine use include:

    a. Severe and extensive carious lesions
    b. Xerstomia
    c. Dental attrition
    d. All of the above

8. Drugs which depress nervous system activity, include:

    a. Alcohol, codeine, nicotine and methamphetamine
    b. Nitrous Oxide, alcohol and crack cocaine
    c. Adderall, PCP and LSD
    d. Benzodiazepines, barbiturates and alcohol

9. A narcotic abuser in withdrawal (within 24 hours to 10 days after their last drug use) is likely to exhibit which of the following signs and symptoms:

    a. Drug seeking behavior
    b. Runny nose, abdominal cramps, and weight loss
    c. Increased attention to detail
    d. A and B

10. The recent increase in inhalant use may be attributed to:

    a. Availability in the home
    b. Readily available information related to use such as Internet resources
    c. Obscure signs and symptoms
    d. All of the above

11. If you suspect your patient is under the influence of cocaine or methamphetamine, you should:

    a. Alert police
    b. Refuse to treat the patient
    c. Defer care for at least 24 hours after patient reports last use of drug
    d. None of the above

12. The most widely used stimulant is:

    a. Nicotine
    b. Amphetamines
    c. Cocaine
    d. Caffeine

13. Individuals abuse hallucinogens because:

    a. They often desire to repeat the experience
    b. They experience physical need for the drug
    c. They are readily available and inexpensive
    d. They cannot be detected in the system after 24 hours

14. The oral health team member's greatest challenge is to motivate the patient in the stage of pre-contemplation into the next stage of change.

    a. True
    b. False

15. Intraoral signs/symptoms of marijuana use include(s):

    a. Goldish green staining of teeth
    b. Benign migratory glossitis (geographic tongue)
    c. Halitosis
    d. A and C

16. Screening for drug and alcohol problems:

    a. Is not appropriate in the dental office
    b. Is completed only at the request of the patient
    c. Should be conducted during routine dental visits
    d. None of the above

17. If chemically dependent/addicted patients are not ready to change their behavior you should:

    a. Call the police immediately and have the patient arrested.
    b. Restate your concern for their health and modify dental treatment accordingly.
    c. Dismiss the patient from your practice.
    d. Arrange for a psychiatrist to visit during the dental exam.

18. The use of local anesthetics is contraindicated when treating:

    a. Individuals under the influence of cocaine
    b. Recovering alcoholics
    c. Former marijuana users
    d. None of the above

19. You should modify dental treatment for patients recovering from chemical dependency by doing all of the following except:

    a. Consult with patient's substance abuse counselor regarding pain control
    b. Use non-alcohol containing mouth rinse
    c. Criticize the patient about former drug abuse and addiction
    d. Discuss potential drug interactions or pain control methods

20. Primary goals for the dental practitioner when treating chemically dependent patients are:

    a. Diagnosis of chemical dependency and coordinating treatment
    b. Diagnosis of chemical dependency and distribution of clean needles
    c. Providing quality dental care, preventing complications, and helping patients avoid relapse
    d. A and C.

21. Included in the nine steps for prescribing controlled substances are:
    a. Start with a diagnosis supported by history and physical findings.
    b. Make sure you are not dealing with a drug seeking patient.
    c. Obtain informed consent from a patient before prescribing a drug known to cause dependency problems.
    d. A and C.
    e. All of the above.

22. In 2015 TN had the second highest per capita prescription rate for opioids in the US.
    a. True.
    b. False.

23. Providers must continually monitor the patient for signs of abuse, misuse or diversion. A UDT (or a comparable oral fluids screen or test) should be done twice a year at a minimum.
    a. True.
    b. False.

24. Key principles prior to initiating opioid therapy include:
    a. Chronic pain can be treated by the use of controlled substances through telemedicine.

b. The provider does not need to discuss birth control plans to prevent unintended pregnancy with women of child bearing age who are prescribed opioids.
c. Reasonable non-opioid treatments should be tried before opioids are initiated.
d. A patient who has been prescribed opioids by a previous provider should always continue opioid treatment.

25. Benzodiazepines should be generally avoided in combination with chronic opioid therapy.
    a. True.
    b. False.

Appendix A: Glossary

Abuse, substance - The use of illegal drugs or the inappropriate use of legal drugs. The repeated use of drugs to produce pleasure, to alleviate stress, or to alter or avoid reality (or all three).

Addiction - is a complex brain disease. It is characterized by compulsive, at times uncontrollable, drug craving, seeking, and use that persist even in the face of extremely negative consequences. Drug seeking becomes compulsive, in large part as a result of the effects of prolonged drug use on brain functioning and on behavior. For many people, drug addiction becomes chronic, with relapses possible even after long periods of abstinence.

