

Fast Facts

About
**SUBSTANCE
USE
DISORDERS**

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***What
Every Nurse,
APRN, and
PA Needs
to Know***

**Brenda Marshall
Jack Spencer**

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FAST FACTS About
SUBSTANCE USE DISORDERS

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FAST FACTS About **SUBSTANCE USE DISORDERS**

What Every Nurse, APRN,
and PA Needs to Know

Brenda Marshall, EdD, PMHNP-BC, MAC-BC, ANEF
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Springer Publishing Company, LLC
11 West 42nd Street
New York, NY 10036
www.springerpub.com

Acquisitions Editor: Margaret Zuccarini
Compositor: Amnet Systems

ISBN: 978-0-8261-6122-2
e-book ISBN: 978-0-8261-6123-9

18 19 20 21 22 / 5 4 3 2 1

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Library of Congress Cataloging-in-Publication Data

Names: Marshall, Brenda, 1951- author. | Spencer, Jack (Psychiatric-mental health nurse practitioner), author.

Title: Fast facts about substance use disorders : what every nurse, APRN, and PA needs to know / Brenda Marshall, Jack Spencer.

Other titles: Fast facts (Springer Publishing Company)

Description: New York, NY : Springer Publishing Company, LLC, [2019] | Series: Fast facts | Includes bibliographical references.

Identifiers: LCCN 2018035880 | ISBN 9780826161222 (alk. paper) | ISBN 9780826161239 (e-book)

Subjects: | MESH: Substance-Related Disorders—nursing | Psychiatric Nursing—methods

Classification: LCC RC440 | NLM WY 160 | DDC 616.89/0231—dc23

LC record available at <https://lcn.loc.gov/2018035880>

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Printed in the United States of America.

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Preface

In 2016, Surgeon General Vivek Murthy declared that the opioid epidemic resulted from a perfect storm of aggressive pain medication marketing, negligible funding from the government for treatment programs, and healthcare practitioners who had inadequate training and tools to treat the patients. Dr. Murthy was instrumental in making changes to prescribing practices and connecting patients to treatment facilities. Most important, however, was his commitment to change how we, the health professionals treating substance use disorders, think about these illnesses and those who are diagnosed with them. Substance use disorder is an illness, the treatment of which requires a specific area of knowledge and expertise to achieve effective results.

Fast Facts About Substance Use Disorders was created to provide the clinician with the important knowledge, tools, and resources to meet the surgeon general's recommendations. It provides strategies and evidence-based information for the delivery of best care to persons identified and diagnosed with a substance use disorder. Additionally, it follows the guidelines of identifying the disease as substance use disorders, without using the highly negatively charged, patient-blaming, and outdated vocabulary of addiction.

The opioid epidemic in the United States, and the pandemic that has affected all parts of the globe, has resulted in many lives being lost and destroyed. It has personally affected all walks of life, regardless of socioeconomic, geographic, or educational variables. It is the exception, rather than the rule, to find an individual who has not been personally affected by substance use disorders. This book gives the healthcare provider insight into the neurobiological origins of substance use disorders, the most current statistics, definitions and

vocabulary, tools for evaluation and treatment, and an overview of the pharmacologic and nonpharmacologic interventions available to the prescribing and nonprescribing healthcare professional. This practical guide can become the practitioner's first go-to tool in the fight for providing effective, evidence-based care to those with substance use disorders.

Brenda Marshall and Jack Spencer

Share

**Fast Facts About Substance Use Disorders:
What Every Nurse, APRN, and PA Needs to Know**





Defining and Assessing Substance Use Disorders

1

Defining Substance Use, Misuse, and Abuse—Examining the Continuum

This chapter focuses on defining substance use, misuse, and abuse—examining the continuum of substance use and society’s response. It explores the impact that genes, prenatal exposure, and environment play in this disorder and how the nurses and physician assistants (PAs) can create safe spaces for these patients in a legal and ethical manner.

In this chapter, you will learn:

- What is meant by substance use disorder (SUD)
- The impact of genetics, epigenetics, and experience
- What statistics can tell us about SUDs in the U.S. population
- How to establish a safe environment for the SUD patient, whether or not in recovery
- Legal and ethical considerations

WHAT IS MEANT BY SUD?

The definition of SUD has changed over time, just as the words we choose to identify a person with an SUD have changed. So many of the words we are historically accustomed to using when discussing

this disease, and the people who are diagnosed with it, are heavily burdened with judgment, prejudice, and stigma. It is not unusual to find people, even well-educated healthcare providers, who still think that SUD is not a real disease but rather a weakness of personality or a choice. This paradigm shift began with the discovery of new knowledge through research and the decision of the American Psychiatric Association (APA) to alter the model of substance use from addictive behaviors to a disease of substance use. This new framework reflects the repetitive disease pattern of SUD through multiple substances, from tobacco to opioids. The *International Statistical Classification of Diseases and Related Health Problems*, Tenth Revision (ICD-10), a coding system developed in the late 1980s by the World Health Organization (WHO), has multiple codes for the various SUDs and a methodology for identifying the substance involved as well as the degree of the problem.

We have made a decision, as collaborating authors, that words matter in the understanding of a disease, especially one that carries so much stigma. To this end, this book refrains from using the old, emotionally charged labels of “addict” and “junkie” and refers to these patients as persons with an SUD. As professional healthcare providers, this is a first step away from labels that blame to accepting these patients, as we do all others, as persons living and often suffering with a chronic disease.

Substance Abuse and Mental Health Services Administration (SAMHSA, 2015), referring to the *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (*DSM-5*; APA, 2013), explains that SUD is the term to be used, and degree of the disorder, from mild to severe, will be identified by the number of criteria met by the individual. Similar to other mental health disorders identified by the ICD-10 and the *DSM-5*, SUDs are diagnosed when there is a clinical and functional impact on the individual’s health, behaviors, and activities of daily living, including but not limited to social, academic, and employment issues.

What is the definition of SUD that we will be using in this book? An SUD is when the use of a substance (or substances) results in a clinically significant level of distress (National Alliance of Mental Illness [NAMI], n.d.). The level of stress that arises from the problematic substance use is a critical element. The two philosophical frameworks that will be utilized in defining SUD in this book are Bronfenbrenner and Morris’s (2006) bioecological model of human development (BMHD) and the two-factor avoidance theory by Mowrer (1947, 1951, 1956). These two frameworks reflect that behaviors are continuously evolving as determined by the experiences of individuals in specific contexts. The BMHD keeps its lens on the impact of the environment on the individual, whereas the

Table 1.1

Biological Model of Human Development

System	Areas of Importance	Population Focus
Chronosystem	Sociohistorical conditions and time events	Changes over time
Macrosystem	Attitudes and ideologies of the culture: economics, socio-economics, legal, cultural, and historical	Social conditions, economic conditions, laws, and culture and history
Exosystem	Indirect personal environment: local politics, social services, industry, and employment	Neighborhood, media, extended family, and work environment
Mesosystem	Everyday connections: interactions between microsystems	Family, siblings, peers, school, work, and religious affiliation (church, temple, mosque, etc.)
Microsystem	Immediate environment: specific everyday contact environments	Family, siblings, peers, school, and work
Individual	Sex, age, health, etc.	Self

Source: Adapted from Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In R. M. Lerner (Ed.), *Handbook of child psychology, sixth edition—Volume 1: Theoretical models of human development* (pp. 793–828). Hoboken, NJ: Wiley.

two-factor avoidance theory focuses on the individual. The combination of these frameworks provides an understanding of the complexity of this issue and can aid in the removal of blame and stigma from the diagnosis through understanding of the disease (Table 1.1 and Figure 1.1).

Defining Use, Misuse, and Abuse

According to the Centers for Disease Control and Prevention/National Center for Health Statistics (CDC/NCHS, 2017), over 100 Americans die from an opioid overdose every single day. The United States now finds itself in the midst of an opioid crisis that began in the 1990s when pharmaceutical companies promoted opioid pain relievers, assuring prescribers that these drugs were safe and would not result in misuse, abuse, or dependency. This was a myth, which has now been exposed by the fact that about 80% of those using heroin initially misused prescription opioids (Muhuri, Gfroerer, & Davies, 2013).

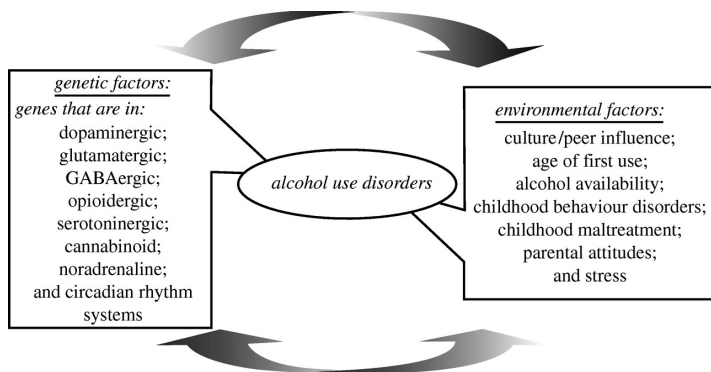


Figure 1.1 Two factor avoidance theory.

Source: Mowrer, O. H. (1956). Two-factor learning theory reconsidered, with special reference to secondary reinforcement and the concept of habit. *Psychological Review*, 63, 114–128.

Table 1.2

Use, Misuse, and Abuse	
Use	Taking a substance for an intended purpose. This could be with medical direction or to get high. Any use of a substance is considered substance use. It can be legal, medicinal, recreational, or illegal use of a substance.
Misuse	The use of a substance for an inappropriate or nonintended reason.
Abuse	When a substance is intentionally or excessively used and results in harm to the user's mental or physical health.

In 2015, SUDs related to prescription pain killers affected about 2 million Americans, with over 33,000 dying from an overdose of prescription opioids, heroin, and fentanyl. Opioid-related SUD is an American public health crisis that affects the lives and health of new-borns to seniors. Use of these opioids has led to misuse and abuse and, ultimately for some, death. The statistics reflect that prescription opioids for chronic pain sufferers are misused by 21% to 29% (Vowles et al., 2015). Of those individuals misusing their prescription opioids, about 8% to 12% will go on to present with an SUD, and of those, 4% to 6% will convert to using heroin (Carlson, Nahhas, Martins, & Daniulaityte, 2016). The difference among use, misuse, and abuse reflects the critical downward cascade that leads to SUD (Table 1.2).

THE IMPACT OF GENETICS, EPIGENETICS, AND EXPERIENCE

Genetics

Genetics is the science that investigates and reveals the passage of traits from one living organism to another. Our genes identify how we can inherit specific characteristics from our parents, which can include height, eye color, nose shape, and risks factors for illness—including some mental illnesses. Vulnerability to SUDs does not come from one specific gene; however, it has been identified that offspring of those with SUDs have biological (genetic) differences that place them at higher risk of developing an SUD during their lifetimes. An example of this can be found with the allele of *DRD2*, a dopamine receptor gene. This gene is usually identified in those who are more prone to SUD of alcohol and/or cocaine. Other SUDs related to cigarette smoking, cannabis (marijuana), and opioids also have specific genetic alleles that might play a part in the disease, and identification of that gene can indicate the possibility of increased risk. Just as there are genetic indicators for those at higher risk, there are also some individuals who have a genetic predisposition against SUDs, like the *CYP2A6* protective allele, which would make a person who smokes cigarettes feel sick, thus providing a disincentive to smoke (Genetic Science Learning Center, 2013).

Epigenetics

Epigenetics refers to the “study of changes caused by external or environmental factors that alter the function of genes” (Marshall, 2017, p. 5). Just as genetics can increase or decrease a risk factor for the development of a disease, environmental factors also come into play, creating the dynamic interchanges that can result in genetic alterations. The National Institutes of Health (NIH) asserts that epigenetic regulatory systems can allow our genetic material to respond to the environment, and that these changes can then be passed onto our offspring. This change has been identified in cocaine users, whose children are more likely to have proteins that are commonly seen in those with SUD for cocaine. Research has demonstrated that the existence of these proteins shows an increase in animals to exhibit more drug-seeking behaviors (National Institute on Drug Abuse [NIDA], 2016). Why one person can be affected by a substance and another not formerly was considered individual weakness but has been demonstrated, through the discovery of this and other evidence, that SUDs reflect the extremely complicated, multidimensional impact of genes on the individual and environmental exposure on genetic development.

Experience

We often say that mental illness does not only affect one person, it affects the family. Our families, like it or not, are our first and primary sources of learning and emotional attachment. In the United States, it is estimated that over 8 million children reside in a home with a person with an SUD (U.S. Department of Health and Human Services [DHHS], 2011). As is reflected in the BMHD, the experiences we have over a lifetime significantly affect our emotional development. Growing up in a household where a family member, especially a caregiver, has an SUD will have a negative impact on the emotional development of that child.

Fast Facts in the Spotlight

The federal Drug Enforcement Agency (DEA) expanded access to treatment for SUDs related to opioids by nurse practitioners (NPs) and PAs.

At present, 5,000 NPs and PAs have trained and have been approved to provide treatment for opioid SUD through the Comprehensive Addiction and Recovery Act (CARA). The program requires completing 24 hours of training. The 8-hour Drug Addiction Treatment Act (DATA) waiver course and the 16-hour Providers' Clinical Support System for Medication Assisted Treatment (PCSS-MAT) course can be accessed free of charge at pcssmat.org/education-training/mat-waiver-training/.

STATISTICS ON SUDS IN THE UNITED STATES

SUD Overview

The use of illicit drugs has been increasing in the United States, with almost 10% of the American population engaging in illicit drug use, a number up from 2002. About a quarter of those surveyed indicated that some illicit drug had been taken during the preceding month, with a fifth of those indicating marijuana use (Figure 1.2). Although most other drugs being used have plateaued since 2003, the use of marijuana continues to rise, perhaps secondary to the legalization of its use in multiple states for medical and recreational use. The NIH reported, in 2013, that there were almost 20 million users over the age of 12. The trend for the use of cocaine was decreasing, in opposition to the use of methamphetamine, which was on the rise with

over half a million users in 2013, up from 353,000 in 2010. By 2015, 20.5 million Americans, ages 12 and over, had an SUD, 2 million of which involved prescription pain relievers and 591,000 involved using heroin (ASAM, 2016).

The age of indoctrination to drugs is in the teen years, with more than 50% of new users starting with marijuana. The age group most likely to be using is those in their late teens and early 20s, with almost one quarter of 18- to 20-year-old Americans reporting illicit drug use. The other age group that has an increasing use of illicit drugs includes those in their 50s and 60s (National Institutes of Health/NIDA National Survey of Drug Use and Health, 2018). Overall, alcohol use by Americans under 21 is decreasing, and not surprisingly so has driving under the influence of alcohol. The number of Americans smoking cigarettes has declined from 2002, perhaps due to the rise of vaping. There has been a decline of 7.7% in the reported rates of alcohol dependence/abuse since 2002; however, alcohol dependence/abuse is still the most common reported abuse, followed by marijuana.

The good news is the stabilizing or reduction in use/abuse of multiple categories of drugs. The bad news, however, is the increase in drug overdoses from opioids, and the treatment gap for providing those with SUDs the therapies that could help them toward recovery (NIH Drug Facts, 2013). Less than 1% of those in need actually receive treatment for their SUD in a facility trained and focused on their diagnosis.

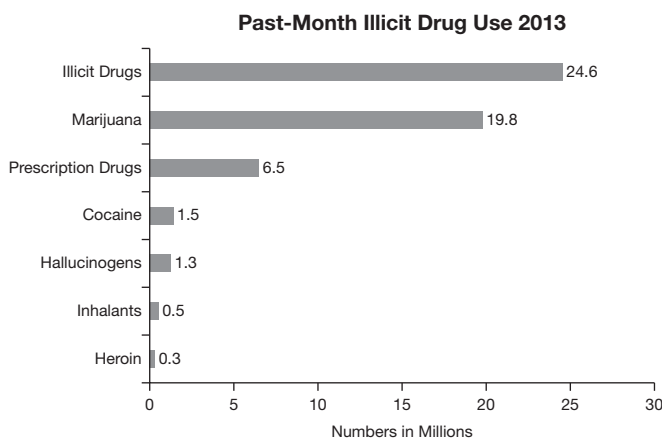


Figure 1.2 Past month illicit drug use: 2013.

Source: Park-Lee, E., Lipari, R. N., Hedden, S. L., Copello, E. A. P., & Kroutil, L. A. (2016, September). Receipt of services for substance use and mental health issues among adults: Results from the 2015 National Survey on Drug Use and Health. NSDUH Data Review. Retrieved from <https://samhsa.gov/data/>

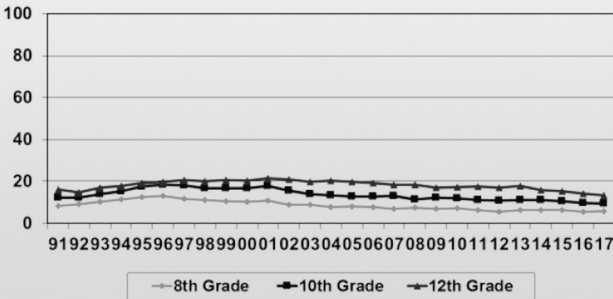
SUD Prevalence in the Young Adult and Adult Populations

According to the national survey of drug use and health, conducted by the NIH in 2016, divided into age group categories (>12, 12–17, 18–25, and >25 years) and substances, the greatest usage indicated was alcohol use, followed by illicit drug use, cigarettes, and marijuana. Lifetime alcohol use for all those surveyed over 12 years of age was 80%, with about one quarter (27%) of those between 12 and 17 years having used alcohol, 81% between the ages of 18 and 25, and 86% over 25 years of age. These numbers are high compared to those using cigarettes, smokeless tobacco, illicit drugs, cocaine, hallucinogens, heroin, inhalants, LSD, and other nonprescribed medications. Illicit drug use was indicated by almost half those surveyed (48.5%), with more than 56% of the 18- to 25-year-olds indicating recent and lifetime usage. Marijuana usages were slightly lower (44%), with the largest group (51%) again in the 18- to 25-year-old range (NIH, 2016).

The NIH conducts the Monitoring the Future surveys, examining youth trends in substance use, which illustrated that, except for the use of marijuana, the use of illicit drugs by eighth, 10th, and 12th graders showed the lowest rate of increase in 20 years. The same report, however, showed a lowered perception of risk from using multiples substances including, but not limited to, LSD, cocaine, and inhalants, which could normalize the trying of substances by this group. Usage of nonprescribed pain medications (e.g., Vicodin) was reduced by 51% in the eighth graders, 67% in the 10th graders, and 74% in the 12th graders, stating that obtaining these medications had become more difficult. Although marijuana use remained unchanged in the 10th and 12th graders, daily use of marijuana exceeded daily cigarette use in all grades (8, 10, and 12), reflecting a declining use of cigarettes and a leveling use of marijuana (Figure 1.3). The use of alcohol in all groups also demonstrated a significant 5-year decline. Use of synthetic drugs (K2, herbal incense, synthetic marijuana) has also had a significant drop in usage since 2011. The use of heroin by adolescents ages 12 to 17 remained unchanged from 2015 to 2016 at 10% (NIH/NIDA, 2016).

Vaping by high school students was surveyed for the first time, with the results indicating that about one quarter of 10th and 12th graders vape and slightly over 10% of eighth graders vape. Vaping is now the third most common use of substances in high school. Only alcohol and marijuana are more common in the 10th and 12th graders, and, for the eighth graders, only alcohol is used more. Vaping can be used as the delivery source for multiple other substances. The report indicated that flavoring was the most common use of vaping; however, nicotine and marijuana were also vaped. The students did identify the harm and risk in using vaping to deliver nicotine and marijuana (Figure 1.4).

Percent of Students Reporting Any Illicit Drug Use Other than Marijuana in Past Year, by Grade



SOURCE: University of Michigan, 2017 Monitoring the Future Study

Figure 1.3 National Institutes of Health monitoring the future.

Source: National Institute on Drug Abuse; National Institutes of Health; U.S. Department of Health and Human Services. <https://www.drugabuse.gov/publications/drugfacts/monitoring-future-survey-high-school-youth-trends>

Percent of Students Reporting Vaping in Past Year, by Type and Grade

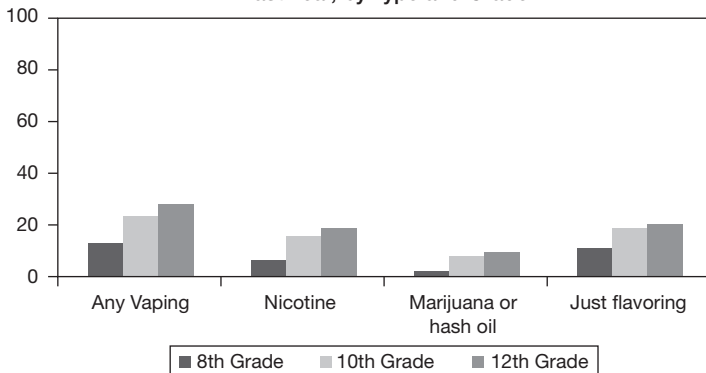


Figure 1.4 National Institutes of Health percent of students reporting vaping in 2017.

Source: University of Michigan 2017 Monitoring the Future Study

Opioid Crisis

The leading cause of accidental death in the United States in 2015 was drug overdose, with over 20,000 of those deaths related to pain relievers and almost 13,000 related to heroin (Rudd, Seth, David, & Scholl, 2016). The rate of overdose, from 1999 to 2008, rose significantly parallel to the increase in prescription pain relievers (American Society of Addiction Medicine [ASAM], 2016). The vast majority of those surveyed about their opioid addiction in 2014 (94%) identified the use of heroin as the alternative to the expensive, and often hard to access, prescription pain relievers (Cicero, Ellis, Surratt, & Kurtz, 2014). Heroin use by adolescents (12–17 years of age) was estimated to be around 21,000 in 2015, with about 6,000 diagnosed with a heroin used disorder in 2014 (Center for Behavioral Health Statistics and Quality [CBHSQ], 2016). Women are more likely to be prescribed pain relievers even though they are more susceptible to dependency than men (CDC, 2013). The increase of prescription opioids for men from 2010 to 2013 was 237%. The increase for women during that same period was 400% and was accompanied by an increase of overdose deaths for women from 0.4 to 1.2 per 100,000 (Hedegaard, Chen, & Warner, 2015; CDC, 2013).

Cost to the Nation

The annual cost of substance abuse is over \$740 billion a year. These costs, according to the NIH, include the loss of productivity, the need for subsequent healthcare, and costs related to associated crime. The reported overall costs for tobacco use is \$300 billion, alcohol \$249 billion, illicit drugs \$193 billion, and prescription opioids \$78.5 billion (NIH, 2013). These costs, however, do not take into consideration the terrible emotional cost to individuals, families, and communities who battle the SUD crisis on a daily basis.

THE SAFE ENVIRONMENT

The question of establishing a safe environment to prevent, where possible, SUDs from arising, as well as the creation of a safe environment for the identification and treatment of SUDs, is a topic that continues to grow. SUD is a mental health concern and should be treated as such. Prevention, where possible is the first goal, and early identification and treatment is the second. Youths who engage in experimentation with alcohol, tobacco, and drugs need to be able to hear clear, consistent messages from family members, school

officials, and other role models. Adults can engage youth in discussions, demonstrate caring, provide factual information, pay attention to behaviors and attitudes, and help the youth build resistance skills in a protective and honest environment. Parents should know what resources the schools (from kindergarten to college) provide to students and their families, and what programs are available for parents to stay current and aware of their child's academic and emotional engagement. Use of substances can occur as an experimental testing or as a way to avoid peer pressure. Bullying and other aggressive behaviors can make a student feel the need to escape from reality. Youth who are known to have another mental health problem, like depression or anxiety, should be encouraged to seek professional help, avoiding self-medication.

Connecting with youth, creating a place for honest discourse and access to help, and using the resources provided by the federal government (e.g., Know Bullying app) and state, school, and local treatment centers can provide skills and strategies for parents, educators, and health professionals.

Families with an adult not yet being treated for an SUD can seek help, with the understanding that an SUD is a mental health issue and requires mental health intervention. SUD affects the whole family, increasing the likelihood of emotional disturbances in the home if help is not obtained. Families should engage in family therapy when possible and engage in a family approach to substance abuse treatment. The SAMHSA website (www.findtreatmentsamhsa.gov) can be a good resource to provide to families. Nurses can identify the resources available in a community to support the family in help-seeking behaviors.

Removing the temptation to engage in the use of substances can also help create a safe environment. Removal of known substances of abuse from an environment can assist the person in recovery, as well as the family members, to feel safer. There is a list of websites at the end of this chapter that can be used as resources for people dealing with SUDs.

THE LEGAL AND ETHICAL ISSUES

Legal issues in provision of healthcare do not change due to the patient's diagnosis. Confidentiality and privacy issues are paramount, and the Health Insurance Portability and Accountability Act (HIPAA) is clear about not sharing information on a patient except in specific instances. When we are dealing with SUDs, there is an additional concern, however, due to the impact that social stigma

can have and how discrimination by others can hamper the road to recovery. There is a specific law, 42 U.S.C. § 290dd-2 titled “Confidentiality of Alcohol and Drug Abuse Patient Records,” in the federal regulations. State laws also protect patient confidentiality, allowing the healthcare professional the privilege to refuse information without a subpoena. The set of rules that define the protection afforded to the provider is different from state to state, and an understanding of these laws is the responsibility of the healthcare provider practicing within the scope of that state and license. The instances where the confidentiality of information might be waived are when there is specific consent by the patient, if there is evidence of abuse (child or elder), and if the information is subpoenaed.

Ethics is involved in studying the concepts of right and wrong, not in a legal sense but in a moral one. Ethics has a number of principles including justice, autonomy, beneficence, nonmaleficence, and fidelity. Embedded in our ethical approach to patient care are the commitments to providing impartial and equal care to all, believing our patients have the right to make their own decisions, to do right or good by others, to do no harm to others, and to be truthful. We also have the duty to treat all patients, as well as a duty to warn others when there is a real concern for patient or provider safety. Ethical boundaries are sometimes strained when we find ourselves in a place where we have dual relationships, like learning a colleague has an SUD, or when we know that the resources that are needed cannot be accessed by our patients with limited funds.

To make sure our decisions related to provision of care to our patients, those with and without SUDs, there are a couple of steps we can put into action. First, we can examine our own beliefs and values and identify those situations in the clinical arena that might incur a problem. Determine if the issue is ethical or legal in nature. Is the problem one that is due to an emotional response, is it based on a personal past experience, or is it one that objectively requires legal advice? Consider all options—is there a support system in your institution to deal with ethics and legalities? What actions can be made, and after discussion, are you comfortable with the decisions that are being made? Creating an “ethics grand rounds” where general cases can be discussed in an ongoing forum, can help avoid the pitfall of letting personal values and principles override the principles of ethical care.

It is imperative that the nurse, and all healthcare providers, prior to treating a family or individual with an SUD, understand their own feelings about and experiences with SUDs. Ethical dilemmas often arise when we are unaware of our biases and deep-seated value judgments, which could cloud our ability to provide safe and effective care.

Patients with SUDs can evoke situational reactions from healthcare professionals, which can lead to the delivery of care that is impacted by personal bias. Questions of morality, whether SUD is a choice, or an individual's right to autonomy can arise and cloud the situation. In order to balance the healthcare provider's personal and professional standards, there might be a time that the institutional ethicist might be needed.

Fast Facts in the Spotlight—Time for Reflection

What would you do? Why would you do it?

Ms. X has come to the emergency department due to a high fever and flu-like symptoms. While taking her vitals, she tells you she is on a needle exchange program, and due to her use of heroin, she is afraid that she is also HIV positive. She says she would like to get into treatment, maybe a detox program, but she is unemployed and has a young child—so making any big change is not going to work for her.

- What is the most important thing to do first?
- How do you feel about Ms. X?
- Is there something that makes you feel as though you might be judging her behaviors?
- Will you treat her differently from the patient in the third cubicle who also has complaints of signs and symptoms of influenza?

ROUNDUP

Healthcare providers are people too. We have likes, dislikes, beliefs, and attitudes. Substance use, from smoking cigarettes to using potent, dangerous pain killers, affects people in every walk of life, including healthcare workers. Providing best evidenced care to our patients with SUDs requires that each of us take an honest look at our own lives, identify where our beliefs and attitudes might interfere with our ability to provide safe, ethical, patient-centered care, and get support to learn more about this brain disease that has affected so many lives.

LINKS TO LEARN MORE

- Genetics and epigenetics of SUD: NIH and NIDA:
www.drugabuse.gov/publications/drugfacts/genetics-epigenetics-addiction

- Resources for families and people affected by SUD and related mental health issues: (www.findtreatment.samhsa.gov)
- Faces & Voices of Recovery: www.facesandvoicesofrecovery.org
- The partnership at Drugfree: org www.drugfree.org
- The National Suicide Prevention Lifeline: <https://suicidepreventionlifeline.org/>
- The National Alliance on Mental Illness: www.nami.org
- Mental Health America: www.mentalhealthamerica.net
- NIDA's National Drug Abuse Treatment Clinical Trials Network: drugabuse.gov/about-nida/organization/cctn/ctn
- NIDA's DrugPubs Research Dissemination Center: drugpubs.drugabuse.gov
- The National Institute on Alcohol Abuse and Alcoholism: niaaa.nih.gov

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2

Assessing Substance Use: Tools and Techniques

Often it is the nurse, nurse practitioner (NP), and/or the physician's assistant to first evaluate the patient with the substance use disorder (SUD). SUDs can often illicit emotional responses from healthcare workers, responses that are not taken into consideration at the time but that can have consequences on developing a therapeutic alliance and determining next steps for care. This chapter explores our responses to myths, opinions, and facts and provides references for obtaining the tools and resources that will secure the best evidence-based responses to our patients.

In this chapter, you will learn:

- Facts versus opinions versus myths for SUDs
- General assessment and how to locate free tools from the Internet
- Identifying providers for SUDs
- Introducing evidence-based techniques for working with clients with SUDs

FACTS VERSUS OPINIONS VERSUS MYTHS

A *fact* is something that is based in evidence, has been demonstrated to be true, and can be demonstrated to be correct. A fact is not based

in opinion and does not conform to a belief or point of view. It exists and remains stable, despite changing opinions about it. When we look at facts, we can also look at the evidence behind that fact and determine its believability.

An *opinion* is not necessarily based in evidence. It is a belief that might be drawn from some facts, while at the same time not

Table 2.1

Myths and Facts	
Myth	Fact
People with SUDs can stop using when they want.	SUD is a brain disease that usually needs treatment for cessation and ongoing recovery.
A person with an SUD has a moral failing.	SUD has genetic and epigenetic factors that result in physiological brain changes.
Any person using drugs has an SUD.	Not all people who use drugs will end up with an SUD. Some people will experiment with drugs and not develop an SUD.
It is easy to identify a person with an SUD.	Because there is such stigma associated with SUDs, people with this disease are very secretive. It is hard to identify them.
SUDs only affect those who are using illegal drugs.	Prescription painkillers were the most abused drugs in 2015.
A person able to work does not have an SUD.	People with SUDs often go to work, despite their use, putting the lives of others, as well as their own, in danger.
SUDs are only about dangerous drugs like heroin.	Any person whose life is negatively affected by continued use of a substance, despite trying to stop, has an SUD. This includes the abuse of alcohol and, discussed most recently, food.
No one can help a person with an SUD—not their friends or family.	Family support and the support of a community are often the most important factors for continued recovery.
Programs for people with SUDs don't work. They can't ever quit, or really recover from SUDs.	Though SUDs are not cured with treatment, there are treatments that are effective to help the person with an SUD recover and stay in recovery.
A person in recovery who relapses is a failure and won't be able to succeed in recovery.	Since recovery continues over a lifetime, some relapses occur, but these are not failures, they are just another opportunity to learn how to get back into recovery.

SUD, substance use disorder.

Source: Adapted from DrugAbuse.com Addiction Facts and Myths

considering other facts. Opinions often carry judgment in them. They might be a result of culture, upbringing, and personal experience and usually reflect a person's attitude or belief on a matter.

A *myth* is a story of sorts, held by many people, that tries to put meaning into, or explain, an occurrence. The word *myth* means *story* in Greek. Traditionally, a myth would explain and extol the wondrous qualities of a hero. More recently, in our present day culture, when we talk about myths, we are indicating that the belief that is being presented, despite being believed by many people, is not factual.

This book provides the facts about SUDs, the etiology, diagnosis, and evidence-based treatments. This is of utmost importance because there is a danger in crafting nursing care on anything less than the evidence-based facts about a disorder. When an opinion or myth is accepted as a fact, it can influence how you will care for your patient and lead to negative outcomes both for the patient and the delivery of quality nursing care. Checking the information presented on SUDs with evidence allows each nurse to become an educator on SUDs. Misinformation held by the public and other health professionals about SUDs can result in delay in treatment, reduced access and provision of treatment, broken therapeutic relationships, and otherwise preventable overdoses.

It is hard to find someone who does not have an opinion about SUDs. The problem only arises when that opinion affects the provision of care to a patient. The nursing scope of practice demands that ethical care is provided. The five keys to the provision of ethical nursing care are respect for the patient's *autonomy* to make decisions—even when you disagree; *justice*—providing all patients fairly and equally; *fidelity*—telling the truth and respecting the promises you make to care for the patient; *beneficence*—doing good for your patients; and *nonmaleficence*—doing no harm. Knowing the facts about SUDs, refraining from using stigmatizing labels about persons with SUDs, questioning myths and replacing them with truths, and questioning and understanding your own opinions about SUDs make delivery of best practices in this specialty achievable.

INTERNET TOOLS AND RESOURCES

Initial Patient Assessment

As mentioned in Table 2.1, it is not evident who has an SUD by simply looking at the person. During the current opioid crisis, it is not uncommon for a mother, sister, wife, husband, or other significant person to state that they had no idea that he or she was using drugs. Too often this statement comes after the overdose. Evaluating your

patients for SUD should be part of your routine intake evaluation. Common questions include asking if the patient drinks alcohol—how much and how often, but sometimes, when a person has an SUD, it is not certain that the response you will get will be an honest one. Due to the stigma around this disease, many people with SUD have developed multiple strategies to hide their SUD from their families and employers and may not want to be honest with you either. This is why developing a good, respectful, nonjudgmental therapeutic alliance with the patient is important. The National Institutes of Health (NIH) have developed online, free modules to assist the healthcare professional to conduct a clinical assessment of SUD. The link to that resource and others can be found at the end of this chapter.

Internet Accessible Tools

There are multiple screening tools that are free and accessible on the Internet. The first tool at the nurses disposal, however, is the intake interview. Observing the patient's behaviors, skin turgor and integrity, general well-being, and hygienic presentation can provide the first indications that there is a substance use problem. A quick evaluation of the patient's appearance, speech pattern, and other minimal criteria will guide the nurse toward determining if further investigation is needed.

The patient with SUD may be coming to the unit due to a medical problem, a surgical problem, or a mental health issue. Assessing for an SUD will allow the medical team to provide the best appropriate care, from pain management to surgical intervention, in a safe environment. The American Psychiatric Nurses Association (APNA) also provides a free online resource center or substance use that includes resources for tobacco cessation, screening and treatment, education, organizations, and self-evaluation for those worried about their own use. There are multiple screening tools. Table 2.2 provides a sampling of those that are online, evidence based, and free.

Finding Resources for Your Patients and Their Families

Supporting your patients and their families/significant others depends on a number of factors, many of which will be addressed in the coming chapters. Some of the specific mediating elements include the kind of unit providing treatment for the patient (emergency, pediatrics, adolescent, OB/GYN, geriatrics, etc.), the type of treatment being provided to the patient (inpatient, outpatient, community based), and what local services are available and accessible to the patient. Regardless of facility type, it is important to identify the team members who support the decision making in your institution.

Table 2.2

Free Online Assessment Tools Specific to Substance Use Disorder

Name of Assessment Tool	Purpose	Internet Access Link
DSM-5 Self-Rated Cross Cutting Symptom Measures, Adult	To identify the signs and symptoms of mental health issues including substance use	www.psychiatry.org/psychiatrists/practice/dsm/education-resources/assessment-measures Also available in parent/guardian rated, and self-rated child 11–17 years
DSM-5 Level 2 Substance Use, Adult	To identify the signs and symptoms of substance use	www.psychiatry.org/psychiatrists/practice/dsm/education-resources/assessment-measures Also available in parent/guardian rated, and self-rated child 11–17 years
ICD-10 symptom checklist	To identify substance use	www.who.int/substance_abuse/research_tools/en/english_icd10.pdf?ua=1

DSM-5, *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition; ICD-10, *International Statistical Classification of Diseases and Related Health Problems*, Tenth Revision.

Treatment for patients with a SUD is complicated and requires careful attention to all the components in the individual's disease-related symptom constellation.

Finding Federal Resources

The NIH provides support for *The National Institute on Drug Abuse* (NIDA) website: www.drugabuse.gov/publications/principles-drug-addiction-treatment-research-based-guide-third-edition/resources [(301)443-1124]. This website provides the clinician and the practitioner with the most up-to-date, state-of-the-art, evidence-based interventions and research. Its stated mission is to conduct research that includes genetics, functional neuroimaging, and social neuroscience while also investigating prevention strategies, behavioral and medication therapies, and provision of treatments. The dissemination of the research from NIDA forms the foundation of information that affects our national policies toward SUDs.

National Institute on Alcohol Abuse and Alcoholism (NIAAA) [(301)443-3860] collaborates with international, national state, and local institutions that are concerned with alcohol and SUDs related to alcohol. Their reach extends to scientists, researchers, providers, educators, and the public in general. The NIAAA website has information

on the Community Anti-Drug Coalitions of America (CADCA) and other educational information related to alcohol use. Links are available on this site to find support and treatment locally. The NIAAA Alcohol Treatment Navigator provides access to local evidence-based alcohol treatment and alcohol use disorder (AUD); Treatment for Alcohol Problems: Finding and Getting Help is a guide describing AUD resources to increase the public's understanding of treatment choices, and the Behavioral Health Treatment Services Locator is a Substance Abuse and Mental Health Services Administration (SAMHSA)-based online referral assistant. The NIAAA also has a link for individuals to join clinical research studies and a separate webpage for publications and multimedia educational resources.

SAMHSA has a national helpline—samhsa.gov/find-help/national-helpline (1-800-622-4357)—that is free and confidential. It can be accessed 24/7. The website also provides access to an online treatment locator that locates a center by searching the patient's zip code (findtreatment.samhsa.gov/). The SAMHSA website also has a link to other free resources for families affected by SUD. This includes multiple downloadable digital and printed booklets for families. The topics include explaining the SUD diagnosis, treatment options, and information for parents on substance abuse; another explains how SUDs affect the family unit and interventions to move toward recovery; and another deals with how family therapy can support the person in recovery from an SUD. This website provides the most up-to-date information and is an excellent resource for provider and patients, but it is not a counseling center.

Part of SAMHSA, the Center for Substance Abuse Treatment (CSAT)—(240)-276-1660, www.samhsa.gov/about-us/who-we-are/offices-centers/csat—promotes treatment and recovery sites in American communities. Its mission is to improve access to high-quality treatment and recovery services, while reducing barriers.

Population-Specific Educational Initiatives/Resources

Native American/American Indian/Alaskan Native

- *First Nation/Tribal Training and Technical Assistance* obtainable through SAMHSA: Northwest Tribal Substance Abuse Action Plan for Tribes of Idaho, Oregon, and Washington developed by the Portland Area Indian Health Service and the Northwest Portland Area Indian Health Board (www.npaihb.org/images/epicenter_docs/MSPI/THRIVE/FINAL%20-%20NW%20Tribal%20Substance%20Abuse%20Action%20Plan.pdf).
- *Drum-Assisted Recovery Therapy for Native Americans (DARTNA)* developed as a resource for American Indians/Alaska Natives who

have persistently high levels of SUDs (www.ihs.gov/telebehavioral/includes/themes/newihstheme/display_objects/documents/slides/substanceuse/dartna_120315.pdf).

- *Find Health Care*: Indian Health Service (www.ihs.gov/findhealthcare/) uses street, state, and zip codes to find an Indian Health Service, Tribal or Urban Indian Health Program Facility.

Homeless

- *National Health Care for the Homeless Council: Substance Use Disorder* provides monographs and publications related to all homeless populations and SUDs (www.nhchc.org/resources/clinical/diseases-and-conditions/substance-use-disorder/).