Agonist - Any chemical that binds to a receptor and elicits a pharmacologic response.

Adrenergic vasoconstrictors - This type of medicine has similar effects to adrenaline and makes blood vessels narrower. Because of the affect they have on the patient, they are commonly used by dentists to enhance the pain-relieving action of local anesthetics and to control local bleeding. Although normally considered safe for these applications, vasoconstrictors can participate in drug interactions that potentially are harmful to patients.

Antagonist - A chemical that competes for receptor binding sites with agonists.

Antitussive - Cough suppressing.

Binge drinking - defined as consuming more than five drinks or more on one occasion on one day within the past 30 days.

Current Use (alcohol) - At least one drink in the past month (includes binge and heavy use).

Dependence - the continued use and abuse of mood altering substances despite repeated adverse consequences to self and others. The illness is determined by genetic, physiological, biochemical and emotional vulnerability.

Drink - 12-ounce beer or wine cooler or 5 ounce glass of wine or 1.5 ounces of distilled liquor.

Endogenous - created within the body.

Exogenous - created outside the body.

Illicit - Illegal

Methadone - A synthetic narcotic used as a substitute for the narcotic analgesic drugs. Prevents withdrawal symptoms without providing euphoric effects and can almost completely block the effects of heroin.

Moderate drinking - defined as two drinks per day for males and one drink per day for females.

Myelin - Fatty tissue surrounding nerves.

Neurons – A neuron is an electrically excitable cell that processes and transmits information by electrochemical signaling, via connections with other cells called synapses. It is a fundamental component of the nervous system.

Neurotransmission – Neurotransmission is also called synaptic transmission, and it is an electrical movement within synapses caused by a propagation of nerve impulses. It is the message transfer from the axon of one nerve cell to the dendrite of another nerve cell.

Neurotransmitters - are a chemical messenger of neurologic information that is released from a nerve cell, which thereby transmits an impulse from a nerve cell to another nerve, muscle, organ, or other tissue. Next, neurotransmitters diffuse across the synaptic cleft to bind with specific receptors on the dendrite of the 'message receiving' neuron.

Psychoactive – A psychoactive drug, psycho-pharmaceutical or psychotropic is a chemical substance that acts primarily upon the central nervous system where it alters brain function, resulting in changes in perception, mood, consciousness and behavior.

Relapse - Recurrence of alcohol or drug-dependent behavior in an individual who has previously achieved and maintained abstinence for a significant time beyond the period of detoxification.

Tolerance - Physiological adaptation to the effects of the drugs, so as to diminish effects with constant dosages or to maintain the intensity and duration of the effects through increased dosage.

Treatment - Application of planned procedures to identify and change patterns of behavior that are maladaptive, destructive, or health injuring; or to restore appropriate levels of physical, psychological or social functioning.

Withdrawal - Cessation of drug or alcohol use by an individual in who dependence is established. Withdrawal Syndrome is the onset of a predictable constellation of signs and symptoms involving altered activity of the central nervous system after the abrupt discontinuation of, or rapid decrease in dosage of a drug.

Appendix B: Common Slang Terms

Alcohol - Booze, sauce, juice, grog, piss

Amphetamine - Ups, Pep pills, Co-pilots, Bumblebees, Hearts, Footballs, uppers, bennies, black beauty, speed, crank, candy, white cross

Barbiturate - Downers, Blue Devils, barbs, M&M, red devil, sleeper, yellow jacket, goof balls, peanuts

Benzodiazepine - Downer, lib tranq, V

Booty bumping - Insertion of methamphetamine into the rectum prior to anal intercourse

Club Drugs - X, Adam, MDMA, G, Georgia Homeboy, Chalk, 8-ball, H-bomb, 007's,

Cocaine - Blow, girl, lady, sniff, snort, snow, toot, flake, blast, dream, nose candy, cola

Codeine - School boy, Co-dine

Dextromethorphan - DMX, Skittling, Robo, Robo tripping, slang robe, K, boomers, Disneyland.

Fentanyl - By prescription: Actiq, Duragesic, and Sublimaze. Street names: Apache, China girl, China white, dance fever, friend, goodfellas, jackpot, murder 8, TNT, Tango and Cash, great bear.