APNA Resource Center

The APNA resource page provides links to information on tobacco dependence and smoking cessation resources, recovery resources, current substance use data and statistics, and general resources (www.apna.org/i4a/pages/index.cfm?pageid=4792).

Finding State Resources

The U.S. Department of Health and Human Services (DHHS), in collaboration with the Child Welfare Information Gateway, provides an online, state-specific, resource locator (www.childwelfare.gov/topics/adoption/adopt-assistance/?CWIGFunctionsaction=adoptionByState:main.getAnswersByQuestion&questionID=8).

Each state has specific divisions that deal with SUDs. To locate your state government website, go to www.yourstatename.gov. Once you have accessed your state, you can type in the division of health, mental health and addiction services, or human services. The divisions usually have a link that can take you directly to the programs that are supported by your state government. You can often find numbers for state hospitals, suicide prevention resources, services and treatments, crisis screening, and other state initiatives/resources you can use and also provide to your patients, their families, and the community.

Fast Facts in the Spotlight

Medicaid Innovation Acceleration Program: Support for states providing services in the continuum of SUD care is a fact sheet that identifies all American Society of Addiction Medicines (ASAM)-established levels of care for NPs and physician assistants (PAs)

(continued)

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working with people with SUD. States can meet the ASAM criteria, increase benefit coverage for SUD treatments, and ensure provider competency in care delivery:

<https://www.medicaid.gov/state-resource-center/innovation-accelerator-program/iap-downloads/reducing-substance-use-disorders/asam-resource-guide.pdf>

ASSESSING THE PATIENT

There are seven domains that we examine for the biopsychosocial sphere of individual functioning. It is imperative to assess for the diagnosis of SUD using the criteria from the *International Statistical Classification of Diseases and Related Health Problems*, Tenth Revision (ICD-10) or *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (DSM-5). Exam the patient to determine the presence and acuity of current intoxication or symptoms of withdrawal. Evaluate the behavioral, emotional, and cognitive presentation of the patients, determining if there is any decline in cognitive functions, and if they are capable of decision making at the time of evaluation.

One of the most important aspects of assessing for an intervention is knowing whether or not the patient is aware of a problem existing and accepting of the idea of changing the behavior. A current standard for evaluating the patient's readiness to change, to engage in recovery initiatives, is the transtheoretical model by Prochaska and DiClementi, also known as the stages of change. In this framework, the person passes from one stage of readiness to change to another, moving along a spiral-like continuum, from not thinking about having to change, to maintaining the new behavior. Within the continuum, there is both forward and backward movement, indicating some slips and recovery or relapse. This framework has been successfully used to support education and therapeutic interventions that meet the patient's needs during the existing cycle of change, providing care that can be understood, accepted, and acted upon.

Promoting change in a patient who does not even accept that a problem exists with the present behaviors usually ends up without any change being obtained. Working through the stages with the patient and engaging in techniques that have been demonstrated to be effective in each level improve the chances of success with therapeutic interventions.

EVIDENCE-BASED TECHNIQUES FOR WORKING WITH CLIENTS WITH SUDs

Evidence-based techniques for treating SUDs implies that the intervention has been tested and retested, and the outcome is a direct result from the intervention. Causal connections are established by testing the desired model with the standard model and identifying improved outcomes, usually through randomized clinical trials. This association is clear in many of the pharmacotherapies but harder to establish with psychotherapy/behavioral intervention, since much of the outcome in a therapeutic intervention relies on the therapeutic alliance between patient and provider. In addition to the variance due to the personal connection, SUDs are very heterogeneous in nature and often co-occur with medical complications (Labbe, Yeterian, Wilner, & Kelly, 2017). To establish the connection between the intervention and outcome, the intervention must demonstrate the same or similar outcome, in multiple studies conducted at different times, and by different researchers, thereby establishing reliability and validity in the method and plausibility in achieving the same outcomes (Kelly, Bergman, & O'Connor, 2018). More often than not, providers will combine techniques like motivational interviewing (MI), cognitive behavioral therapy (CBT), and mindfulness to achieve the goal of improving positive outcome and self-determined behaviors in persons with SUDs. All treatment should be individualized, and the combination of pharmacotherapy with behavioral psychotherapy has been demonstrated to be an important aspect of successful treatment.

Early Intervention Techniques—At Risk, Nonusers

Early intervention is aimed at those individuals who are at high risk for the development of an SUD, but who have not yet engaged in using. Primary prevention approaches including early assessment and provision of educational services can be utilized for this population. It would include those individuals with a known first-degree relative with an SUD, people who have experienced some trauma and not received counseling or another intervention, and young adults/adolescents with easy access to substances who are interested in experimentation.

Evidence-Based Practices for Persons Diagnosed With SUDs

EBP for SUDs include behavioral therapies and pharmacotherapies. This section focuses on the behavioral therapies, as the pharmacotherapies for opioid, tobacco, and alcohol abuse/dependency are presented in more detail in later chapters. An up-to-date, national

listing of organizational websites implementing EBP in the treatment of SUDs can be found on the SAMHSA website www.samhsa.gov/ebp-web-guide/substance-abuse-treatment.

Psychotherapeutic Approaches

These therapies can be delivered in person or virtually, to the individual, the family, and/or group. They usually include an assessment of the specific substances being used/abused, the patient's readiness to change, and his or her personal motivating factors. Quite often the person with an SUD has a co-occurring mental illness, and during psychotherapy, existing diagnoses can be determined and the best, most appropriate course of treatment identified and implemented.

Cognitive Behavioral Therapy

CBT is used in the treatment of alcohol, marijuana, cocaine, methamphetamine, nicotine, and food SUDs. CBT focuses on the thoughts (cognitions) and actions (behavior) involved in learned, reinforced maladaptive behavioral patterns, seen in SUDs. This type of therapy increases awareness of problem behaviors and teaches the person skills that can be applied when the problem behavior (like smoking, drinking, and using drugs) arises. It works to increase self-control through the development of coping strategies. Patients are taught how to create a decisional balance between the action and negative or positive outcomes occurring with continued substance use. Increased awareness of the existence of cravings and strategies to handle the cravings and urges without using are also taught and reinforced. CBT can be delivered in person, computer assisted, and online.

Family Behavior Therapy (FBT)

FBT addresses the substance use problem but also tackles other co-morbid psychosocial and psychiatric issues often preset in the person with SUD, including but not limited to domestic violence, unemployment, and conduct disorder. This is accomplished by utilizing the contingency model, individual and family therapy, and behavioral contracting with one or more family members. By using the family member, the therapist can have the goals of the therapy reinforced by the family member. FBT has been identified as successful in working with adolescents as well as adults (Easton, Crane, & Mandel, 2017).

Dialectical Behavior Therapy (DBT)

DBT was initially developed for the treatment of chronic suicidal ideation often seen in persons with borderline personality disorder

(BPD). BPD is a common dual diagnosis with persons with SUDs (Dimeff & Linehan, 2008). DBT requires the development of a treatment plan that targets specific substance abuse behaviors like reducing cravings, decreasing substance use/abuse, identifying and alleviating withdrawal/abstinence symptoms, reducing behaviors that increase the risk of using, and reinforcing healthy behaviors. The expectation of the provider/therapist for patient abstinence is the foundation of therapy, with the understanding that long-term sobriety begins with committing to specific lengths of abstinence from 5 minutes to increasingly longer periods (Dimeff & Linehan, 2008).

Incentivized Management Strategies

Contingency Management Interventions

Contingency management is based on the principle of action and reward: If you do this, you will get this. It uses a positive reinforcement policy of providing vouchers and prizes for engagement in the desired behavior. This approach has been demonstrated to be successful in participant retention in multiple programs, improved treatment engagement, as well as in the promotion of abstinence from substance use (Lussier, Heil, Mongeon, Badger, & Higgins, 2006). *Voucher-based reinforcement (VBR)* has been used in community treatments focused on opioid and stimulant recovery. The patient is awarded a voucher, which has value for purchasing items supporting a drug-free life, each time the urine sample is drug free. Price incentive contingency management uses prizes rather than vouchers, reinforcing clean, drug-negative breath or urine tests. Prizes of varying financial value can be placed in envelopes in a bowl, from which the participant picks after receiving a negative test result or continued attendance in therapy. This method was tested and determined not to promote gambling behavior.

Community-Reinforcement Approaches (CRA)

This program is implemented as a part of a 24-week outpatient therapy. The theory is to increase the rewarding aspects of the substance-free life, using material and psychosocial incentives, thereby decreasing the pull of the habitual life of using substances. This approach is multidimensional and requires the engagement of the community and family as the partners for achieving a substance-free life. A similar model, the community-reinforcement and family training (CRAFT) model, applies the CRA approach to the treatment of adolescents (Kirby et al., 2017). The therapeutic education system (TES) is a computer-based model of the CRA and has also been indicated to be effective in reducing opioids, cocaine, and

other stimulants post-treatment (Boumparis, Karyotaki, Schaub, Cuijpers, & Riber, 2017).

12-Step Facilitation Model (TSF)

The 12-step model increases the individual's engagement in an active community of people in recovery/abstinence, thereby supporting the participant to engage in abstinence. The key tenets of 12-step group self-help therapy are: (a) accepting that SUD is a disease that is chronic, progressive, and life long, (b) surrendering to a higher power (God or the fellowship of recovery), and (c) active engagement in the group through attending meetings and helping others.

Other Evidence-Based Strategies

Motivational Enhancement Therapy (MET)/MI

Developed by Miller and Rollnick (1991), MI provides the therapist with counseling techniques that improve the therapeutic alliance and helps the person with SUD resolve ambivalence. Utilizing these techniques increases the collaboration between patient and provider, using empathy, support, and respect in the active engagement of discovery. The five pillars of MI are: (a) express empathy by engaging in active, reflective listening, (b) develop the presenting discrepancy between current behaviors and goals/values, (c) go with the flow by avoiding arguing or confrontation, (d) accept and adjust to any resistance presented by the patient, and (e) be supportive of any patient advances in self-efficacy and optimism (Miller & Rollnick, 1991).

Mindfulness-Based Approaches

Stress has been indicated as a risk factor for drug use and relapse (Sinha, 2007). Mindfulness-based stress reduction (MBSR) is the practice of meditation that focuses the patient on the present moment, increasing the ability to pay attention, purposefully and without judgment. Through this practice, the participant is taught how to be present in their focus and to acknowledge and accept current experiences and thoughts, rather than to avoid unpleasant thoughts or force blame on others (Marcus & Zgierska, 2009).

Each evidence-based approach should be implemented with fidelity by a person who is trained in the specific modality. Understanding the complexity of SUDs means getting familiar with the vocabulary that goes hand in hand with the symptoms and experiences of the person with an SUD. People with SUDs often have medical and psychiatric complications, all of which must be appropriately diagnosed and treated. The question of which came first, the SUD or the psychiatric/medical diagnosis, should not be the focus of the treatment,

however. The provision of safe, effective, evidence-based care to improve the life of the patient must always be the first consideration. Meeting patients where they are in their ability to accept their diagnosis and begin to change their behaviors is imperative for successful intervention. Table 2.3 provides some techniques that will improve

Table 2.3

Stages of Change Model

Stage of Change	Characteristics	Techniques
Precontem- plation	Not currently considering change: “Ignorance is bliss”	Validate lack of readiness Clarify: Decision is theirs Encourage re-evaluation of current behavior Encourage self-exploration, not action Explain and personalize the risk
Contemplation	Ambivalent about change: “Sitting on the fence” Not considering change within the next month	Validate lack of readiness Clarify: Decision is theirs Encourage evaluation of pros and cons of behavior change Identify and promote new, positive outcome expectations
Preparation	Some experience with change and are trying to change: “Testing the waters” Planning to act within 1 month	Identify and assist in problem solving regarding obstacles Help the client identify social support Verify that the client has underlying skills for behavior change Encourage small initial steps
Action	Practicing new behavior for 3–6 months	Focus on restructuring cues and social support Bolster self-efficacy for dealing with obstacles Combat feelings of loss and reiterate long-term benefits
Maintenance	Continued commitment to sustaining new behavior post-6 months to 5 years	Plan for follow-up support Reinforce internal rewards Discuss coping with relapse
Relapse	Resumption of old behaviors: “Fall from grace”	Evaluate trigger for relapse Reassess motivation and barriers Plan stronger coping strategies

Source: Adapted from Prochaska and DiClemente; i.pining.com/originals/7b/9a/63/7b9a63b9baad7a373be30a6bd7ca82cf.jpg

the healthcare provider's ability to identify the stage of readiness and engage in the techniques that will help move the patient toward change.

Fast Facts in the Spotlight—Time for Reflection

You are working in an open community walk-in clinic. A young couple come in, late teens or early 20s, with one of the couple complaining that his partner, who has epilepsy, has been having seizures at night for the past 4 nights. He is very worried and has insisted they come to the clinic.

The patient appears to be dazed, slow to respond, and smells like marijuana. You ask the partner if there is any current drug or alcohol use, and which medications are being taken for the seizure disorder. You find out that the couple smokes pot together every day, about 10 to 12 times, and usually has alcohol in the evening. The person with the seizure disorder “does not like taking any medications” and has not taken the prescribed Keppra for at least 2 weeks.

What is your first response? Is it judgmental or clinical?

Who should be part of this team?

How will you approach this patient? What about the partner?

What stage of change do you think the patient is in?

ROUNDUP

Assessment in treating SUDs is as important as assessment when treating any other medical problem. The objective collection of data on the patient's condition, both physical and emotional, will help determine the best course of action to move that patient toward recovery. As with all diseases, SUDs require a team approach so that the patient as well as the patient's family and community can be part of the treatment.

LINKS TO LEARN MORE

- American Psychiatric Nurses Association: www.apna.org/i4a/pages/index.cfm?pageid=4792
- Drugabuse.com: drugabuse.com/library/drug-addiction-facts-myths/#dangers-of-believing-the-myths
- The Clinical Assessment of Substance Use Disorder Module: www.medeportal.org/publication/9110

Leeds Dependence Questionnaire (LDQ)

Here are some questions about the importance of alcohol or other drugs in your life. Think about the main substance you have been using over the **last 4 week** and tick the closest answer to how you see yourself.

	Never 0	Sometimes 1	Often 2	Nearly Always 3
Do you find yourself thinking about when you will next be able to have another drink or take more drugs?	☐	☐	☐	☐
Is drinking or taking drugs more important than anything else you might do during the day?	☐	☐	☐	☐
Do you feel that your need for drink or drugs is too strong to control?	☐	☐	☐	☐
Do you plan your days around getting and taking drink or drugs?	☐	☐	☐	☐
Do you drink or take drugs in a particular way in order to increase the effect it gives you?	☐	☐	☐	☐
Do you drink or take drugs morning, afternoon, and evening?	☐	☐	☐	☐
Do you feel you have to carry on drinking or taking drugs once you have started?	☐	☐	☐	☐
Is getting an effect more important than the particular drink or drug you use?	☐	☐	☐	☐
Do you want to take more drink or drugs when the effects start to wear off?	☐	☐	☐	☐
Do you find it difficult to cope with life without drink or drugs?	☐	☐	☐	☐

Figure 2.1 Leeds Dependence Questionnaire (LDQ)

- The Atlas of Substance Use from World Health Organization Resources for the Prevention and Treatment of Substance Use Disorders: www.who.int/substance_abuse/activities/atlas/en/
- CBT and Substance Use Disorder: www.mentalhealth.va.gov/substanceuse/cbt-sud.asp

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Identifying Substance Use Disorders

3

Alcohol Use Disorder

This chapter introduces you to alcohol use disorder (AUD), a specific disorder found under the umbrella of substance use disorders (SUDs). Alcohol is a legal substance that, when used in moderation, can be enjoyed without negative impacts to the body or mind. When that use becomes a pathological response to craving, causing the person to experience seeking behaviors that place alcohol before other priorities like family, work, and academics, the person is recognized as having an AUD.

In this chapter, you will learn:

- Neurobiology of AUD
- The definition of AUD and alcohol poisoning
- Statistics: prevalence and consequences
- Signs and symptoms
- Signs of withdrawal and emergency responses
- Nursing, RN, nurse practitioner (NP), and physician assistant (PA) considerations

UNDERSTANDING AUDS

The Neurobiology of AUD

All substances of abuse, including alcohol, activate some part of the brain's reward system, so understanding how the brain is involved in the development of the SUD is important. Different substances affect

Table 3.1

The Effects Drugs Have on the Subregions of the Extended Amygdala: Nucleus Accumbens Shell, Central Nucleus of the Amygdala, and Bed Nucleus of the Stria Terminalis

Area Affected	Nucleus Accumbens Shell	Central Nucleus of the Amygdala	Bed Nucleus of the Stria Terminalis
Drugs that impact functions	Cocaine	Cocaine	Cocaine
	Amphetamines	Ethanol	Ethanol
	Opiates	Opiates	
	Ethanol	Nicotine	
	Nicotine	THC	
	THC		

Source: Adapted from Bardi, J. (n.d.). Tragedy of alcohol abuse drives TSRI Researcher’s work. Scripps Research Institute. Retrieved from https://www.scripps.edu/newsandviews/e_20020225/print-koob.html

different neurobiological circuitries involved in the brain’s reward systems. For AUD, the two important receptor systems in the brain are gamma-aminobutyric acid (GABA) and N-methyl-d aspartate (NMDA) found in the reward centers of the basal forebrain. These systems are found in the amygdala and nucleus accumbens and act to reinforce the use of the substance (Table 3.1; Koob, 2013). The role of GABA in the brain is as an inhibitory neurotransmitter, slowing down neuronal signals, when alcohol is introduced it binds to the GABA receptors and mimics the GABA effect causing neurochemical effects on the brain, making alcohol an indirect GABA agonist (Koob, 2013). Glutamate causes the release of dopamine and serotonin. When alcohol is consumed, even in small quantities, these neurotransmitters “tend to activate the whole reward system” (Koob, 2013), increasing the person’s desire to drink more, which in turn increases tolerance that can lead to dependence (Figure 3.1).

Another important factor that increases a person’s risk for AUD is a genetic predisposition to substance use. The amygdala and other areas of the brain activate the sympathetic nervous system, responding to the corticotropin-releasing factor (CRF), or the brain’s stress system. If a person has higher CRF levels, it is theorized that the person might be more inclined to AUD, as alcohol consumption would reduce the hyperactive CRF system (Bardi, 2002).

The Definition of AUD

AUD is a disease. Moderate use of alcohol is not AUD. Although there have been benefits to health attributed to moderate alcohol

consumption, which is defined as up to one drink per day for a woman and two drinks per day for a man, those with AUD are unable to drink in moderation (2015–2020 Dietary Guidelines for Americans). AUDs present on a spectrum, as is demonstrated by the multiple *International Statistical Classification of Diseases and Related Health Problems*, Tenth Revision (ICD-10) diagnosis spanning from F10-alcohol-related disorders and F10.1-alcohol abuse, to F10.99-alcohol use with unspecified alcohol-induced disorder. According to the National Institutes of Health/National Institute on Alcohol Abuse and Alcoholism (NIH/NIAAA, 2018), “AUD is a chronic relapsing brain disease characterized by compulsive alcohol use, loss of control over alcohol intake, and a negative emotional state when not using” (<https://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/alcohol-use-disorders>).

The American Psychiatric Association (APA) established specific criteria that need to be met in diagnosing a person with AUD. The diagnosis of AUD in the *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (*DSM-5*) includes alcohol abuse and alcohol dependence under the same umbrella term of AUD. Eleven criteria are listed for AUD, and the patient who meets any two of these criteria during a 1 year period of time would be diagnosed with dependence. When using the *DSM-5*, the subcategories of mild, moderate, and severe are applied and reflect the number of criteria experienced by the patient. If the diagnosis is categorized as mild, the indication is that only two to three symptoms are present; for moderate, there are four to five existing symptoms; and for severe, the patient exhibits six or more criteria. In the past, encountering legal problems secondary to drinking was included in the criteria, however, that has been removed. It is critical to keep in mind that AUDs are usually underreported and often go untreated until complications arise.

Criteria for AUD

During the past 12 months, the patient (a) drinks more than intended, (b) has attempted to cut back or cease drinking without success, (c) spent a lot of time either drinking or hung over, (d) craved alcohol so much it took over all thoughts, (e) drinking has impaired tasks of daily living, (f) persisted in drinking despite the negative consequences, (g) made drinking a priority that caused lessening or elimination of other activities, (h) taken risks that could result in bodily harm while/after drinking, (i) experienced a black out, depression, or anxiety from drinking and continued to drink, (j) increased tolerance to alcohol requiring an increased number of drinks for the same effect, and (k) experienced withdrawal symptoms when unable to drink.

Alcohol Poisoning, AUD, and Withdrawal

The body's alcohol tolerance, the ability to function in the presence of alcohol, varies from person to person. The Centers for Disease Control and Prevention (CDC) report approximately 2,200 alcohol poisoning deaths a year (6 per day). A person with AUD may also be at risk for alcohol poisoning, a medical emergency occurring when the body's ability to function is so severely impaired that death is a possible outcome. Alcohol poisoning can occur when the body consumes too many alcoholic beverages at one sitting. The amount of alcohol entering the bloodstream affects the brain's ability to function, impairing respirations, cardiac functions, and body temperature. A major contributor to alcohol poisoning is binge drinking or consuming five or more drinks (four for females) in less than 2 hours.

Fast Facts in the Spotlight—Quick Definitions

U.S. Dietary Guidelines

AUD: A chronic, relapsing disease of the brain that can be mild, moderate, or severe. Signs and symptoms are inability to stop drinking despite negative consequences on health, social, and occupational life.

Low Risk for AUD: No more than three alcoholic drinks in any day, and no more than seven alcoholic drinks per week.

Moderate Drinking: Up to two alcoholic drinks a day for men or one for women.

Binge Drinking: Over four alcoholic drinks in a single occasion for women and five alcoholic drinks for men.

Heavy Alcohol Use: Eight or more drinks per week for women and 15 or more for men.

Risk Factors for AUD: 18–35 year olds, men are at higher risk, genetic loading, family history, culture, personality traits, and mental health disorders (that is, PTSD, schizophrenia, and mood disorders).

Alcohol Poisoning: The consumption of a toxic amount of alcohol in a short period of time leading to disorientation, unconsciousness, and possibly respiratory arrest. It is an emergency situation.

STATISTICS

Prevalence in the United States

Alcohol use and AUD are not the same. A 2015 National survey by SAMHSA indicated that almost 90% of Americans over the age of

18 drink alcohol over their life span. Those adults with AUD in the United States, however, made up 6.2%, with 8.4% male and 5.3% female (SAMHSA, 2015a,b,c). A quarter of adult Americans, in 2016, reported engaging in heavy drinking (more than 5 drinks in one sitting) at least once in the past year (CDC, 2017). Of adolescents between the ages of 12 and 17, 2.5% had AUD, with only 5.2% receiving treatment (SAMHSA, 2015d). Those who attend college are more likely to drink, with 58% of college students consuming alcohol compared with just over 48% of those who either do not attend college or only attend part time. This pattern of drinking in college is also present for binge drinking, with almost 40% of full-time college students reporting binge drinking compared to about 33% of those not attending college full time (SAMHSA, 2015e).

Consequences

AUD has consequences to the economy, the community, the family, and the body. In 2010, the misuse of alcohol cost the United States almost \$250 billion (Sacks, Gonzales, Bouchery, Tomedi, & Brewer, 2015). AUD results in early deaths, from accidents as well as organ failure. AUD on college campuses increases the likelihood of motor vehicle accidents (MVA), assault, rape, and academic failure. Families are often torn apart when one of the members has AUD, leaving one-parent households and children growing up in fear. Pregnancy and AUD can lead to fetal alcohol syndrome, which can leave the child with serious learning disabilities and other physical handicaps. AUD also severely impacts the ability of the body to function properly. Almost 50% of all liver diseases in 2015 involved alcohol use, including 50% of those who died from cirrhosis (CDC, 2015).

Signs and Symptoms of AUD

The cardinal symptoms of AUD are outlined in the 11 diagnostic criteria. Using that checklist (which can be found online at <https://www.rethinkingdrinking.niaaa.nih.gov/How-much-is-too-much/Whats-the-harm/What-Are-Symptoms-Of-An-Alcohol-Use-Disorder.aspx>), a person can self-diagnose. The difficulty is having that person come in for help. Often help is not sought until the person has lost something very significant, like family or a job, or when the drinking results in a car accident and help with AUD is required by the courts.

Findings on a physical exam might include uncoordinated movements, ataxia, tremors, rapid pulse, sweating, slurred speech, lack of appetite, nausea, vomiting, abnormal muscle tone, skin blemishes, or involuntary eye movements. Checking the patient's palms for increased redness and observing the face for flushing can help

identify a person with AUD. Evaluating the skin for spidery veins on the face and abdomen, yellowing of the sclera, abdominal bloating, and ecchymosis also can be an indicator of AUD. The patient might complain of symptoms of anxiety or depression, may report “black-outs,” and have impaired memory and decreased cognitive function.

The importance of a good patient/provider relationship cannot be overstated when interviewing a person with AUD. Evaluating the family history and learning social, academic, and work histories can provide needed information. Fear of stigma or negative reactions can keep your patient from sharing important information. When looking at the blood tests, you might notice anemia, vitamin deficiencies, and altered liver enzymes, depending on the severity and progression of the disease. Asking the patient how much and how often alcoholic drinks are consumed is important, clarifying what is meant by a “glass” of wine or beer is imperative to assess how much alcohol is in one drink.

Some nursing diagnoses that are related to AUD are denial, ineffective coping, powerlessness, imbalanced nutrition, low self-esteem, altered family process, sexual dysfunction, and deficient knowledge.

Signs of Alcohol Withdrawal and Emergency Responses

Signs and Symptoms of Alcohol Withdrawal

Chronic use of alcohol resulting in AUD, whether it is multiple drinks every day over a few weeks to many years, causes changes to the nervous system and brain. These changes, secondary to alcohol use/dependence, become the body’s norm. When a person with AUD decides to abruptly stop consuming alcohol or is unable to access alcohol, there is a precipitous drop in the blood alcohol. This abrupt change is what puts the body into *alcohol withdrawal*. The seriousness of the alcohol withdrawal depends on the level of AUD, on how much a person has been consuming and for how long. Those who have experienced withdrawal once are at a higher risk of experiencing it again when attempting to quit drinking. These symptoms of withdrawal can begin as early as 6 hours post last alcohol consumed or as late as a few days and can range from mild to life-threatening.

The most common early physiological symptoms of alcohol withdrawal are fatigue, pallor, tremors, agitation, headache, nausea, vomiting, sweating, and insomnia. On physical exam, you might find dilated pupils and clammy skin. Emotional complaints can include foggy thinking, nightmares, jumpiness, depression, anxiety/nervousness, and mood swings. As the withdrawal progresses, you may see mental confusion, tachycardia, hypertension, and excessive sweating. Emotionally, there may be complaints of increased irritability (out of

proportion to the situation), rapid mood swings, and loss of appetite. The most serious late-stage symptoms of withdrawal include extreme agitation, severe confusion, persistent tachycardia, hypertension, high fever, hallucinations, and seizures. This is a medical emergency.

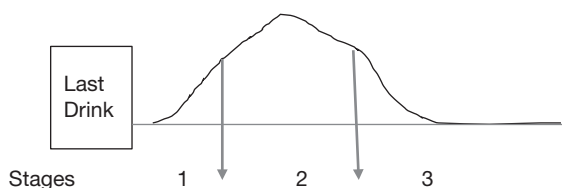
Exams and Tests for Alcohol Withdrawal (NP and PA)

A patient suspected of being in withdrawal should, during the routine physical exam, be tested for any abnormality on the EKG, abnormal eye movements, and dehydration. Routine blood and urine tests including a toxicology screen may be given. Delirium due to another cause should also be ruled out. Patients experiencing moderate to severe symptoms should be closely monitored, as their condition can rapidly decline into one of a medical emergency.

Time Frame for Withdrawal Symptoms

The National Library of Medicine (NLM) outlined a general timeline for withdrawal that includes first symptoms of withdrawal 8 hours past the alcoholic drink, with the symptoms increasing during 24 to 72 hours of abstinence, during which the symptoms can occur rapidly and become life-threatening (Figure 3.1). Over 5 to 7 days, the symptoms decrease, and most of the physiological symptoms should be gone. Psychological symptoms, however, if left untreated, can persist.

Alcohol reduction can be done gradually with some patients, under medical supervision, which allows the body to wean off the alcohol slowly and avoid the more serious, and dangerous, effects of physiological withdrawal. It is after the physiological withdrawal that the psychological symptoms of withdrawal can be assessed and treated.



Stage 1—8 hours: Anxiety, insomnia, nausea, and abdominal pain

Stage 2—1–3 days: High blood pressure and increased body temperature

Stage 3—1 week +: Hallucinations, fever seizures, and agitation

Figure 3.1 Alcohol withdrawal stages and timeline.

Source: Adapted from American Addiction Centers. (n.d.). Withdrawal timelines treatments: Alcohol. Retrieved from <https://americanaddictioncenters.org/withdrawal-timelines-treatments/alcohol/>

Emergency Responses to Alcohol Poisoning and Alcohol Withdrawal

Alcohol-related illnesses, including poisoning and withdrawal, can be life-threatening. The CDC reports that 1:10 deaths in Americans between the ages of 20 and 64, between the years 2006 and 2010, were due to excessive alcohol consumption (Sacks et al., 2015). Although delirium tremens (DT) occurs in only 5% of alcohol withdrawals, they represent a critical medical emergency. Alcohol poisoning, occurring either by accidentally drinking too much or purposefully consuming copious amounts of alcohol during a drinking game, also represents a medical emergency (Figure 3.2).

Nursing Treatment of the Patient With Alcohol Poisoning

When treating a person with alcohol poisoning, keep the head of the bed up, help the patient stay awake, monitor vital signs and level of consciousness frequently, check for diminished gag reflex and any aspiration, keep the patient warm, and start an IV to maintain an open line in the event of an emergency or need to hydrate.

Treatment of Alcohol Poisoning by the RN, NP, and PA

In addition to the full history and physical, the person with alcohol poisoning will need close monitoring and may require intubation, IV fluids, gastric emptying, and oxygen. Although the person with alcohol poisoning is not necessarily someone with AUD, there is an increased likelihood for alcohol poisoning in persons with AUD. If the patient has accidentally consumed alcohol that is a known poison, like ethanol, the patient might require hemodialysis. Patients treated for alcohol poisoning should be worked up for AUD so that a plan for comprehensive therapy dealing with the AUD and any other SUD can be implemented after the emergent situation has passed.

Nursing Treatment of Alcohol Withdrawal and Possible Complications

The nursing treatment of alcohol withdrawal is to monitor the patient in a safe environment. Lab results should be reviewed to determine if alcohol is the only substance being used. Monitoring the patient's respirations, vital signs, and level of consciousness at frequent intervals is critical.

Possible Complications

Delirium Tremens

DT is a complication of alcohol withdrawal and presents with disorientation, confusion, and hallucinations (Trevisan, Boutros, Petrakis, & Krystal, 1998). Early symptoms are loss or compromised

As BAC Increases, So Does Impairment

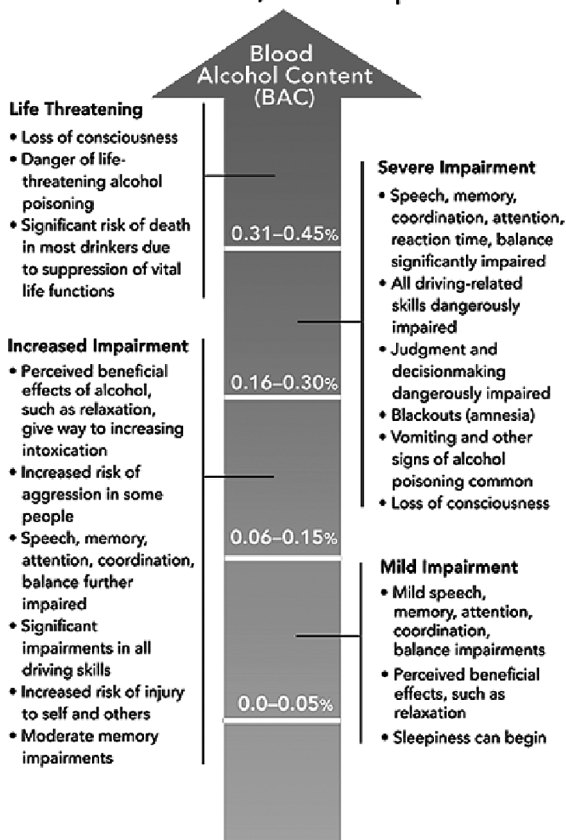


Figure 3.2 Blood alcohol content and alcohol poisoning: As BAC increases so does risk of poisoning.

Source: Adapted from National Institute on Alcohol Abuse and Alcoholism (National Institute of Health). (n.d.). Alcohol overdose: The dangers of drinking too much. Retrieved from <https://pubs.niaaa.nih.gov/publications/AlcoholOverdoseFactsheet/Overdosefact.htm>

coordination, vomiting, reduced gag reflex, bradycardia, depressed respirations, and reduced body temperature.

Alcoholic Seizures

These seizures are usually seen within the first 2 days of sobriety and are tonic-clonic in nature. According to Trevisan et al. (1998), it is not abnormal to see six or fewer of these seizures over a period of 6 hours after the first seizure occurs. A variation from this pattern would indicate that the seizure is not a consequence of the withdrawal and

needs to be worked up. Approximately 15% of persons who have alcohol dependency will experience a seizure (Hillbom et al., 2003). One third of the patients who experience alcoholic seizures are likely to experience DT, so any patient with an alcohol-related seizure should be on precautions and evaluated for signs and symptoms of DT. Any patient experiencing an alcoholic seizure should be under observation for at least 24 hours.

Alcohol Psychosis

Alcohol psychosis usually presents with auditory and visual hallucinations. Patients may have delusions and express that they feel they are being persecuted. It is important not to confuse alcohol psychosis with alcohol delirium, and to do this the practitioner should test the patient's sensorium. It will be affected by delirium but not by psychosis. A small percentage of patients (10%–20%) who present with alcohol psychosis have been found to progress to a chronic, schizophrenic-like syndrome (Soyka et al., 2017).

Wernicke–Korsakoff Syndrome (WKS)

This syndrome results from chronic AUD in malnourished patients who have a deficiency of thiamine. Any patient who has a known history of AUD and presents with acute confusion, unexplained hypotension, ophthalmoplegia, ataxia, disturbances or loss of memory, hypothermia, or is unconscious should be considered having WKS and treated as such. Parenteral infusions of thiamine should be provided to avoid triggering acute WKS with carbohydrate-containing IV fluids (Soyka et al., 2017).

Fast Facts in the Spotlight—Time for Reflection

It is a Thursday night, 10:00 p.m., and you are about to close up the student clinic for the night. You hear a student knocking at the door and shouting "Help! Help!" You open the door to find a young woman with her companion, a pale, diaphoretic young woman, who is leaning on her, mumbling incoherently. As they come into the clinic, the companion shouts out "Get the bugs off me! They are coming for the exam! Take me out!" The girl puts her companion in a seat, and the companion slumps over.

You lean down to check the respirations of the companion, then turn to ask the girl a question, but she runs out of the clinic, leaving the companion passed out in the chair. The companion suddenly goes very rigid. What do you do?

Table 3.2

How to Screen and Do Brief Interventions in the Emergency Department

Critical signs to identify alcohol poisoning—When you know the person has been drinking alcohol, look for

- 1) Mental confusion, inability to wake up, stupor, or coma
- 2) Vomiting
- 3) Seizures
- 4) Slow breathing (less than eight breaths per minute)
- 5) Irregular breathing (there are 10 sec or more in between breaths)
- 6) Hypothermia (core temp below 95°F): pale skin (pale mucous membranes on people with color) or skin with a bluish or dusky hue

Source: Adapted from National Institute on Alcohol Abuse and Alcoholism (National Institute of Health). (n.d.). Alcohol overdose: The dangers of drinking too much. Retrieved from <https://pubs.niaaa.nih.gov/publications/AlcoholOverdoseFactsheet/Overdosefact.htm>

ROUNDUP

AUDs are medical conditions affecting the brain and other organs, caused by imbibing alcohol to the level of dependence, causing the drinker distress or harm. AUD affects adolescents, adults, and seniors and can be diagnosed in multiple patients from the teen and the pregnant woman to the geriatric patient. There are 11 criteria to evaluate alcohol consumption to determine if the patient has the disorder. A person with chronic AUD usually drinks alcohol every day and can experience serious consequences when alcohol is abruptly withdrawn from the system. Not everyone who drinks alcohol has AUD; however, family history, certain psychiatric diagnosis, and genetic predisposition make some people more likely to progress from social drinkers to a person with AUD. Binge drinking (consuming over 4 to 5 drinks, depending on gender, in one occasion) can lead to alcohol poisoning (Table 3.2), which also can result in a medical emergency. Withdrawal from alcohol can present the health professional with many challenges and some life-threatening situations.

LINKS TO LEARN MORE

- What is alcohol use disorder: <https://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/alcohol-use-disorders>

- What is alcohol poisoning? <https://www.alcoholrehabguide.org/alcohol/alcohol-poisoning/>
- Take an alcohol assessment test: <https://www.rehabs.com/assessments/alcohol-addiction-quiz/>
- Alcohol use disorders identification test (AUDIT): <https://www.drugabuse.gov/sites/default/files/files/AUDIT.pdf>
- Chart of evidence-based screening tools for adolescents: <https://www.drugabuse.gov/nidamed-medical-health-professionals/tool-resources-your-practice/screening-assessment-drug-testing-resources/chart-evidence-based-screening-tools-adults>
- https://www.acep.org/globalassets/uploads/uploaded-files/acep/clinical-and-practice-management/resources/publichealth/alcohol-screening/alcohol_screening_kit_overview.pdf

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- Substance Abuse and Mental Health Services Administration (SAMHSA). (2015b). National Survey on Drug Use and Health (NSDUH). Table 5.6A—Substance use disorder in past year among persons aged 18 or older, by demographic characteristics: Numbers in thousands, 2014 and 2015. Retrieved January 18, 2018, from <https://www.samhsa.gov/data/sites/default/files/NSDUH-DetTabs-2015/NSDUH-DetTabs-2015/NSDUH-DetTabs-2015.htm#tab5-6a>
- Substance Abuse and Mental Health Services Administration (SAMHSA). (2015c). National Survey on Drug Use and Health (NSDUH). Table 5.6B—Substance use disorder in past year among persons aged 18 or older, by demographic characteristics: Percentages, 2014 and 2015. Retrieved January 18, 2018, from <https://www.samhsa.gov/data/sites/default/files/NSDUH-DetTabs-2015/NSDUH-DetTabs-2015/NSDUH-DetTabs-2015.htm#tab5-6b>
- Substance Abuse and Mental Health Services Administration (SAMHSA). (2015d). National Survey on Drug Use and Health (NSDUH). Table 5.5B—Substance use disorder in past year among persons aged 12 to 17, by demographic characteristics: Percentages, 2014 and 2015. Retrieved January 18, 2018, from <https://www.samhsa.gov/data/sites/default/files/NSDUH-DetTabs-2015/NSDUH-DetTabs-2015/NSDUH-DetTabs-2015.htm#tab5-5b>
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default/files/NSDUH-DetTabs-2015/NSDUH-DetTabs-2015/NSDUH-DetTabs-2015.htm#tab6-84b

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4

Tobacco Use Disorder

According to the American Academy of Addiction Psychiatry (AAAP), tobacco use disorder (TUD), when compared to other substance use disorders in the United States, is the most common, with between 60% and 80% of smokers meeting all criteria for drug dependence (AAAP, 2015). In TUD, nicotine has been identified as the principal addictive ingredient. The impact of this disorder is reflected in the fact that tobacco use has been identified as America's most preventable cause of mortality. TUD also affects those who do not smoke, with almost 41,000 deaths related to environmental exposure to second-hand smoke (USDHSS, 2014).

Similar to all chronic substance use brain disorders, persons with TUD exhibit cravings for tobacco between uses and can experience withdrawal symptoms upon cessation. Nicotine, when smoked, is highly addictive with almost 50% of those who experiment with tobacco becoming dependent on it (Benowitz, 2010). The prolonged, habitual use of tobacco impacts general health, cognitive function, and mood (Bruijnzeel, 2017). Mortality for smokers, regardless of gender, is about three times higher than nonsmokers (U.S. Department of Health and Human Services [DHHS], 2014).