Heroin and Cocaine - Speedball, bombita

Heroin - Mud, Brown sugar, Big H, Black tar, Harry, junk, crap, flea powder, H, smack, white horse, chiva,

Hydrocodone and muscle relaxer, Soma: Hillbilly heroin

Inhalant - sniff, whiteout, snappers, air blast, bagging, huffing

Amyl and Isobutyl Nitrite - Poppers, rush, snappers

LSD - Acid, tab, trip, purple haze, blaze

Marijuana laced with Opium - Thai Sticks

Marijuana - Reefer, Grass, Dope, Ganja, Mary Jane, pot, Colombian, herb, joint, stick, broccoli, weed, chronic, whackyweed, blunt, Buddha,

Mescaline - Peyote, chif, cactus

Methadone - Dollies, munk, jungle juice
Methamphetamine - Crystal meth, speed, crank

Methaqualone - Quaaludes, ludes, Valium

Morphine - M, cube, morf, mu

Narcotics - Hard stuff

Nitrous Oxide - Whippets, oz, laughing gas, buzz bombs, tanks

PCP - Angel dust, hog, wack, lovely, Peace pill, Zoom, Purple rain, gorilla pills

Rohypnol - Date Rape Drug, roofies, rophies, ruffies, R2, robe

Smokable Cocaine - Crack, freebase, eggs

Smokable Methamphetamine - Ice

Tobacco - Butt, chew, weed, cig, chaw, smoke 69's, E.

Appendix C: Online Resources

Tennessee Department of Health, Board of Dentistry
Tennessee Chronic Pain Guidelines: Clinical Practice Guidelines for Outpatient Management of Chronic Non-Management Pain January 2017
file:///C:/Users/Alysa/AppData/Local/Temp/ChronicPainGuidelines.pdf

Club Drugs
This NIDA site provides detailed descriptions and educational materials related to substances classified as “club drugs”. http://www.clubdrugs.org

RXLIST
This site lists the top 300 prescription drugs currently on the market and provides links to specific information about each one. http://www.rxlist.com

Controlling Exposures to Nitrous Oxide during Anesthetic Administration
http://www.cdc.gov/niosh/noxidalr.html

The Substance Abuse and Mental Health Services Administration (SAMHSA)
http://www.samhsa.gov/

Substance Abuse and Mental Health Data Archive
A searchable database for information related to substance abuse.
http://www.icpsr.umich.edu/SAMHDA/

National Clearinghouse for Alcohol and Drug Information (NCADI)
NCADI is the world's largest resource for current information and materials concerning substance abuse. http://www.health.org/

The National Institute on Alcohol Abuse and Alcoholism
http://www.niaaa.nih.gov/

Drug Enforcement Administration
http://www.usdoj.gov/dea/index.htm

Food and Drug Administration
http://www.fda.gov/default.htm

National Institute on Drug Abuse
http://www.nida.nih.gov

American Society of Addiction Medicine
"The nation's medical specialty society dedicated to educating physicians and improving the treatment of individuals suffering from alcoholism or other addictions." http://www.asam.org/

The National Center on Addiction and Substance Abuse at Columbia University
A unique think/action tank that brings together under one roof all of the professional disciplines (health policy, medicine and nursing, communications, economics, sociology and anthropology, law and law enforcement, business, religion and education) needed to study and combat all forms of substance abuse. http://www.casacolumbia.org/

Join Together Online
National resource center and meeting place for communities working to reduce substance abuse (illicit drugs, excessive alcohol & tobacco) and gun violence. http://www.jointogether.org

The Web of Addictions
Dedicated to providing accurate information about alcohol and drug addiction. http://www.well.com/user/woa/

Erowid.org
http://www.erowid.org/ is an online library containing extensive information relating to psychoactive drugs, plants, and chemicals; including entheogens, psychedelics, etc.

U.S. Department of Labor
The State Alcohol and Drug Abuse Agency Directory contains contact information for all State Alcohol and Drug Abuse Agencies, and provides a link to the Agency's Web site, if one exists. It is provided via the Center for Substance Abuse Treatment's (CSAT) Treatment Improvement Exchange (TIE) Web site.
http://www.dol.gov/asp/programs/drugs/nationalresources/NationalResource-1593.htm

Street Drugs.org
http://www.streetdrugs.org/

National Clearinghouse on Alcohol and Drug Information
NIDA Research Reports. http://ncadi.samhsa.gov/

Drugs.com
This site provides a dictionary of prescription drugs along with a pill identifier program. http://www.drugs.com/

Nitrous Oxide Safety
http://www.cdc.gov/niosh/topics/nitrousoxide/
http://www.osha.gov/SLTC/healthguidelines/nitrousoxide/recognition.html

Appendix D: Treatment and Informational Related Resources

American Dental Association

Linda Kittelson Keating, MS, RN, CSADC Manager,
Dentist Health and Wellness Council on Dental Practice
American Dental Association
Phone: 312-440-2622 ext. 2622
Fax: 312-440-2924
keatingl@ada.org

American Dental Hygienists' Association

444 North Michigan Avenue, Suite 3400
Chicago, Illinois 60611
http://www.adha.org/

Adult Children of Alcoholics (ACA/Ace)

P.O. Box 3216
Torrance, CA 90510
Phone: 562-595-7831
www.adultchildren.org

Al-Anon / Alateen

Family Group Headquarters, Inc.
1600 Corporate Landing Parkway
Virginia Beach, VA 23454-5617
Phone: (757) 563-1600
For meeting information in Canada, the US, and Puerto Rico call 1-888-4AL-ANON (1-888-425-2666) Monday through Friday, 8:00am to 6:00pm ET.

Alcoholics Anonymous (A.A.)

P.O. Box 459,
New York, NY 10163
Phone: (212) 870-3400
http://www.alcoholics-anonymous.org/

U.S. Department of Justice Drug Enforcement Agency

Office of Diversion Control
Attn: Liaison and Policy Section
8701 Morrissette Drive
Springfield, VA 22152

Phone: 1-800-882-9539
Guidelines for a Drug-Free Workforce 4th Edition Summer 2003
http://www.usdoj.gov/dea/demand/dfmanual/index.html

Center for Substance Abuse Treatment
National Drug and Alcohol Treatment Referral Service
(800) 662-HELP (4357) (English and Español)
(800) 487-4889 (TDD)

Hazelden Educational Materials
PO Box 11
Center City, MN 55012-0011
Phone: 1-800-257-7810 or 651-213-4200
http://www.hazelden.org/

Monitoring the Future Survey
Provides the most current information on alcohol, drug use and other behaviors by high school students.
The Regents of the University of Michigan
Ann Arbor, MI 48109
http://www.monitoringthefuture.org/pubs/monographs/overview2006.pdf

National Inhalant Prevention Coalition
322 - A Thompson Street
Chattanooga, TN 37405
Phone: 800.269.4237 or 423.265.4662
E-mail: nipc@io.com or
Internet: http://www.inhalants.org/

National Alcohol and Substance Abuse Information Center
US Department of Health and Human Services
drug and alcohol abuse website and hotline.
Open 24 hours a day, seven days a week.
Phone: (800) 729-6686 OR TDD: (800) 487-4889

Narcotics Anonymous World Services, Inc.
Main Office
PO Box 9999
Van Nuys, California 91409 USA
Telephone (818) 773-9999 / Fax (818) 700-0700

Narconon International
4652 Hollywood Boulevard
Hollywood, CA 90027
Phone: 323-962-2404
Email: info@narconon.org

Mothers Against Drunk Driving (MADD)
MADD National Office
511 E. John Carpenter Frwy. Suite 700
Irving, TX 75062
800-GET-MADD (438-6233)
Victim Services 24-Hour Helpline 877-MADD-HELP (877-623-3435)

Appendix E: American Psychiatric Assoc. Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR)

Three or more of these criteria within the same 12-month period defines dependence:

1. Substance often taken in larger amounts or over a longer period of time than was intended.
2. Persistent desire or unsuccessful efforts to cut down or control substance use.
3. A great deal of time spent in activities necessary to get the substance, use the substance, or recover from its effects.
4. Frequent intoxication or withdrawal symptoms when expected to fulfill major role obligations at work, school, or home.
5. Important social, occupational, or recreational activities given up or reduced because of substance abuse.
6. Continued substance use despite knowledge of having a persistent or recurrent psychological or physical problem that is likely caused or exacerbated by the use of the substance.
7. Tolerance, as defined by either:
   a. Marked tolerance (need for markedly increased amounts of the substance).
   b. Markedly diminished effect with continued use of the same amount of the substance.
8. Withdrawal, as manifested by either of the following:
   a. Characteristic withdrawal symptoms.
   b. Substance often taken to relieve or avoid withdrawal symptoms.

Substance abuse is defined as (where the criteria for dependence have not been met) meeting one or more of the following criteria:

9. Continued use despite knowledge of having persistent or recurrent social problems caused by or exacerbated by the effects of the substance.
10. Recurrent substance use in situations in which use is physically hazardous.
11. Recurrent, substance-related legal problems.
12. Recurrent substance use resulting in a failure to fulfill major role obligations at work, school, or home.