In this chapter, you will learn:

- Neurobiology of TUD
- The definition of TUD
- Statistics: Prevalence and consequences
- Signs and symptoms

- Signs of withdrawal
- Nursing and physician assistant (PA) considerations

THE NEUROBIOLOGY OF TUDs

Aerosolized nicotine is highly addictive. Dependence on tobacco can be caused, in part, by the ingestion of nicotine (eaten, swallowed, absorbed, or inhaled), activating the nicotinic acetylcholine brain receptors. This in turn releases dopamine into three main brain areas: mesolimbic area, frontal cortex, and the corpus striatum (Liu, Zhao-Shea, McIntosh, Gardner, & Tapper, 2012). The ventral tegmental area harbors the mesocorticolimbic reward center, activation of which by substances can lead to dependence. Intake of nicotine increases neuronal firing in this area for several minutes (Liu et al., 2012). Investigation into nicotine as the addictive source in tobacco by Alpert, Agaku, and Connolly (2016) revealed that other additives are being used in cigarettes to enhance the potential of abuse and addiction. Specifically, their research examined pyrazines and other compounds that act synergistically with nicotine, promoting the use of cigarettes as well as relapse by those who attempt to quit.

THE DEFINITION OF TUD

TUD is a syndrome in persons who demonstrate a dependence on nicotine secondary to the use of tobacco products. Tobacco products that deliver nicotine include cigars, hookahs, chewing tobacco, smokeless tobacco also known as snuff, and cigarettes. Nicotine patches for transdermal delivery and electronic nicotine delivery systems (ENDS) like vapes and vape pens also provide a method for nicotine delivery; however, TUD is specific to nicotine delivery through tobacco use. The Food and Drug Administration (FDA) is presently exploring development of standards to protect against health risks posed by ENDS and the exposure to liquid nicotine by children.

Criteria for Diagnosing TUD

The patient who has used tobacco in any form for over 1 year and is experiencing tolerance leading to needing more tobacco over time, inability to stop using, seeking behaviors to acquire tobacco products, craving when tobacco is not being used, continued use despite negative consequences, and withdrawal symptoms when tobacco product is unavailable is diagnosed with TUD. The diagnosis can be qualified by specifying if it is mild (two or three symptoms), moderate (four or five symptoms), or severe (six symptoms or more). The *International*

Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10) diagnostic for TUD is F17.200, and the *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (DSM-5) is 305.1 and is listed in the category Substance Use Disorder.

Fast Facts in the Spotlight

Questions to ask patients presenting with a TUD:

1. After you wake up, how soon do you smoke a cigarette?
2. Is it hard for you not to smoke when you are in a place where you are not allowed to smoke?
3. Of all the cigarettes you smoke during the day, which one would you hate to not be able to smoke?
4. In a normal day, how many cigarettes do you smoke?
5. Is your smoking heaviest after you wake up?
6. If you are sick in bed, do you still smoke?

Source: Adapted from Baker, T. B., Breslau, N., Covey, L., & Shiffman, S. (2012). DSM criteria for tobacco use disorder and tobacco withdrawal: A critique and proposed revisions for *DSM-5*. *Addiction (Abingdon, England)*, 107(2), 263–275. doi:10.1111/j.1360-0443.2011.03657.x

STATISTICS

Prevalence in the United States

According to the Centers for Disease Control and Prevention (CDC, 2018), over 15.5% of American adults over the age of 18 smoke cigarettes. This translates to over 37 million Americans. Despite the fact that cigarette smoking has declined since 2005 when 20.9 million adults were smokers and there are more people quitting, the prevalence of smokers (defined as people smoking at least 100 cigarettes over a lifetime) there was no significant change in prevalence of smokers during 2015 to 2016. The importance of this statistic is reflected in the impact that TUD has on the whole body, from cancer and chronic heart and lung diseases to erectile dysfunction in males. The CDC has attributed smoking as the direct cause of 480,000 annual deaths in the United States, a statistic that includes the 41,000 deaths from exposure to second-hand smoke. American youths are also smoking. In fact, each day over 3,800 youngsters (<18 years of age) start smoking cigarettes. This is of concern because 90% of cigarette smokers started before 18 and 99% by the age of 26. Current statistics reveal that by 2014 almost 75% of high school students and

over 50% of middle school students used flavored tobacco products (CDC, 2014). Included in this number are 1.58 million e-cigarette users.

Fast Facts in the Spotlight

School nurses, emergency department nurses, and PAs need to know these facts:

- Tobacco use is the most preventable cause of death in the United States.
- Most people start smoking before the age of 18.
- Over 3.35 million middle and high school students report using tobacco and 1.58 million report using e-cigarettes.
- Youth are drawn to flavored tobacco products including cigarettes, e-cigarettes, pipes, hookahs, and cigars.
- Non-Hispanic Black students favor menthol cigarettes, whereas non-Hispanic White students and Hispanic students favored flavored products.

Oral absorption and inhalation of nicotine and other by-products of tobacco affect brain development, can cause dependence, is likely to lead to TUD, and can have negative long-term body and brain development impact.

Ask your students about tobacco and e-cigarette use. Identify the myths of nonharmful use, and use the teachable moment to change behaviors.

Source: www.cdc.gov/mmwr/preview/mmwrhtml/mm6438a2.htm?s_cid=mm6438a2_w

Consequences of TUD

Use of tobacco products impacts every human organ and can lead to chronic illness, disability, and death. The CDC estimates that more than 16 million Americans live with some smoking-related disease. The organ systems that are most frequently affected by tobacco use/smoking are lungs, heart, immune system, and pancreas. Smoking is the causative factor in many forms of cancer, pulmonary disease, heart disease, immune dysfunction, and is even known to cause erectile dysfunction in men. A person who smokes, compared to one who does not smoke, loses on average 10 years of life.

Smoking is the cause of about 6 million annual deaths worldwide, with that number predicted to rise to 8 million by 2030. One in five deaths each day in the United States is attributed to smoking.

Effects of Smoking on the Body's Systems

Smoking increases the risk for many diseases (Figure 4.1).

- Respiratory system: chronic obstructive pulmonary disease (COPD), emphysema, chronic bronchitis, pneumonia, asthma, and tuberculosis

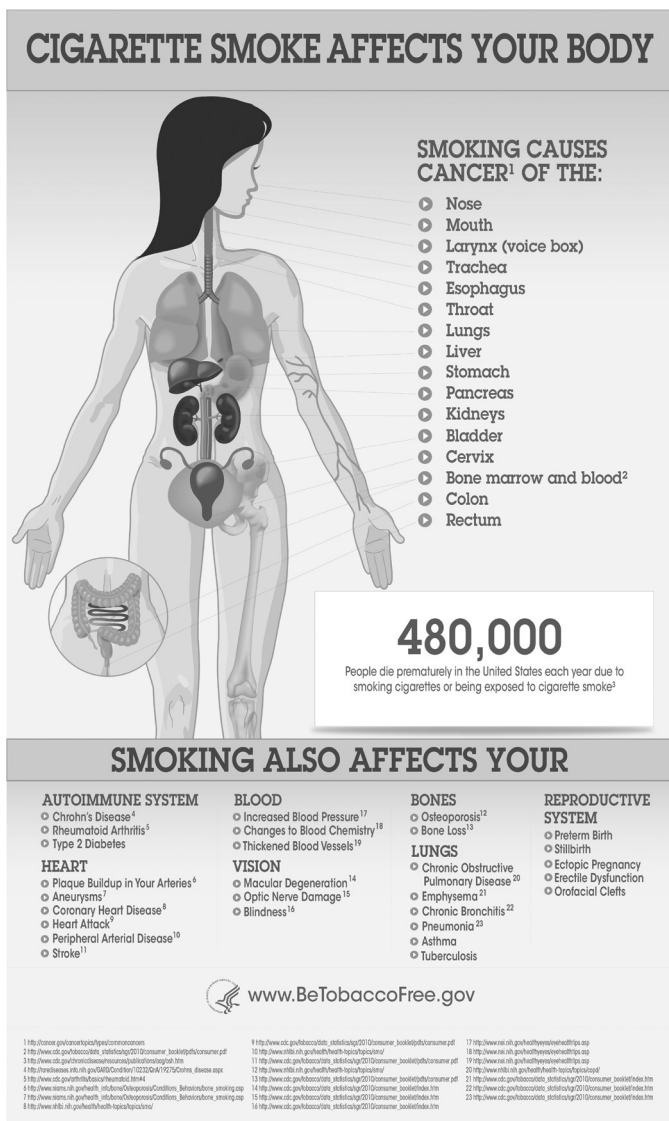


Figure 4.1 Ways cigarette smoke affects your body.

Source: Stomato, L. (n.d.). *BeTobaccoFree.gov*. Retrieved from blog.nj.com/njv_linda_stomato/2015/07/big_tobacco_the_chamber_and_th.html

- Circulatory system: atherosclerosis, aneurysms, hypertension, increased clotting disease, and stroke
- Cardiac system: coronary heart disease, myocardial infarction, and heart-related chest pain
- Integumentary system: early aging of the skin
- Immune system: increased infections, rheumatoid arthritis, and type 2 diabetes
- Skeletal system: decreased bone density (osteoporosis)
- Optic system: age-related macular degeneration, cataract, and optic nerve damage

Types of Cancer That Are Related to Smoking/Tobacco Use

- Trachea, bronchus, esophagus, oral, lip, nasopharynx, nasal, and larynx cancers
- Lung cancer
- Stomach, bladder, pancreas, kidney, liver, uterine, colon, and rectal cancers

TUD Withdrawal

When people with TUD are unable to access a cigarette or have chosen to quit, they will experience nicotine withdrawal. The dependence factor in TUD is very high, and although almost 70% of adult smokers indicate a desire to quit smoking, only about 50% even tried to quit, even just for 1 day. There is a “Tips From Former Smokers” campaign that was begun in 2012 and has successfully helped around 500,000 smokers quit.

Nicotine withdrawal is physical and emotional/mental. The physical symptoms of nicotine withdrawal can include intense cravings, headaches, dizziness, fatigue, insomnia, cough, constipation, and a change in appetite, usually increased hunger. The emotional, mental, and behavioral symptoms of withdrawal can include anxiety, depression, irritability, and an inability to concentrate.

During withdrawal from tobacco and nicotine, the patient may experience symptoms that are common to an affective disorder, demonstrating hopelessness, apathy, anhedonia, and psychomotor retardation. Their speech pattern may be affected, and they might be feeling isolated from their smoking friends, further increasing their sense of depression and hopelessness. Cognitively, they might appear confused or indecisive, intermittently craving the nicotine/cigarette and feeling angry at having decided to quit.

The active substance in tobacco products is nicotine, which is a central nervous system (CNS) stimulant. Withdrawal of this CNS stimulant, especially for the long term, can be very uncomfortable for the chronic smoker. The physiological withdrawal is usually seen

Table 4.1

Physical Changes Upon Quitting Smoking			
Minutes	Hours	Months	Years
Within 20 min: heart rate drops	Within 12 h: carbon monoxide levels drop to normal	2–3 months: your risk for heart attack drops and lung function begins to improve 1–9 months: decrease in shortness of breath and coughing	1 year: coronary heart disease risk reduced to one half that of a smoker 5–15 years: stroke risk is reduced to a nonsmoker's risk 10 years: lung cancer risk is one half that of a smoker; decreases in other kinds of cancers (mouth, throat, esophagus, bladder, kidney, and pancreas) 15 years: risk of coronary heart disease is the same as a nonsmoker's

Source: Adapted from a 2004 surgeon general's report and used in www.ecigaretterevue.com/nicotine-withdrawal; <https://www.sctobaccofree.org/quit>

first and can be just 2 hours past smoking the last cigarette (Table 4.1). With the craving comes the hyperfocused thought process of acquisition, which when unsatisfied can produce behavioral and emotional changes.

Nursing, Nurse Practitioner (NP), and PA Considerations for the Person With TUD

When a person is withdrawing from nicotine, reassure the patient that the physical symptoms of withdrawal, although very uncomfortable, will usually be gone in about 2 weeks of abstinence. There are self-help smoking cessation groups, hypnosis, and other nonpharmaceutical outlets to support the person quitting tobacco/nicotine. There are also home remedies and over-the-counter nicotine replacement therapies (e.g., nicotine gum and nicotine skin patches) that people may use independently to try to quit. A person who decides to stop smoking without any support is said to be quitting “cold turkey.”

It is not unusual for quitting to take more than one attempt; therefore, reassuring the patient that such practice increases the chances

of success may help support their determination to quit for good. Respect the fact that quitting tobacco/nicotine is very difficult, but it is something that many people have done successfully and changed their health and their lives for the better. Any time a patient speaks about smoking or quitting smoking, it is a great opportunity to engage in some health education, providing the patient with information about the health benefits of smoking cessation and giving any written materials that are available.

Seeking training for nurses and other healthcare providers on tobacco use/smoking/nicotine cessation has been demonstrated to increase the number of persons with TUD to quit. Training provides healthcare professionals with the ability to provide risk/benefit discussions, remove barriers to quitting, identify medications and other support methods, and provide ongoing support for successful cessation. Despite the evidence supporting the importance of smoking cessation to overall patient health, it is surprising that it is not a topic that is comprehensively investigated during the years of general clinical education.

Nursing Diagnosis for the Patient With TUD/Withdrawal

Nurses in general care environments as well as school nurses should be aware of the person who is at risk for nicotine/tobacco withdrawal. Asking in a nonjudgmental way about present and past tobacco/nicotine use will help identify those at risk. Adolescence is a time of emotional turmoil for many, and when school interferes with nicotine delivery, the student may be acting out more from the symptoms of withdrawal than from an emotional problem. Helping the student understand the impact of the use of nicotine can start the discussion of possible cessation.

Patients who are in the hospital and unable to smoke might appear to the healthcare team as unwilling to be compliant with instructions. This could set up a situation where the level of trust is strained, rather than the therapeutic relationship strengthened as the nurse and the patient work to reduce the withdrawal symptoms during hospitalization. The most common nursing diagnoses for those persons who are unable to access tobacco/nicotine are ineffective coping and impaired judgment,

NP and PA Considerations

The Clinical Practice Guideline for treating tobacco use and dependence identifies the fact that a great majority of smokers see a healthcare provider annually, providing an opportunity to make a difference in their smoking behaviors (The Clinical Practice Guideline Treating Tobacco Use and Dependence 2008 Update Panel, Liaisons, and Staff, 2008). Despite the threat that is posed by smoking, health clinicians

are not inclined to proactively intervene. The guidelines, however, suggest the five As approach of *asking* all patients about present or past tobacco/nicotine use, provide *advice* on quitting for current users, *assess* the person's willingness/readiness to quit, *assist* those ready to try, and *arrange* follow-ups to prevent relapse.

There are a number of options open to NPs and PAs who are treating persons with TUD. Quite often tobacco use is seen in patients with other psychological or psychiatric diagnoses. It is imperative, prior to treating the TUD, to ascertain what other medications the patient is on and any past history of seizures or other neurological conditions. Some patients will be hospitalized and unable to smoke, placing them at risk for nicotine withdrawal in the hospital environment. During the history and physical, ascertain if the person smokes on a regular basis (cigarettes and e-cigarettes) in order to predict the patient's need for any nicotine replacement. Discomfort secondary to nicotine withdrawal could precipitate a desire to self-discharge against medical advice (AMA).

If the patient is confined to a no smoking institution, which most hospitals are, work with the person to find the treatment that is most likely to be successful. Where allowed, prescription nicotine patches or nasal sprays can be helpful in reducing the withdrawal symptoms by slowly decreasing the amount of nicotine in the body. The combination of counseling and medications has shown the greatest positive effect for smoking/nicotine cessation. The first-line medications, identified by the tobacco guidelines, which can be used to increase smoking abstinence in the long term, are:

- Bupropion HCl oral; Chantrix, Zyban, and Varenicline
- Nicotine gum, inhaler, lozenge, nasal spray, buccal, and patch

Fast Facts in the Spotlight—Time for Reflection

Middle School Scenario: Marti, a 13-year-old female, is seen in the hallway deeply inhaling an e-cigarette, with the very sweet smell of mint chocolate coming from the vapor fumes. Her best friend stands by and after Marti takes three inhalations, she passes the e-cigarette to the friend. Before the friend can even take an inhalation, Marti passes out, falling to the ground hitting her head and losing consciousness. You are called to the hallway where a group has gathered, and Marti's friend is gone. You don't know what occurred, what do you do? How do you turn this into a future teachable moment?

(continued)

(continued)

Hospital Scenario: Mr. Jay, 54 year old, is admitted to the sleep disorder unit for observation. He has a history of snoring and some sleep apnea. His O₂ saturation on room air is 88%. You notice that he has a dusky completion, rounded finger tips, and a slight expiratory wheeze. During the H&P, you learn that he has been smoking "Kools" since he was 14 years old. He states he has had multiple colds in the past few years and can't seem to shake the productive cough he has been ignoring for about a year. He thinks that it is the cough that is the cause of his sleep problems and would like a prescription for medication to take away his cough. What do you do? What test, if any, do you think Mr. Jay should have? What kind of teaching would you like to do with Mr. J?

ROUNDUP

Despite the fact that smoking and use of tobacco/nicotine products are highly addictive and that it causes bodily harm to every body system, healthcare providers are often hesitant to be aggressive in prevention techniques and cessation interventions for their patients with TUD. TUDs are known to cut about 10 years off the lives of those who use and cost the country billions of dollars in lost wages, illness, and death of otherwise healthy Americans. Tobacco use is the most common known cause of mortality in the United States, one that is preventable and treatable.

LINKS TO LEARN MORE ON

- American Cancer Society: www.cancer.org/healthy/stay-away-from-tobacco/guide-quitting-smoking/prescription-drugs-to-help-you-quit-smoking.html
- Nurse World: OJIN, Smoking Cessation Interventions for hospitalized patients with Cardiopulmonary disorders: <http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume82003/No2May2003/HirshArticle/SmokingCessationInterventionsforHospitalizedPatientsWithCardioPulmonaryDisorders.html>
- Improving Tobacco Cessation Intervention Delivery in Primary Care: scholarworks.umass.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1068&context=nursing_dnp_capstone

- CDC Health Care Professionals: Help Your Patients Quit Smoking: www.cdc.gov/tobacco/campaign/tips/partners/health/hcp/index.html

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Cannabis Use Disorder and Hallucinogenic Use Disorder

Cannabis use disorder (CUD) includes intoxication, withdrawal, other cannabis-induced disorders, and unspecified cannabis-related disorder. In the 1930s, marijuana was considered to be a very harmful drug, equated with heroin, LSD, and ecstasy, and now it is legal for medical use in 28 of 50 states and for recreational use in nine states (Walker, 2017). Metric and Ramesh (2017) report that cannabis (pot, marijuana, and Mary Jane) use in the United States affects about 44% of all Americans over the age of 12. Ten percent of those who have used cannabis at least one time actually meet the CUD criteria. As with other substance use disorders, these patients will demonstrate the craving, seeking, and withdrawal criteria. Unlike many of the other substance use disorders, persons with CUD are not likely to seek interventions or support. In addition to the neurobiology, definition, signs and symptoms of withdrawal, this chapter also looks at the reported impact of the legalization of marijuana for medical and recreational use.