Appendix F: Schedules of Controlled Substances

The Controlled Substances Act (CSA), Title II of the Comprehensive Drug Abuse Prevention and Control Act of 1970, provides the legal foundation for regulation and enforcement of laws pertaining to the manufacture and distribution of drugs. All drugs are placed in one of five schedules. Prescription authority of health care providers is based on this schedule.

According to the DEA, these lists are intended as general references and are not comprehensive listings of all controlled substances.

Schedule I

- Drug or other substance has a high potential for abuse
- Drug or other substance has no currently accepted medical use
- Lack of accepted safety for use of the drug or substance under medical supervision (Examples: Marijuana, Heroin, and LSD)

Schedule II

- Drug or other substance has high potential for abuse
- Drug or other substance has a currently accepted medical use in treatment
- Abuse of the drug or substance may lead to psychological or physical dependence (Examples: Cocaine, Percocet®, Ritalin®, Demerol®, Morphine, Fentanyl®, Adderall, and Oxycontin)

Schedule III

- Drug or other substance has a potential for abuse less than the drugs or other substances in schedules II or I
- Drug or other substance has a currently accepted medical use in treatment
- Abuse of the drug or other substance may lead to a moderate or low physical dependence or high psychological dependence (Examples: Opium (may be schedule IV depending on amount of opium), Vicodin®, Tylenol w/codeine, Vicoprofin, buprenorphrine, and some amphetamines)

Schedule IV

- Drug or other substance has a low potential for abuse relative to drugs or substances in schedule III
- Drug or substance has a currently accepted medical use
- Abuse of the drug or substance may lead to limited physical or psychological dependence compared to drugs or substances in schedule III (Examples: Darvocet®, Valium®, Xanax®, Ativan®, Talwin-NX®, Phenobarbital, and Halcion®)

Schedule V

- Drug or other substance has a low potential for abuse compared to the drugs or substances in schedule IV
- Drug or substance has a currently accepted medical use
- Abuse of the drug or substance may lead to a limited physical or psychological dependence (Examples: Lomotil®, Phenergan®, Robitussin AC)

http://www.deadiversion.usdoj.gov/schedules/listby_sched/sched1.htm retrieved December, 2016.

Appendix G Women's Issues: Women of Child Bearing Age

All women with reproductive capacity receiving a prescription for an opiate shall be educated about the risks of opiate use during pregnancy including the risk of physical dependence and addiction in the woman, the potential of physical dependence and withdrawal in the newborn, and possible long term consequences to the child. 1. Upon initiation of opioid therapy, the provider shall recommend reliable contraception such as long term reversible contraceptives and appropriate referrals should be made.

2. Any woman with reproductive capacity, who is presently under physician care for chronic pain management or medical replacement therapy, shall be counseled on the importance of reliable contraception such as long term reversible contraceptives. Appropriate referrals should be made.

3. The treatment plan shall include an expectation that a female patient will notify the provider if she becomes, or plans to become, pregnant.

4. The possibility of pregnancy should be assessed prior to initiation and continuation of any opioid or opioid replacement therapy. This risk should be assessed at each visit and prior to any refill for long-term therapies. A pregnancy test should be performed if there is any possibility of pregnancy. This should be documented in the medical record.

5. A woman who desires to become pregnant and is under physician treatment for chronic pain management and/or opioid replacement therapy shall be counseled on the potential risks of Intra-Uterine Drug Exposure. A referral for prenatal counseling should be made. Alternative treatment modalities should be discussed. Informed consent should be obtained prior to continuation of opioid or opioid replacement therapy.

6. Education shall include the potential risks of stopping her medications on her own during her pregnancy which include: the risk of relapse, risk of preterm delivery, intrauterine withdrawal, fetal distress, and fetal demise.

7. A woman on opioid therapy who becomes pregnant or desires to become pregnant shall be referred to or consult with an Obstetrician and appropriate Pain Management Specialist or Medical Replacement Treatment program.

https://www.tn.gov/content/dam/tn/health/healthprofboards/pain-management-clinic/ChronicPainGuidelines.pdf Retrieved September, 2018.

Appendix H Pregnant Women

1. The OB and medical treatment physician should work together to encourage compliance with both chronic pain management or medical replacement therapy plan, and prenatal care.

2. A risk assessment, UDT, and CSMD check should be performed before initiating any opiate or benzodiazepine during pregnancy.

3. A UDT should be performed at intake to prenatal care. If positive, the mother should be referred to appropriate chronic pain management or replacement therapy specialists. The risks of Intra-Uterine Drug Exposure should be discussed, and documented, and random UDT should be performed during the prenatal course.

4. If a woman has a positive UDT on initial prenatal visit, A UDT should be performed upon admission for delivery to help identify the infant at risk for NAS.

5. Appropriate discontinuation has been shown to be safe for fetus during pregnancy. However, unintended consequences from tapering may outweigh benefits. (Bell J, Towers CV, Hennessy MD, et al. Detoxification from opiate drugs during pregnancy.Am J Obstet Gynecol 2016)

https://www.tn.gov/content/dam/tn/health/healthprofboards/pain-management-clinic/ChronicPainGuidelines.pdf Retrieved September, 2018.

Appendix I Sample Informed Consent: Controlled Substance Agreement

Please read the information below carefully and ask your provider if you have any questions relating to the medication prescribed to you.

Using Controlled Medications to Treat Pain

a. These medications are used to treat moderate-to-severe pain of any type, and to treat anxiety and stress associated with moderate-to-severe pain.
b. These medications are best understood as potentially effective tools that can help reduce pain, improve function, and improve quality of life
c. Using these medications requires that both the physician and patient work together in a responsible way to ensure the best outcome, lowest side effects, and least complications

How Do Opioids work?

d. Opioid medications work at the injury site, the spinal cord, and the brain
e. They dampen pain, but do not treat the underlying injury
f. They may help to prevent acute pain from becoming persistent chronic pain
g. These medications may work differently on different people because of a number of factors.
h. Side effects and complications will also individually vary

How do Benzodiazepines work?

a. The benzodiazepines are a class of drugs with varying properties, which act by slowing down the central nervous system.
b. Benzodiazepines are useful in treating anxiety, insomnia, agitation, seizures, and muscle spasms. While Benzodiazepines do not treat acute or chronic pain, they are taken by patients with pain for other issues (such as anxiety or muscle spasms).
c. These medications may work differently on different people because of a number of factors.
d. Side effects and complications will also individually vary

What to Expect When You Take Controlled Medications for Pain and Related Conditions

a. Pain relief
b. Reduction of anxiety and stress caused by pain

c. Side effects

What Should Not Be Expected From Treatment with Controlled Medications

a. Cure of the underlying injury
b. Total elimination of pain, anxiety, and stress
c. Loss of ability to feel other physical pain

Negative Effects of Controlled Medications Vary in Different People

1. Opioid Side effects

a. Common effects include: Constipation, dry mouth, sweating, nausea, drowsiness, euphoria, forgetfulness, difficulty urinating, and itching
b. Uncommon effects include: Confusion, hallucinations, shortness of breath, depression, lack of motivation

2. Benzodiazepines Side effects

a. The most common side effects include: Clumsiness or unsteadiness, dizziness or lightheadedness and drowsiness; slurred speech
b. Less common side effects include: Anxiety; confusion (may be more common in the elderly); fast, pounding, or irregular heartbeat; mental depression; abdominal or stomach cramps or pain; blurred vision or other changes in vision; changes in sexual desire or ability; constipation; diarrhea; dryness of mouth or increased thirst; false sense of wellbeing; headache; increased bronchial secretions or watering of mouth; muscle spasm; nausea or vomiting; problems with urination; trembling or shaking; unusual tiredness or weakness

3. Physical dependency

a. Opioid medications will cause a physical dependency marked by abstinence syndrome when they are stopped abruptly. If these medications are stopped or rapidly decreased the patient will experience chills, goose bumps, profuse sweating, increased pain, irritability, anxiety, agitation, and diarrhea. The medicines will not cause these symptoms if taken as prescribed and any decision to stop these medications should be done under the supervision of your physician in a slow downward taper.
b. Benzodiazepines may be habit-forming (causing mental or physical dependence), especially when taken for a long time or in high doses. Some signs of dependence on benzodiazepines are: A strong desire or

need to continue taking the medicine; a need to increase the dose to receive the effects of the medicine. Withdrawal effects occurring; for example, irritability, nervousness, trouble in sleeping, abdominal or stomach cramps, trembling or shaking.

4. Misuse of medications: Addiction

This is a psychological condition of use of a substance despite self- harm. Between six and ten percent of the population of the United States have problems with substance abuse and addiction. Controlled medications are likely to activate addictive behavior in this group of people

5. Diversion:

It is illegal to share your controlled medications with other people. It is illegal to provide false information to a prescriber in an attempt to obtain controlled medication. It is illegal to doctor shop, or visit multiple doctors in attempt to obtain controlled medications. Federal and state laws exist to address diversion problems. It is critical that you safeguard your controlled medications and use them only as prescribed by your doctor.