In this chapter, you will learn:

- CUD and hallucinogenic use disorder
- Neurobiology of CUD
- Prevalence over the life span

- Impact of legalization on marijuana use: pros and cons
- Signs and symptoms
- Signs of withdrawal and emergency responses
- Nursing and physician assistants (PAs) considerations for treatments for CUD, resources for recovery

CUD AND HALLUCINOGENIC USE DISORDER

Cannabis and hallucinogenic use disorders are combined to define cannabis use. Psychoactive effects that can cause hallucinations, and many of the effects of using cannabis products are similar to those achieved through the use of hallucinogens. A psychoactive drug is

Table 5.1

Names, Routes, and Preparation of Some Common Hallucinogens

Drug	Some Common Street Names	Route of Administration	Preparation/Presentation
Cannabis	Pot, Mary Jane, reefer, weed, grass, bud, herb, kif, and so on	Oral Smoked Eaten	Marijuana, hash oil, hashish
LSD	Acid, blue heaven, blotter, hits, chips, tabs, trips, windowpane, and Bart Simpson	Oral	Eaten after it is placed on paper (“blotter”), sugar cubes, powder, liquids, or gelatin
DMT	Cohoba, lunch-hour drug, businessman’s lunch, businessman’s LSD, and Ayahuasca	Oral Smoked Intranasal Injected	In tea made from MAO inhibitors and DMT, crystals, oil mixed with pot or tobacco, dissolved and injected
PCP	Angel dust, dust, elephant or horse tranquilizer, Peace Pill, rocket fuel, wack, and so on	Oral Smoked Intranasal Injected	Capsules or tablets swallowed, mixed with tobacco or marijuana or other herbs and smoked, snuffing crystals, dissolved and injected
Ketamine	K, K hole, Ket, psychedelic heroin, special K, vitamin K	Oral, Intranasal Injected, IM	Tablets or capsules, crystals for snuffing, injected
DXM	DM, Robo, Tussin, and so on	Oral	Cough syrup and pills

one that can alter brain function, bringing about a transient state of mood change, level of consciousness, and/or behaviors. Some common psychoactive substances are listed in Table 5.1, with their common names, route of administration, and preparations (McCrary & Epstein, 2013).

The Neurobiology of CUDs

As with most of the drugs that activate the reward system in the brain, cannabis affects the reward circuit, dopamine, and the other microcircuits that engage during memory, motivation, stress, and executive function activation. Dopamine, especially in the mesolimbic pathways, is one of the key neurotransmitters regulating reward and reinforcement of our behaviors. The target of the cannabinoids (CBDs) from marijuana is cannabinoid type 1 (CB1), which works by regulating dopamine signaling that passes through the CBD receptors in two areas, the nucleus accumbens and the gamma aminobutyric acid (GABA) and glutamate terminals to the nucleus accumbens (Stahl & Grady, 2016).

Cannabis is the name of both the plant it is derived from and the drug. The psychoactive ingredient in cannabis is called tetrahydrocannabinoid (THC). Areas with the highest number of CB1 receptors are related to the effects of chronic marijuana use, including but not limited to memory loss (hippocampus), fragmented disordered thought processes (cortex), and coordination (cerebellum). CBD is another ingredient in cannabis that often is used in medical applications. The substrates of the brain that can lead to reinforcing the use of cannabis (THC), which could lead to a substance use disorder, are listed in Table 5.2:

Table 5.2

Impact of THC on the Brain’s Neurotransmitters and Their Sites of Action				
THC neurotransmitters	Dopamine	GABA	Opioid	CB1; endocannabinoid
THC sites of action	Nucleus accumbens	Ventral tegumental area	Widely distributed in the brain, also in the spinal cord	Cerebral cortex, hippocampus, cerebellum basil ganglia

CB1, cannabinoid type 1; GABA, gamma aminobutyric acid; THC, tetrahydrocannabinoid.

The Definition of CUD and Prevalence

CUD incorporates difficulties and issues that result from using cannabis or other chemically synthetic compounds that are similar to cannabis. As with the other substance use disorders, there are 11 possible markers seen as a result of problematic cannabis use. These include focused time spent in getting, using, or recovering from use, the increased amounts needed, desire to use despite unsuccessful attempts to stop, seeking behaviors, cravings, cannabis use impacting work, school, or home life, reduced interaction with work or social events due to use, increased physical risk during use, inability to stop or reduce use in the face of medical or psychological problems, tolerance, and withdrawal. Only two of these criteria need to be evident in a 12-month period for the diagnosis of CUD to be made. The Leeds questionnaire is often used in emergency departments and psychiatric units to determine the patient’s level of dependence on a drug, including cannabis.

In the United States, marijuana is the most common type of cannabis used (Stephens & Banes, 2013). Marijuana is considered to include a blend of multiple parts of the plant including the stems, leaves, and the flowering tops. Because of this, the potency of the marijuana can vary—from as low as 2% to as high as 14% (Stephens & Banes, 2013). A variety of cannabis that is very potent is called *sinsemilla*, meaning without seeds in Spanish, which is made up of the female flowering part of the cannabis plant. *Hashish*, a resin that is also extracted from the flowering part of the plant, is usually seen in a rock-like shape and can be brown or black. It is usually consumed by smoking it or using it in baked goods. Hash oil is a very

Table 5.3

National Survey on Drug Use and Health: Prevalence Trends or the Pros and Cons of Legalized Medical/Recreational Marijuana

Drug	Time Period	Ages 12 or Older (%)	Ages 12–17 (%)	Ages 18–25 (%)	Ages 26 or Older (%)
Marijuana/hashish	Lifetime	44.00	14.80	51.80	46.20
	Past year	13.90	12.00	33.00	11.00
	Past month	8.90	6.50	20.80	7.20

National Survey on Drug Use and Health: Trends in Prevalence of Marijuana/Hashish for Ages 12 or Older, Ages 12 to 17, Ages 18 to 25, and Ages 26 or Older; 2016 (in percent)*
Source: Substance Abuse and Mental Health Services Administration (SAMHSA)

potent, refined extract of hashish, which is also smoked or inhaled (Stephens & Banes, 2013).

Prevalence

Stephens and Banes (2013) report that cannabis is the most used drug in the United States and globally, more than doubling the next most frequently used illicit. Although the prevalence for CUD is higher for men, women have a faster trajectory from cannabis to CUD (Kerridge, Chou, Saha, & Hasin, 2017). Studies have demonstrated that those with CUD have a high prevalence of other substance use disorders (83.2%), as well as personality disorders, mood disorders, anxiety disorders, and PTSD. There is a correlation between CUD and borderline personality disorder, and there is also an association with schizotypal personality disorder with women. Severe CUD was found to be more prevalent with Black men and women than with Whites. Low income was also associated with CUD.

Fast Facts in the Spotlight

Lacing is when a person puts a second or third drug into the primary drug to enhance or potentiate the psychotropic effects. According to the American Addiction Centers, cannabis can be laced with multiple other drugs like PCP, heroin, LSD, methamphetamine, ketamine, and cocaine. It is thought that the seller is either trying to make the cannabis look bigger than it is or is selling a product that is low quality so the addition of other drugs makes it appear more potent.

Emergency signs of a person who has taken (smoked or eaten) cannabis products that are laced with other substances are:

- Nausea, vomiting, diarrhea after ingestion
- Breathing difficulties, lightheadedness, derealization
- Changes in heart rate or blood pressure
- Irritability, jitteriness, insomnia, lack of appetite
- Psychosis: Hallucinations, disorientation, confusion, delusions
- Extreme lethargy, bradycardia, confusion, respiratory depression

Impact of Legalizing Cannabis

In April of 2018, Washington, DC, and 30 states have legalized marijuana laws for recreational and/or medical use. The eight states with broad medical/recreational legalization are: Alaska, California,

Massachusetts, Maine, Nevada, Colorado, Oregon, and Washington, as well as DC. Arizona, New Mexico, Montana, North Dakota, Minnesota, Louisiana, Arkansas, Illinois, Michigan, Ohio, West Virginia, Florida, Maryland, Pennsylvania, New Jersey, New York, Connecticut, Vermont, New Hampshire, Rhode Island, and Hawaii are the other states that have legalized marijuana. It is important to note that in Louisiana, marijuana can only be used as oils, topical applications, and other non-smokable methods of ingestion. Alabama and Mississippi, although not having a medical marijuana law on their books, do allow medical marijuana to treat otherwise untreatable severe epilepsy.

Who can recommend treatment with medical marijuana differs from state to state. Certified MDs, doctors of osteopathys, nurse practitioners (NPs), and PAs can recommend medical marijuana for their patients; they do not prescribe. Prescribing marijuana would be against federal law. In order to be certified to recommend medical

Table 5.4

Pros and Cons of Legalized Medical/Recreational Marijuana	
Pros	Cons
It provides safer access to marijuana. The practice of lacing marijuana with other drugs can be significantly reduced.	Smoking is an irritant and can have long-term negative health effects on the smoker. Chronic use of marijuana can impact the immune system.
Most recreational users (up to 90%) never progress to dependence or cannabis use disorder.	States with legalized marijuana for recreational use have had an increase in accidental pediatric overdose and motor vehicle accidents.
Cannabis has been demonstrated to be effective in treating a number of chronic medical problems that were otherwise not treatable (i.e., some forms of epilepsy).	Up to 10% of social users can develop a cannabis use disorder, with dependence and risk of withdrawal.
Legalization takes marijuana off the black market. It creates a new market for entrepreneurs.	Early use of marijuana increases the likelihood of dependence and chronic use.
Legalized marijuana has become an important source of tax revenue for many states.	Use in the pediatric population is a grave public health concern due to the unknown effects of early, chronic use.
Opens the dialogue about drug use, provides data for ongoing research related to use, abuse, and secondary impact of legalization.	Impact on those with mental illness—forms of self-medication without psychiatric support.

marijuana, special training needs to be completed. Each practitioner should check with his or her state's scope of practice to see if the practitioner is eligible to get certification. The department of health in each state has published guidelines for practitioners including required education, registration, and certification.

Research has demonstrated that medical use of marijuana has helped people with glaucoma, epilepsy, chronic pain, and other chronic illnesses (Crohn's disease, multiple sclerosis, migraines, PTSD, cancer, and treatment of chemotherapy side effects). In some cases, it has been shown to reduce the use of opioids.

Fast Facts in the Spotlight

Children under the age of 12 can have a stronger and longer effect from ingesting marijuana. Often, pot is being sold in the form of gummy bears, brownies, lollipops, and sour candies, which children are attracted to, without realizing it is a drug. In France, children's unintentional ingestion of cannabis increased by 133% over 11 years. In the United States, where recreational or medical pot was legal, an increase of pediatric pot intoxication rose 30% per year from 2005 to 2011. This was despite Colorado's labeling and child-resistant packaging laws. A single cookie or candy bar may contain higher than the recommendation for THC dose, so the ingestion of one bar can result in overdose.

Signs and Symptoms of CUD: *Criteria for Diagnosing UD*

The *International Statistical Classification of Diseases and Related Health Problems*, Tenth Revision (ICD-10) diagnostic for cannabis-related disorders is the excessive use of cannabis, use that has resulted in psychological symptoms of dependence, and where there is an impact on the individual's ability to function normally in social, academic, or occupational areas of life. The ICD-10 codes for cannabis-related disorder are F12.00 to F12.99 and include intoxication, with delusions and hallucinations, unspecified with anxiety disorder and many others. Although CUD can commonly occur alone, it is also found as a concurrent diagnosis with other substances of abuse like alcohol, opioids, and cocaine. As with other substances, behavioral and pharmacological tolerance is attained when there is persistent cannabis use. When cannabis use is stopped abruptly, withdrawal occurs. The withdrawal from cannabis can be very distressful, which increases the likelihood of not quitting, or relapsing when cessation is attempted. Long-term use of cannabis,

however, may lead to cognitive dysfunction, due to the role of the CBD system in the central nervous system (CNS). Other neuropsychological areas affected are response time, oculomotor deficits, residual verbal memory, and other executive functioning abilities. The decrease in cognitive functioning has also been identified as the link between cannabis use and psychotic disorders (Shrivasta, Johnston, & Tsuang, 2011).

A survey by Stephens, Babor, Kadden, and Miller (2002) asks persons seeking treatment for CUD about 19 areas that can be affected by chronic cannabis use. Some of the questions include asking if marijuana made the user (a) have lower self-esteem, (b) have decreased energy, (c) increased procrastination, (d) memory loss, (e) have medical problems, (f) miss school or work, (g) have blackouts or flashbacks, and (h) cause social problems.

The legalization of cannabis has also opened up other questions related to providing the best, evidence-based treatment for our patients. Many of those using pot still see it as a harmless drug, unaware that use during pregnancy can affect the fetus and increase the risk of stillbirth. Children born to those who smoke during pregnancy have decreased performance on visual motor coordination, higher behavioral problems by the age of 14, and are at higher risk for developing CUD. As more studies are conducted in those states where marijuana is legal for both recreational and medical use, healthcare providers will be learning more about the long-term impact of early cannabis use, prolonged cannabis use, and use of cannabis during pregnancy.

CUD Withdrawal

Persons experiencing withdrawal from cannabis have been reported to have irritability, aggression and anger, anxiety, restlessness, diarrhea or loose stools, sweating, inability to sleep, loss of appetite, and runny nose. These symptoms usually appeared within 12 hours of the last dose of cannabis. When use is chronic, people may show symptoms of withdrawal due to tolerance of the prior dose and requiring more to avoid withdrawal. It is often the case that the symptoms do not appear for a day or two and peak on day 4 of abstinence. Usually, the withdrawal period does not last longer than 2 weeks. Oral doses of THC have been seen to effectively reduce the symptoms of cannabis withdrawal (Budney, Vandrey, Hughes, Moore, & Bahrenburg, 2007).

Nursing, NP, and PA Considerations for the Person With CUD

Emergency Situations

Acute intoxication by cannabis is an occurrence that presents as psychosis. The patient may be confused, agitated, highly anxious,

and experiencing hallucinations and delusions. Paranoia, seriously impaired thought process and judgment, impaired motor coordination, and panic may also be present. In extreme cases, there may be dyspnea, shaking chills, tachycardia, and unconsciousness. Frequently, the person who is using recreational marijuana may also be using other medications (prescribed and nonprescribed) or combining the marijuana with alcohol.

In states where recreational marijuana is legal, or medical marijuana is available, the cannabis is often sold as gummies or hard candies, or baked into foods or other edibles/drinkables. The onset of action is often slower with this route of administration, and people might ingest too many edibles, thinking they are not working. When the drugs finally begin to take effect, it may be an hour or more later, and the results can produce an overdose situation or one that needs urgent supportive interventions.

Children have been found to overdose on the candies, unwittingly eating multiple candies before an adult realizes that the child has ingested cannabis.

Treatment for Cannabis Overdose

All treatment is based on the presenting symptoms. The symptoms of a cannabis overdose can last for several days. Patients will need hydrations, often intravenously, if they are highly anxious, an anxiolytic or benzodiazepine might be prescribed. Pulse, respirations, and blood pressure should be closely monitored, and any interventions implemented if there is a rapid rise or drop in vital signs. These patients are at high risk for falls, which could exacerbate any problems. Once the physical symptoms of the emergency have been stabilized, psychological evaluation for the existence of a substance use disorder, and support to assist in recovery, should be provided to the patient.

Nursing Diagnosis for the Patient With Cannabis Use Disorder/Intoxication/Withdrawal

Risk for Injury (NANDA-I, 2012, p. 430)

The goal will be stabilization of intoxication and providing a safe environment. Evaluate patients level of consciousness and orientation. Establish safety precautions.

Ineffective Coping (NANDA-1, 2012, p. 348)

The goal will be to establish a therapeutic alliance and evaluate the patient's coping strategies, aside from using marijuana. Evaluate patient's capacity for respecting boundaries and receiving help from professionals.

Deficient Knowledge of the Effects of Marijuana on the Body/Health (NANDA-I, 2012, p. 271)

The goal will be to assess the level of knowledge of the patient related to marijuana use and the patient's readiness to learn. Where possible, include family members.

NP and PA Considerations

The rates of cannabis use and alcohol are highest in the older adolescents and young adult populations (SAMHSA, 2007), so those NPs and PA who work in the emergency department (ED) may often come in contact with youth experiencing cannabis intoxication. Access to these patients provides the NP and PA with an opportunity to screen and implement early intervention and education—even with those who were not seeking treatment. A technique of interaction that has been demonstrated to be very effective in this population, and with most persons with substance use disorder, is motivational interviewing (MI). Often, those who are using marijuana are also using other drugs and alcohol. This provides the healthcare professional an opportunity to teach the patient and the family about the drug and get early treatment for those who are already demonstrating signs of CUD.

Becoming a certified medical cannabis doctor/recommender has strict standards. Each state has its own laws and policies, so it is important to first check the state laws within your scope of practice. www.marijuanadoctors.com is a website that discusses qualifications for MDs. Simmons School of Nursing in Massachusetts has a blog titled Nurse Practitioners Guide to Medical Marijuana (onlinenursing.simmons.edu/nursing-blog/medical-marijuana-map/), and New York State Department of Health has a section devoted to its medical marijuana program with practitioner information that is relevant to all practitioners who are eligible in New York state to become providers.

Fast Facts in the Spotlight—Time for Reflection

College Health Program Scenario: A 19-year-old college student who was enjoying his spring break, legally purchased a marijuana cookie at a Colorado pot store. He ate the whole cookie, which contained six servings of pot equivalent to 10 mg of THC. He began behaving strangely, then suddenly jumped out of a window and plunged to his death. Some of the students have come to the student health center for counseling. What do you think would be the

(continued)

(continued)

best way to help them understand what happened, and to teach them how to protect themselves?

Obstetrics Scenario: Ms. Binglly is 2 months pregnant and has been experiencing a lot of vomiting and morning sickness. She had previously been on Percocet for chronic back pain but stopped prior to getting pregnant, taking edible marijuana instead. When she got pregnant, she stopped using the edible form of marijuana and switched to smoking one or two puffs. She noticed that when she smoked in the morning, she also could curb the morning sickness. She is in for her 10-week OB visit and she shares with you that she has been smoking every morning 1 to 3 puffs and taking the edible in the afternoon and before sleep. She wonders whether she might be taking too much. What would you say to Ms. Binglly? What kinds of concerns would you have for her? What concerns would you have for the fetus?

ROUNDUP

Cannabis is still considered by the federal government as a controlled substance, which is illegal for sale and/or use in the United States. Different states have passed laws that are specific to their states, decriminalizing the use and sale of cannabis/marijuana for medical use and/or recreational use. That this substance is legalized in more than half the United States does not make it less harmful if misused. Those persons with mental illness, other substance use disorders, or at high risk for abuse can become intoxicated, dependent, and experience withdrawal. Use of cannabis during pregnancy or while operating a vehicle can cause harm to the individual as well as others around them. Smoking cannabis carries with it the problems of second-hand smoke as well as deterioration to the respiratory and immune system. As practitioners, our personal beliefs on whether cannabis should be legal or illegal does not factor into the importance of delivering evidence-based care to those under the influence of cannabis and taking the time to provide the health education to keep them safe.

LINKS TO LEARN MORE

- Counseling Parents and Teens about Marijuana Use in the Era of Legalization of Marijuana (2017; Article) *pediatrics*. aappublications.org/content/139/3/e20164069

The Leeds Dependence Questionnaire

On this page there are questions about the importance of alcohol and/or other drugs in your life.

Think about your drinking/other drug use in the last week and answer each question ticking the closest answer to how you see yourself.

	Never	Sometimes	Often	Nearly always
1. Do you find yourself thinking about when you will next be able to have another drink or take more drugs?				
2. Is drinking or taking drugs more important than anything else you might do during the day?				
3. Do you feel that your need for drink or drugs is too strong to control?				
4. Do you plan your days around getting and taking drink or drugs?				
5. Do you drink or take drugs in a particular way in order to increase the effect it gives you?				
6. Do you take drink or other drugs morning, afternoon and evening?				
7. Do you feel you have to carry on drinking or taking drugs once you have started?				
8. Is getting the effect you want more important than the particular drink or drug you use?				
9. Do you want to take more drink or drugs when the effect starts to wear off?				
10. Do you find it difficult to cope with life without drink or drugs?				

Figure 5.1 Leeds dependence questionnaire.

- The Reward Circuit: How the Brain Responds to Marijuana (Video) www.drugabuse.gov/videos/reward-circuit-how-brain-responds-to-marijuana
- Impact of drugs on neurotransmission: NIH Chart: www.drugabuse.gov/longdesc/impacts-drugs-neurotransmission
- Looking at Gender specific profiles with CUD: www.biblioteca.cij.gob.mx/Archivos/Materiales_de_consulta/Drogas_de_Abuso/Articulos/DSM5Cannabis.pdf
- Heroin and Weed/ Heroin laced with weed symptoms: www.therecoveryvillage.com/heroin-addiction/heroin-and-weed/#gref
- Emerging Trends and Alerts from the NIH related to drug use: www.drugabuse.gov/drugs-abuse/emerging-trends-alerts

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6

Stimulant Use Disorder

Stimulant use disorder is a new category in the umbrella of substance use disorders. It includes amphetamines, methamphetamines, cocaine, and other stimulants; however, it does not include nicotine or caffeine, which have diagnoses of their own. As with the other substances, the number of criteria a patient fits determines the level of the disorder from mild to severe. Stimulant use disorder specifically looks at the patient's pattern of behavior, spanning the past 12 months, to determine the level of problematic use of stimulants. The words stimulants and amphetamines will be used interchangeably in this chapter.