6. Driving:

Studies of patients with chronic pain demonstrate improved driving skills when taking certain controlled medications, but individuals may have problems driving and need to realistically assess their own skills, as well as listen to others who drive with them to determine if they should be driving while taking these medications. You should consult the State Department of Transportation if you have questions about driving and taking controlled medications. This is especially important if your work involves driving, making important decisions that affect others, etc.

Common Sense Rules for Using Controlled Medications

a. Follow your doctor's recommendations
b. Do not take more or less pills than prescribed without discussing this first with your physician and receiving permission to do so
c. Do not share medications with family or friends
e. Do not take medications from family or friends
f. Do not stop these medications abruptly. Dose reductions need to be discussed and cleared by your physician. This is important no matter which controlled medication you take.
g. Do not sell medications

h. Do not take medications in any manner other than prescribed. For example do not chew or inject your medications
i. Keep all medications out of reach of children
j. Do not leave your prescriptions or controlled medications lying around unprotected for others to steal and abuse them
k. Do not operate a motor vehicle if you feel mentally impaired using controlled medications. You are responsible for exhibiting good judgment in your daily affairs, including your use of controlled medications.
l. Alcohol use should be curtailed when using controlled medications

Continued Use of Controlled Medication is based on your physician's judgment and a determination of whether the benefits to you of using controlled medications outweigh the risks of using them.

Your physician may discontinue treating you at his or her discretion. Your physician may require a consultation with an addiction specialist. Your physician may require more frequent visits.

We believe in treating your pain and we recognize the value of controlled medications in this process. When used properly, controlled medications can help restore comfort, function, and quality of life. However, as stated above, controlled medications may also have serious side effects and are highly controlled because of their potential for misuse and abuse. It is important to work with your physician and communicate openly and honestly with him or her about your pain control needs. By doing so, medications can be used safely and successfully.

By your signature below, you are acknowledging that you have read and reviewed these matters with your physician and that you have sufficient information to make a decision to use the controlled medications prescribed.

You should NOT sign this form if you do not believe you have enough information to make an informed decision about your use of controlled medications and how they fit in to your pain management treatment plan.

Patient Name: _____ Physician Signature: _____ __

Patient Signature: _____ Date: _____

https://www.tn.gov/content/dam/tn/health/healthprofboards/pain-management-clinic/ChronicPainGuidelines.pdf Retrieved September, 2018.

Appendix J Sample Patient Agreement: Controlled Substance Treatment

PATIENT NAME:_____

PRIMARY CARE PHYSICIAN/SITE: _____

I understand that this agreement between myself; and (insert name of medical office/group) is intended to clarify the manner in which chronic (long-term) controlled substances will be used to manage my chronic pain. Chronic controlled substance therapy for patients who do not suffer from cancer pain is a controversial issue.

I understand that there are side effects to this therapy; these include, but are not limited to, allergic reactions, depression, sedation, decreased mental ability, itching, difficulty in urinating, nausea and vomiting, loss of energy, decreased balance and falling, constipation, decreased sexual desire and function, potential for overdose and death. Care should be taken when operating machinery or driving a car while taking these medications. When controlled substances are used long-term, some particular concerns include the development of physical dependence and addiction. I understand these risks and have had my questions answered by my physician. I understand that my (insert name of medical office/group) physician will prescribe controlled substances only if the following rules are adhered to:

- All controlled substance prescriptions must be obtained from your (insert name of medical office/group) primary care physician. If a new condition develops, such as trauma or surgery, then the physician c ring for that problem may prescribe narcotics for the increase in pain that may be expected. I will notify my primary care physician within 48-hours of my receiving a narcotic or any other controlled substance from any other physician or other licensed medical provider. For female sonly: If I become pregnant while taking this medicine, I will immediately inform my obstetrician and obtain counseling on risks to the baby.
- I will submit urine and/or blood on request for testing at any time without prior notification to detect the use of non-prescribed drugs and medications and confirm the use of prescribed ones. I will submit to pill counts without notice as per physician's request. I will pay any portion of the costs associated with urine and blood testing that is not covered by my insurance.
- All Requests for refills must be made by contacting my (insert name of medical office/group) primary care physician during business hours at least 3 - Workdays in advance of the anticipated need for the refill. All prescriptions must be filled at the same pharmacy, which is authorized to release a record of my medications to this office upon request. A copy of this agreement will be sent to my pharmacy.

Pharmacy name/address/telephone:

- The daily dose may not be changed without my (insert name of medical group) primary care physician's consent. This includes either increasing or decreasing the daily dose.
- Prescription refills will not be given prior to the planned refill date determined by the dose and quantity prescribed. I will accept generic medications.
- Accidental destruction, loss of medications or prescriptions will not be a reason to refill medications or rewrite prescriptions early. I will safeguard my controlled substance medications from use by family members, children or other unauthorized persons.
- You may be referred to an appropriate specialist to evaluate your physical condition.
- You may be asked to have an evaluation by either a psychiatrist or psychologist to help manage your medication needs.
- If your physician determines that you are not a good candidate to continue with the medication, you may be referred to a detoxification program or evaluation by a pain management center.
- These medications may be discontinued or adjusted at your physician's discretion.
- I understand that it is my physician's policy that all appointments must be kept or cancelled at least 2-working days in advance. I understand that the original bottle of each prescribed controlled substance medication must be brought to every visit.

I understand that I am responsible for meeting the terms of this agreement and that failure to do so will/may result in my discharge as a patient of (insert name of medical group). Grounds for dismissal from (insert name of medical group)include, but are not limited to: Evidence of recreational drug use, of drug diversion, of altering scripts (this may result in criminal prosecution), of obtaining controlled substance prescriptions from other doctors without notifying this office, abusive language toward staff, development of progressive tolerance, use of alcohol or intoxicants, engagement in criminal activities, etc.

_____ _____

Patient's Signature Witness' Signature

_____ _____

Date Date

https://www.tn.gov/content/dam/tn/health/healthprofboards/pain-management-clinic/ChronicPainGuidelines.pdf Retrieved September, 2018.

Appendix K Risk Assessment Tools

There are several validated risk assessment tools available to pain clinicians. Below is some information on the most commonly used tools and links so that they can be obtained. Some tools are copyrighted and some are not, and practitioners should adhere to legal guidelines in making and obtaining copies for their use.

1. BRI (Brief Risk Interview). This is a short (5-10 minutes) clinical interview that is a validated risk assessment tool (Jones & Moore, 2013). Questions are asked about such topics as past misuse of opioid medications, presence of mental health disorders, personal history of substance abuse and family history of substance abuse. It also incorporates information from UDT's, past medical records and the CSMD. It classifies patients into risk categories of Low, Low Medium, Medium, Medium High, High and Very High. The scoring system and questions to be asked can be downloaded for free from www.tedjonesresearch.com. Interview information can also be scored on-line anonymously at that website.

2. DIRE (Diagnosis, Intractability, Risk, Efficacy score). This is a staff/interviewer rating scale that uses information about the patient's diagnosis, engagement in treatment and psychiatric issues (Belgrade, Schamber and Lindgren, 2007). The numerical score categorizes patients into the categories of "not a suitable candidate for long-term opioid analgesia," and "good candidate for long-term opioid analgesia." Here is link to a pdf copy:
http://www.ucdenver.edu/academics/colleges/PublicHealth/research/centers/maperc/online/ Documents/D.I.R.E.%20Score.pdf.

3. ORT (Opioid Risk Tool). This is a brief ten-item patient-completed written questionnaire (Webster & Webster, 2005). It may be the most widely used risk assessment tool in the field. It asks for information such as personal and family history of substance abuse and psychiatric issues. It classifies patients into Low, Medium and High risk categories. One link to a copy is:
http://www.partnersagainstpain.com/printouts/Opioid_Risk_Tool.pdf.

4. PMQ (Pain Medication Questionnaire). This is a 26-item patient-completed written risk questionnaire (Adams, Gatchel, Robinson, et. al., 2004). One study has shown that it is the best overall written risk assessment tool available.5 Questions include such topics as opinions about pain medication and pain treatment, obtaining pain medication, and past medication-aberrant behavior. A few items are reverse scored, making it just slightly more difficult for staff to score. It classifies patients into Low, Medium and High categories of risk. Here is one link to a copy: http://www.opioidrisk.com/node/507.

5. SOAPP (Screener and Opioid Assessment for Patients with Pain). This is a 24-item patientcompleted written risk assessment questionnaire (Butler, Budman, Fernandez,

et. al., 2004). One study has shown that this questionnaire has the best sensitivity of any patient-completed questionnaire (best at identifying those patients which later engage in medication aberrant behavior).7 Items use a five-point rating scale and ask about such topics as impulsivity, cigarette smoking, overtaking medication and past substance abuse. It classifies patients into Low and

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