In this chapter, you will learn:

- Neurobiology of stimulant use disorder
- Definition of stimulant use disorder and prevalence over the life span
- Legal use and misuse of stimulants
- Signs and symptoms of stimulant use
- Signs of withdrawal and emergency responses
- Nursing and physician assistant (PA) considerations for treatments for stimulant use disorder, resources for recovery

THE NEUROBIOLOGY OF STIMULANT USE DISORDERS

The limbic reward system, also referred to as the brain or dopamine reward system, is once again the brain circuit responsible for the neurologic reinforcement of drug use (refer to the earlier chapter on the dopamine reward circuit). The dopamine neurotransmitter system is the target of stimulants like methamphetamine and cocaine (Center for Substance Abuse Treatment [CSAT], 1999). This connection between the dopamine responsive cells that are found in large concentration in the limbic system, the control system of our emotions, connects the effect of the stimulant with memories and emotions. The role of the nucleus accumbens (NAc) is especially important with stimulant use disorders. When dopamine builds up in the NAc due to use of cocaine or other stimulants, the user experiences feelings of intense pleasure and satisfaction, much greater than normal (Nestler, 2005). These intense feelings are then imprinted in the hippocampus (memory), which triggers the brain to recall the positive experiences, even when exposed only to images of related paraphernalia. It is this strong draw to the anticipation of pleasure that can change a desire for an experience into a craving and compulsion. The area of the brain that acts as the police, slowing down this immediate response to drugs with thoughts of consequences and alternative actions, is the frontal cortex. Stimulants can be taken in multiple ways, finding their way to the brain, including oral, intranasal, inhalation, and intravenous (Table 6.1). Unfortunately, once a person develops a dependence for a drug, the frontal cortex has less capacity to reduce the urges that lead to use (Nestler, 2005).

Table 6.1

How Stimulants (and Other Substances) Pass Through to the Brain			
Oral (Swallowing)	Intranasal (Snorting/Puffing)	Inhalation	IV
Stomach to intestine to bloodstream (could be metabolized in stomach and destroyed).	Nasal mucosa to bloodstream.	Substance is ignited and changed into a gas, then inhaled into lungs.	Direct access to the bloodstream.
Placed on gums—pass from oral mucosa to bloodstream.	Bloodstream to brain	The large surface of the lungs provides access to the bloodstream.	
Bloodstream to brain.		Bloodstream to brain.	

The Definition of Stimulant Use Disorder and Prevalence

Definition

Stimulant use disorder refers to the ongoing use of stimulants/amphetamines, natural and synthetic (including but not limited to cocaine, amphetamines, and methamphetamine), which results in some level of behavioral or emotional impairment and/or distress. This impairment is evaluated through the matching of patient's behaviors to criteria and is categorized as mild to severe as determined by the number of criteria. The *International Statistical Classification of Diseases and Related Health Problems*, Tenth Revision (ICD-10) category is F15.9. It is considered to be behavioral and mental disorders that are secondary to the use of psychoactive substances.

Prevalence

Stimulants are used for medical and recreational purposes. In the 1800s, cocaine and stimulants were used in medicine as anesthetic drugs as well as treatment for pain. During World War II, stimulants were given to servicemen to help them to stay alert and ready to fight. During the 1960s, stimulants found their way into American households as diet pills. Effects from stimulants include heightened attention and energy; increased blood pressure, heart rate, and respirations; and a sense of well-being or euphoria. The increase in the use of diet pills by Americans became worrisome enough that by the 1970s, the United States passed the Comprehensive Drug Abuse Prevention and Control Act that put barriers between stimulants and the public, making it difficult to obtain stimulants even with a prescription (Darryl, Cohen, & Holstein, 1993).

The prevalence of use of stimulants is often reported as medical and nonmedical use. In 2012, an estimated 1.2 million Americans over the age of 12 used stimulants in a nonmedicinal way. The National Institutes on Mental Health (NIMH) reports that the use of stimulants for attention deficit hyperactivity disorder (ADHD) in children and adults continues to rise (NIMH, 2011). Substance Abuse and Mental Health Services Administration's (SAMHSA) National Survey on Drug Use in 2014 indicated that 1.5 million people (0.6%) of Americans use cocaine, with men and those between the ages of 18 and 25 most likely to use.

METHAMPHETAMINE

Methamphetamine, also known as meth, is a white powder, and crystal meth is a bluish-white crystal that looks like glass. Its chemical composition is similar to amphetamine. Meth can be swallowed, smoked,

inhaled, snorted, and injected. It has a fast onset of action and short duration. This is a drug that is easily binge, taken multiple times a day until it is used up, then the person experiences a very hard crash. It is because meth can be manufactured from pseudoephedrine (found in common cold medicines) that pharmacies will not sell a large quantity to any person in a given day and must keep a record of sales. Meth production became the theme of the crime/drama series “Breaking Bad,” when a high-school chemistry teacher becomes a producer and seller of meth. Overdoses of methamphetamine can result in a stroke or heart attack. At present, there is no prescription treatment for meth use disorder, and it is usually treated with cognitive behavioral therapy (National Institute on Drug Abuse [NIDA], 2017).

- **Cocaine:** Cocaine is a powerful natural stimulant made from coca leaves. It can be snorted, placed on membranes, or injected. It is a local anesthetic as well as a stimulant. Approximately 1.5 million Americans (0.6%) used cocaine in 2014 (SAMHSA, 2016).
- **Crack Cocaine:** A highly addictive, free base form of cocaine that is smoked. Crack is the end product of dissolving cocaine in water and ammonia or baking soda. When it is smoked, there is a crackling sound, which is how it got its name. It is known by many names, some are: 24-7, Rock, Hard rock, Base, Kryptonite, Sugar block, Apple jacks, and Candy (www.addictions.com/crack-addiction).

AMPHETAMINES ARE PRESCRIBED FOR...

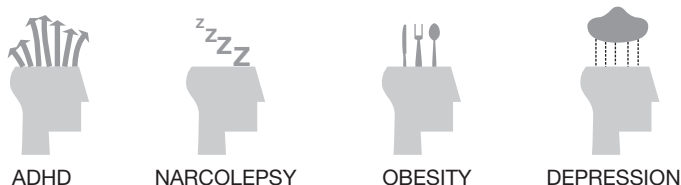


Figure 6.1 Reasons amphetamines are prescribed.

Legal Use and Misuse of Stimulants

As with marijuana, the legal use of stimulants will not prevent the person taking them from becoming dependent. It is important that a person who is prescribed stimulants for any reason understands the effects, side effects, and possible impact on health when used over the long term. Prescribers and patients should have the crucial conversation weighing risks and benefits, expected outcomes, and alternative therapies. Amphetamines, classified as a Schedule II controlled substance, are the most commonly prescribed controlled

drug. Therapeutic use of amphetamines is found in narcolepsy, obesity, Parkinson's disease, ADD/ADHD, asthma, and depression. The *only* route of administration for prescribed amphetamines is oral (Figure 6.1).

Other nonprescription medications that are also taken, which can produce the same effects, include over-the-counter and herbal mixtures to increase energy and decrease appetite. These medications also carry a risk of abuse when not taken as directed.

Misuse of prescribed medications is greatest in the adolescent, young adult, high-school, and college-aged groups. Sometimes considered "study aids," but too often taken just for the experience of the high, school and college students often combine amphetamine and caffeine drinks to maximize the high (Figures 6.2 and 6.3). A correlation between the high energy drinks and risk for substance use was demonstrated by Terry-McElrath, O'Malley, and Johnston (2014). The inclusion of energy drinks in vending machines, it is proposed, could increase the risk for stimulant misuse in the adolescent/young adult group by training the brain to need the boost in energy and stimulation.

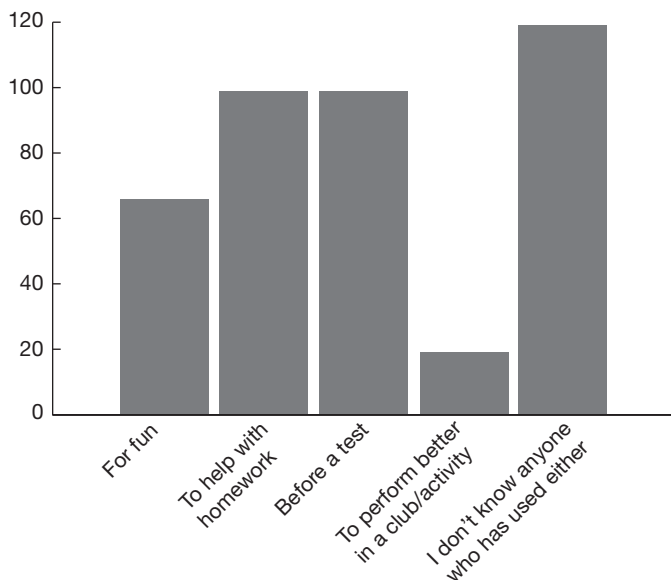


Figure 6.2 Uses of Adderall or Ritalin for high-school students.

Source: Bissell, J., & Nicolai, M. (2012). Minnesota High School students taking adderall to boost academic performance. *MINNPOST*. Retrieved from <https://www.minnpost.com/education/2012/02/minnesota-high-school-students-taking-adderall-boost-academic-performance/>

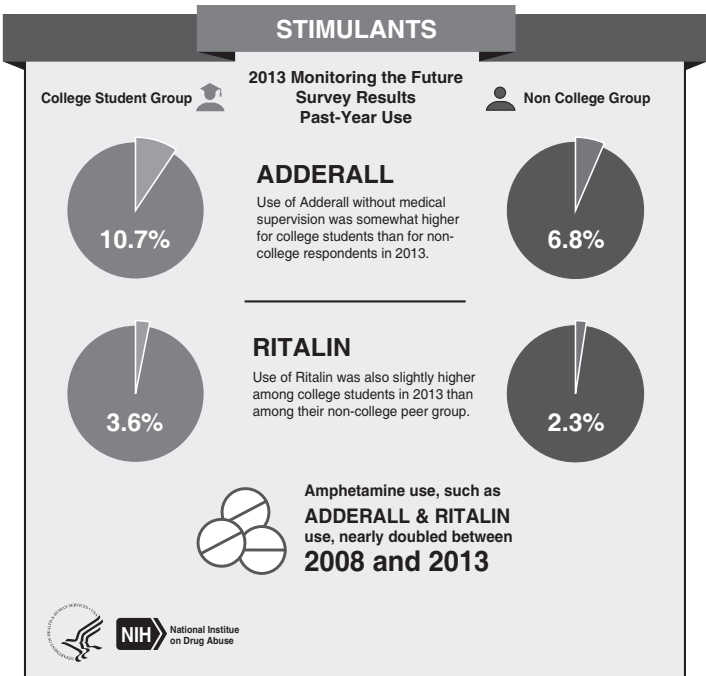


Figure 6.3 Comparison of college student and noncollege student use of stimulants.

Source: Univ. of Michigan, 2017 MTF College Students and Young Adults Survey

Fast Facts in the Spotlight

Historical amphetamine facts that you might not know:

- Ephedrine and amphetamine were discovered in the same year. Ephedrine by the Japanese scientist Nagojosi Naga, and amphetamines by Lazar Edeleanu in Romania. Ephedrine initially was used for pupillary dilation and later discovered to assist in bronchial dilation and was used for asthma.
- The Western discovery of amphetamine came in the early 1900s by Gordon Alles and was marketed as a Benzedrine inhaler, used as a decongestant and bronchodilator.
- Americans, British, German, and Japanese soldiers used amphetamines in World War II. Americans and English soldiers were given Benzedrine tablets (5 mg) to help them stay alert, while German and Japanese soldiers used Previtin, which was stronger and nicknamed it flyers or tank chocolates.

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- The Japanese, having a large amount of methamphetamine surplus after World War II, began to supply the black market, and by the late 1940s, it was estimated that 5% of Japanese youth between the ages of 16 and 25 were using meth. Stockpiles of meth ran out in the 1950s, and laws were passed to deter the use.

Consequences of Stimulant Use Disorder

Patterns of Misuse

Runs or Binging

When a person engages in using amphetamines in a “run,” it means they will forego sleeping and eating, taking enough of the substance every few hours to keep them in a kind of drug-induced mania. At the end of the run, the body and brain will crash, with the individual experiencing mood changes, fatigue, depression, anxiety, and paranoia. The impact of the crash is often the reason for seeking more of the drug and using again.

Impact of Chronic Use

When a person is a chronic user of amphetamines, outside of use under medical supervision, it may result in a presentation of psychosis, with the individual experiencing visual, auditory, tactile, and other sensory hallucinations. It is important to reduce environmental stressors, as the person could become paranoid with unpredictable, and perhaps, violent behaviors.

Short-Term Experiences

These include decreased appetite, talkativeness, dry mouth, euphoria, increased energy, jaw clenching, sweating, pupil dilatation, diarrhea, nausea and vomiting, tachypnea, hypertension, tachycardia, increased body temperature, headache, insomnia, irritability, hostility, and paranoia.

Long-Term Impact

These include behavioral disorders, exhaustion, impaired coordination, malnourishment, mental illness, dermatological problems, chronic anxiety, paranoia, psychosis, brain damage, hypertension, cardiac problems, ulcers, vitamin deficiencies, organ damage, insomnia, birth defects, stroke, and death. During the time a person is

under the influence of stimulants or experiencing withdrawal, the risk for violence, homicidal, and suicidal behaviors increases.

Stimulant Use Withdrawal

A person using amphetamines for a long time, whether for medicinal or recreational purposes, who abruptly stops can experience signs of withdrawal. Usually, withdrawal from stimulants is not life-threatening. These symptoms are usually worse with the increased use of stimulants that have led to dependence on the drugs. Withdrawal can occur in stages: immediate, secondary, and crash. The immediate symptoms can be lethargy, sadness, and intense cravings. Symptoms of withdrawal usually begin within 24 hours from last use. The secondary phase brings with it a mental and physical sense of exhaustion. The depression may increase along with insomnia. After about 12 hours, the signs and symptoms can increase and last from days to weeks, however, the acute withdrawal usually lasts for 3 to 5 days.

The patient going off stimulants either for reasons of detox or inability to access the drugs may experience the common withdrawal symptoms listed in the following. These symptoms may or may not be accompanied by cravings for the drugs. The withdrawal symptoms can be slightly different depending on the different stimulants the patient is withdrawing from. The most common signs and symptoms of withdrawal from stimulants are:

- Agitation, anxiety, appetite changes, muscle aches, and pains
- Cravings, depression, hallucinations, and headaches
- Mood swings, suicidal ideations, poor concentration, and sleep disturbances

The person withdrawing from methamphetamine has a higher risk for:

- Paranoia
- Disordered thoughts
- Hallucinations
- Psychosis, with accompanying risk for self-harm or harm to others

NURSING, NURSE PRACTITIONER (NP), AND PA CONSIDERATIONS FOR THE PERSON WITH STIMULANT USE DISORDER

These patients need close monitoring. The RN, NP, and PA must be alert to changes in mental status, identifying initial signs and symptoms of psychosis—staying alert to any emergent safety issues for the patient or staff. Patients who have been using stimulants may arrive in a state of dehydration and cachexia (weakness and body wasting; Table 6.2).

Table 6.2

Symptomatic Patient Behaviors and Management Strategies

Patient Behavior	Environmental and Personal Strategies for Behavior Management
Agitated, anxious, or panicked patient	Keep the environment less stimulating—reduce noise and number of people where possible. Speak in a slow, soft voice, and provide explanations to all procedures.
Confused, disoriented, and upset patient	Reorient patient frequently, assess level of consciousness. Remove any items (declutter) that can be weaponized or harm the patient/staff. Be calm in the approach and show respect.
Psychotic symptoms of hallucinations, paranoia, delusions, and disordered thoughts	Remove clutter from the environment to protect the safety of the patient and staff. Reduce environmental stimulation, and assess what kind of hallucinations the patient is experiencing. Determine if there are command voices present. Reassure the patient that the experience is not real—reorient the patient to reality by providing explanations about the environment and the reason for the patient to be in this situation.
Aggressive, angry, and loud patient	Reduce environmental stimuli. Assess for environmentally safe surroundings—removing clutter or things that can be weaponized. Remain calm—speak in a slow and understanding voice. Avoid challenging the patient, listen to the complaints, show respect, and do not escalate the tension by speaking in a loud or threatening voice.

Source: Adapted from NSW Detoxification Clinical Practice Guidelines. Sydney, NSW Department of Health 1999.

Nursing Diagnosis for the Patient With Stimulant Use Disorder

Imbalanced Nutrition: Less Than Body Requirements (NANDA-I, 2012, p. 174)

The goal will be to facilitate the intake of food and hydration by assisting the patient to achieve short-term nutrition goals, increasing caloric intake with nutritional foods.

Ineffective Coping (NANDA-I, 2012, p. 348)

The goal will be to establish a therapeutic alliance and evaluate the patient's coping strategies, aside from using marijuana. Evaluate patient's capacity for respecting boundaries and receiving help from professionals.

Risk for Injury (NANDA-I, 2012, p. 430)

The goal will be stabilization of intoxication and providing a safe environment. Evaluate patients level of consciousness and orientation. Establish safety precautions.

NP and PA Considerations

The treatment of patients withdrawing from stimulants includes the management of the severe agitation and possible psychosis. Behavioral management strategies are an important aspect to treating these patients, but when the behavioral strategies do not work, the use of sedation or antipsychotics may be required.

Fast Facts in the Spotlight—Time for Reflection

An infant is brought into the emergency department by his mother, who is pale, extraordinarily thin, with multiple blemishes on her face and dark circles around her eyes. The mom is inappropriately dressed in summer clothes despite the winter wind outside. She has a blanket wrapped around what appears to be a child clutched to her chest. She is wildly looking around, clutching her child, screaming “He is convulsing! He is convulsing!” She allows the staff to take the infant, approximately 6 months old, who is well nourished and does not appear to be in any distress, from her.

She comes into the room behind the child and remarks: “It’s too bright in here! I haven’t slept in days, my whole body aches!” She points to the blank wall and cries, “There are so many bugs in here—I need to take my son away from this filthy place!”

She starts toward her child, who is being examined, and suddenly stops and holds her head, “My head! It is going to explode!” She falters in her step, and a staff member helps her into a chair. She rocks back and forth singing, holding her head.

What do you think you need to do first?

Who needs to be included in this team?

What are the clear and present alerts in this scenario?

ROUNDUP

Stimulants have been used for medical and recreational purposes since the 1800s and are a class of drugs easily misused due to their effects of increased energy, decreased appetite, and decreased sense of well-being. Their misuse and abuse can lead to serious mental and physiological problems requiring detox, hospitalization, and ongoing recovery support.

LINKS TO LEARN MORE ON

- Clinical Guidelines for withdrawal management and treatment of drug dependence in closed setting apps.who.int/iris/bitstream/

handle/10665/207032/9789290614302_eng.pdf;jsessionid=EF79682C387A59F570B553D4C4108541?sequence=1

- On Speed: Ten strange facts about the history of stimulants
www.substance.com/on-speed-ten-strange-facts-about-the-history-of-stimulants/11948
- Differences between amphetamines and methamphetamine: www.rehabcenter.net/amphetamine-vs-methamphetamine

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7

Opioid Use Disorder

The opioid epidemic is really a pandemic, affecting countries all over the world, and has been identified as a significant cause of morbidity and mortality, affecting almost 15 million people. Unfortunately, the United States is leading the world in the number of overdose deaths. In 1999, the United States had less than 17,000 overdose deaths, which increased to 52,000 in 2015 (Lopez, 2017). The World Health Organization (WHO) has estimated that worldwide deaths secondary from opioid overdoses are about 69,000. This does not take into consideration the other diseases that persons with opioid use disorder (OUD) might die from.

In this chapter, you will learn:

- Neurobiology of OUD
- Current opioid epidemic and statistics
- Legal and illegal use of opioids
- Signs and symptoms
- Signs of withdrawal and emergency responses
- Nursing and physician assistant (PA) considerations for treatments for OUD and resources for recovery

THE NEUROBIOLOGY OF OUDs

Opioids, as with the other substances we have discussed, stimulate the ventral tegmental area (VtA) of the brain, precipitating the release of dopamine. The excitation of the reward system with opioids, over

time, loses its sensitivity and will require more opioids for the same response (tolerance) (Kosten & George, 2002). A different part of the brain that is responsible for energy and wakefulness, the locus coeruleus (LC) is suppressed by opioids. The impact of opioid use on the brain is multifaceted (Figure 7.1). Then with overuse, however, the LC is the part of the brain that causes the jitters and some of the other symptoms of physical opioid withdrawal.

The Definition of OUD and Prevalence

Opioids belong to the class 1 prescription drugs, including morphine, oxycodone, hydrocodone, fentanyl, heroin, and others. As with other substance use disorders (SUDs), OUD is a medical condition with the *International Statistical Classification of Diseases and Related Health Problems*, Tenth Revision (ICD-10) identifiers of F11.10 (mild) and F11.20 (moderate). The determination of severity is based upon the number of symptoms a patient has over a 12-month period. The criteria for OUD include the same 11 criteria as the other substances, inclusive of taking more medication for a longer time than was initially determined, existence of desire with an inability to cut down or quit, a lot of time spent on seeking behaviors and recovery, negative impact on activities of daily living, hazardous or risky behaviors associated with use, taking opioids despite physical

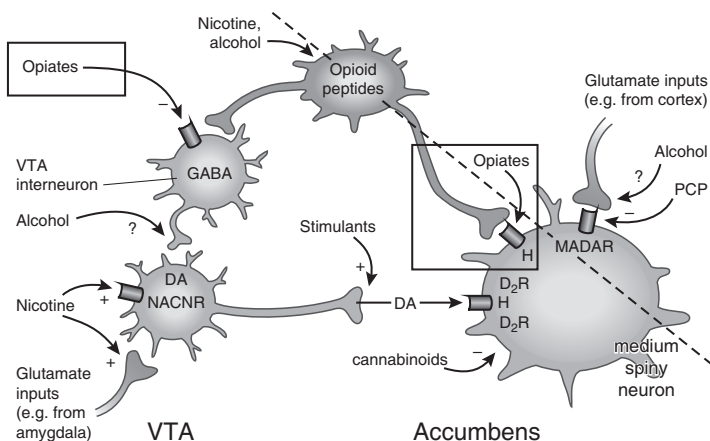


Figure 7.1 Multifaceted impact of opioid use on the brain.

DA, dopamine; GABA, gamma-aminobutyric acid; PCP, phencyclidine; VTA, ventral tegmental area.

Source: Nestler, E., Hyman, S., Holtzman, D., & Malenka, R. (2015). Reinforcement and addictive disorders. In *Molecular neuropharmacology: A foundation for clinical neuroscience*. (3rd ed.). New York: McGraw Hill.

and emotional problems resulting from the use, increasing tolerance for the drug, and withdrawal when the drug is no longer being used. The compulsion of using opioids when they are not being prescribed for a medical condition is a critical identifier of OUD. When OUD is experienced by healthcare professionals (HCPs), it more often than not results in diversion of medications, due to the pattern of compulsive use despite negative impact on patients (those who do not get the drug due to diversion), work colleagues, and self. The cost of this epidemic in lives lost and ruined and the impact on healthcare in general is enormous (Figure 7.2).



Figure 7.2 The opioid epidemic: looking at the numbers.

Source: U.S. Department of Health and Human Services. (n.d.). What is the U.S. opioid epidemic? Retrieved from <https://www.hhs.gov/opioids/about-the-epidemic>

Prevalence

In the United States, during 2015, 91.8 million adults (over 18 years of age) used prescription opioids (more than one third of Americans who are not institutionalized), with 11.5 million of them reporting misuse of opioids and 1.9 million demonstrating criteria for OUD (Han et al., 2017). When youth from 12 years old are included, the report increases to 591,000 Americans in 2015 meet criteria for an OUD (Figure 7.3). The American Society of Addiction Medicine explains that about 23% of people who use heroin will develop OUD (National Institute on Drug Abuse [NIDA], 2014).

Adults who are unemployed, uninsured, low-wage earners, or who had mental illness/behavioral health disorders were at higher risk of OUD; however, OUD is found in all sectors of the population. Almost 60% of adults who misuse opioids did so without a prescription, getting their opioids from friends or relatives. In adolescents in 2016:

- 276,000 misused pain relievers and 122,000 were addicted to them.
- 21,000 had used heroin in 2015.
- 5,000 were current heroin users.
- 6,000 diagnosed with OUD in 2014. (Statistics Center for Behavioral Health Statistics and Quality, 2016)

Overdose Statistics

There were over 52,000 lethal drug overdoses in America in 2015 (Rudd et al., 2016). Over 20,000 of the deaths were due to prescription

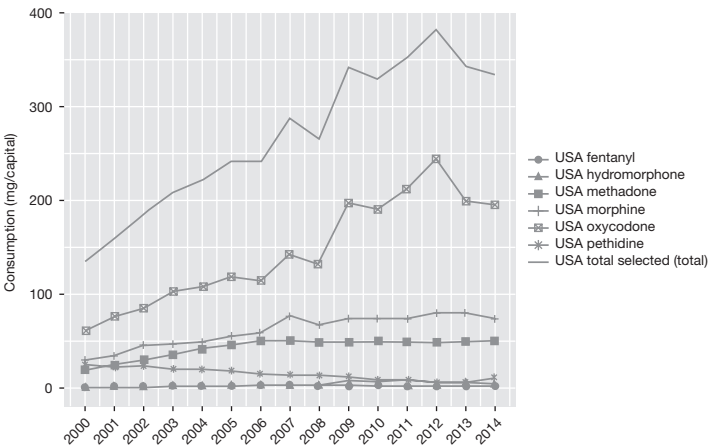


Figure 7.3 American's use of pain medications from 2000 to 2014.

Source: International Narcotics Control Board, World Health Organization population data. (2016). Pain and Policy Studies Group, University of Wisconsin/WHO Collaborating Center. USA opioid consumption (Mg/capita) 2000–2014. Retrieved from: <https://www.atrainceu.com/course-all/pain-generic-190>

of pain reliever and almost 13,000 for heroin use. Eighty percent of new heroin users began by misusing prescribed opioids. There is a correlation between opioid sales and opioid overdoses (Figure 7.4).

Legal and Illegal Uses of Opioids

Analgesic opioids, like opium, have been used to treat pain since 3400 BCE in Mesopotamia, Egypt, Persia, and Greece. It made its way into China and Asia by the Silk Road trading route during the seventh century. Opium was smuggled into China from India using the British East India Trading Company and was a very profitable product. This led to the Opium Wars, which was China's attempt to stop opium use in China. China lost both wars, first to Britain in 1842 and then in 1860 (the second Opium War) to Britain and France, making trading opium in China legal. When the Chinese migrated to the United States in the 1800s, they came with their opium. Rather than banning the opium, the Americans passed a law against the Chinese (the Chinese Exclusion Act—1882), stopping Chinese immigration into the United States.

Morphine is a derivative of opium and was used in the 1800s for pain relief. Morphine is even stronger than opium, and during the U.S. Civil War 400,000 American soldiers became addicted from being treated with it for pain management. This led in the late 1800s to the development of another medication derived from morphine

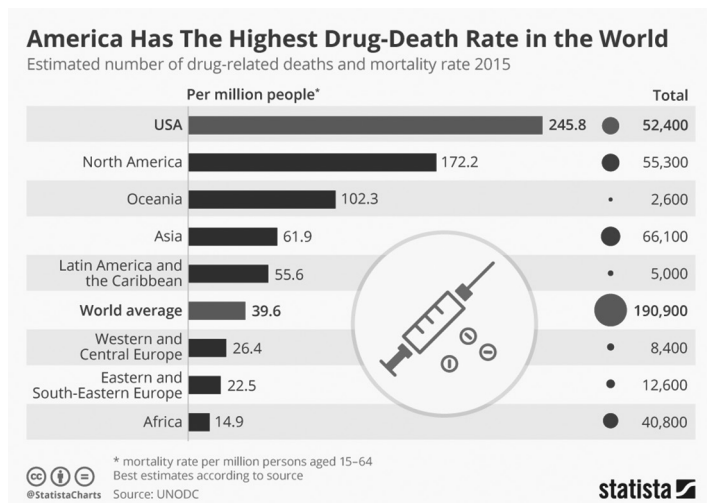


Figure 7.4 2015 global drug-related deaths.

Source: United Nations Office on Drugs and Crime. (2015). Mortality rate per million persons aged 15–65. Retrieved from <https://www.vox.com/policy-and-politics/2017/6/28/15881246/drug-overdosedeads-world>

but believed to be safer and less addictive than morphine called heroin. Heroin was synthesized as an analgesic and marketed as a better alternative for pain relief than morphine. Heroin was used in cough suppressants in the late 1800s and was used to treat children as well as adults.

In the 1900s, with addiction becoming a crisis in the United States, Dr. Wright, who served as an opium commissioner, stated “Of all the nations of the world, the United States consumes most habit-forming drugs per capita. Opium, the most pernicious drug known to humanity, is surrounded, in this country, with far fewer safeguards than any other nation in Europe fences it with. China now guards it with much greater care than we do; Japan preserves her people from it far more intelligently than we do ours, who can buy it, in almost any form, in every tenth one of our drug stores” (Marshall, 1911).

Such seems to be the current problem being faced in the opioid crisis. The number of prescribed opioids between 1999 and 2016 quadrupled. In the 1990s, pharmaceutical companies provided prescribers with assurances that opioid pain relievers were not addictive. By 2012, the number of opioid prescriptions to treat pain skyrocketed to over 250 million, with no decrease in the reported level of pain (Harris & Krill, 2016). The number of overdoses due to opioids in 2015 was over 50,000 people with 140 people dying of overdoses every day. In 2017, the United States identified a public health crisis due to the opioid epidemic.

Other medications called sedatives, like benzodiazepines, are used to treat anxiety. These drugs, like opioid pain killers, despite being prescribed, can cause dependence and become problematic for the person taking them resulting in a SUD/OD. Similar to the increase in prescribed opioids, benzodiazepines (also called benzos) had an increase in prescriptions between the 1990s and 2013 by 67%, jumping from just over 8.1 million to 13.5 million (CDC, 2015). The increased use and misuse of benzos have been accompanied by the increased death rate from overdoses (Figure 7.5).

Criteria for Diagnosing OUD (Signs and Symptoms)

The ICD-10 diagnostic for OUD is F11.1 to F11.99. The criteria for an OUD use the same 11 criteria/symptoms for the other SUDs specifying opioids as the drug being evaluated. The symptoms include using more of the opioid over time, craving and using without being able to stop, spending time seeking the drug and/or recovering from use, using opioids despite negative effects, negative impact of using opioids on social, academic, and work activities, using opioid despite physical and emotional risks and problems, increased tolerance with use, and experiencing withdrawal when stopping use. The OUD is considered

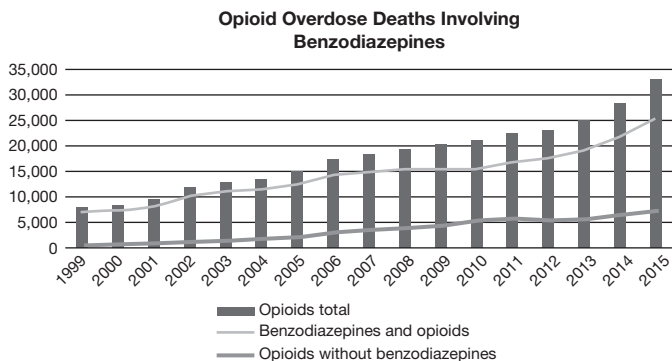


Figure 7.5 Opioid deaths due to benzodiazepines.

Source: National Institute of Health/National Institute on Drug Abuse. (2018). Benzodiazepines and opioids. Retrieved from <https://www.drugabuse.gov/drugs-abuse/opioids/benzodiazepines-opioids#>

mild if there are two or three symptoms, moderate if there are four or five symptoms, and severe when six or more criteria are met.

The compulsive use of opioids without prescriptive purpose, or in excess of the prescribed amounts, is a hallmark symptom of OUD. Despite the fact that OUD is seen in all age groups, the most common onset is late teens and early 20s. Due to the highly addictive nature of these drugs, the course of the disease can take many years before it is treated. Treatment for OUD requires abstinence from opioids, and relapse after treatment is not uncommon. Comorbid diagnosis with other drugs especially alcohol and benzodiazepines is seen in many cases.

Common opioid drugs are opium, heroin, oxycodone, hydrocodone, morphine, hydromorphone, fentanyl, codeine, methadone, meperidine, oxymorphone, tramadol, carfentanil, and buprenorphine.

Fast Facts in the Spotlight

Neonatal Abstinence Syndrome (NAS)

Neonatal abstinence syndrome occurs when the fetus has a sudden decrease or stopping of a substance like an opioid drug, which has been delivered to the fetus during the pregnancy. NAS is a significant public health problem as the number of women of child-bearing age having an opioid use disorder increases. According to the National Institutes of Health, the incidence of NAS increased fivefold between 2000 and 2012. The newborn with NAS may have been exposed to opioids through prescription of pain relievers

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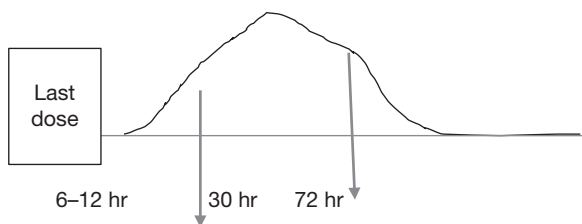
or misuse of an opioid and has a hospital stay of 2 weeks longer than the baby born without NAS.

NAS is usually seen within 2 to 3 days after birth, with signs and symptoms that include central nervous system (CNS) irritability, gastrointestinal (GI) dysfunction, and body temperature dysregulation. These infants also suffer from low birth weight, respiratory problems, seizures, feeding problems, and sepsis. There is now legislation to protect infants born with NAS called Protecting Our Infants Act of 2015, and the Comprehensive Addiction and Recovery Act of 2016. The only way to prevent NAS is to provide prenatal care to mothers who are taking opioids, either with or without a prescription, and have preconception discussions with women about the impact of using opioids during pregnancy on their unborn child.

Signs of Withdrawal and Emergency Responses

Symptoms of withdrawal from opiates can begin just hours after the last dose and often continue for a week, depending upon the half-life of the drug being used. The symptoms of withdrawal often trigger the relapse to use, as the person deals with the discomfort and fear that is produced during withdrawal. Symptoms are physiological and emotional in the withdrawal phase, just as they are in the using phase. The presentation of withdrawal will be consistent with the level of dependence the person has on the drug and can range from mild to severe. Withdrawal from opioids is very uncomfortable, as the brain has become accustomed to the drug (dependence and tolerance) and now must readjust to working with a lowered dose or without it altogether. Although the discomfort can be extreme, these symptoms are not life-threatening. The typical emotional and physical withdrawal symptoms include:

- Muscle aches
- Anxiety, restlessness, and overall discontent/annoyance
- Dilated pupils, eyes that are watery, and runny nose
- Yawning (excessively, or more than usual)
- Tremors, sweating, and goose bumps
- Tachycardia and insomnia
- Abdominal pain, cramping, diarrhea, vomiting, and nausea (Figure 7.6)



Symptoms of withdrawal will begin for:

Short-acting opiates: 6–12 hr

Long-acting opiates: 30 hr

Peak symptoms (72 hr): nausea, vomiting, stomach cramping, diarrhea, goosebumps, depression, and drug cravings

Figure 7.6 Opiate withdrawal stages and timeline.

Source: Adapted from American Addiction Centers (n.d.). *Opiate Withdrawal Timelines, Symptoms and Treatment*. Retrieved from <https://americanaddictioncenters.org/withdrawal-timelines-treatments/opiate>

Statistics from 2016 show that the biggest increase in overdose deaths were with synthetic opioids like fentanyl, which accounted for more than 20,000 of the 64,000 deaths that year. In fact, it is estimated that 115 Americans lose their life every day to an overdose of opioids. When there is an overdose of an opioid, respiratory depression occurs and can lead to respiratory arrest and death (Figures 7.7 and 7.8).

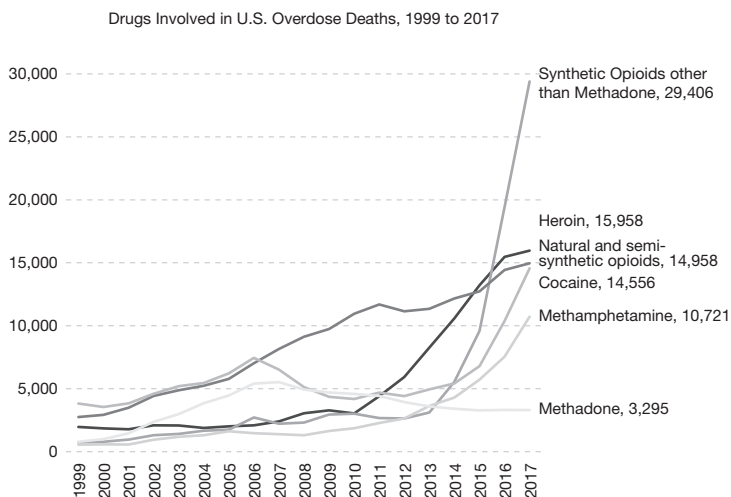
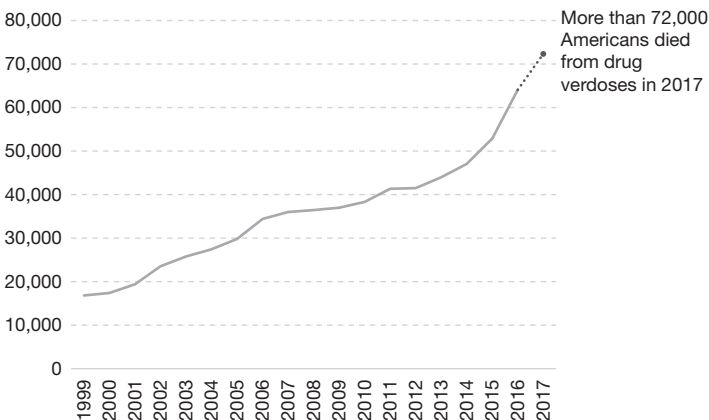


Figure 7.7 Drugs involved in U.S. overdoses from 1999 to 2017.

Source: NIH/ NIDA Overdose Death Rates. (2018). Retrieved from <https://www.drugabuse.gov/related-topics/trends-statistics/overdose-death-rates>

Total U.S. Drug Deaths

**Figure 7.8** Total U.S. drug deaths 1999–2017.

Source: <https://www.drugabuse.gov/related-topics/trends-statistics/overdose-death-rates>

THE CLINICAL OPIOID WITHDRAWAL SCALE

The Clinical Opioid Withdrawal Scale (COWS) assesses the patient for the common symptoms of withdrawal: resting pulse rate, sweating, restlessness, pupil size, bone or joint pains, runny nose or tearing, GI upset, tremors, yawning, anxiety or irritability, and goose bumps on the skin. The responses are calibrated on a scale of 0 to 4, and the score represents the level of withdrawal being experienced based upon symptoms. A score of less than 5 is no withdrawal, 5 to 12 is mild withdrawal, 13 to 24 indicates moderate withdrawal, 25 to 36 is moderately severe withdrawal, and greater than 36 is severe. This tool is available free to the public, and a link to it can be found at the end of this chapter.

Emergency Responses

The fatal symptom in opioid overdose is respiratory depression, which can be reversed in many cases by naloxone, an opioid antagonist. Naloxone must be administered in time to reverse the respiratory depression. Any person can be trained to administer naloxone if the person has obtained a prescription for the drug. Some communities have emergency response teams that have naloxone ready to administer in the event of an overdose.

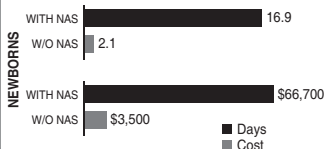
DRAMATIC INCREASES IN MATERNAL OPIOID USE AND NEONATAL ABSTINENCE SYNDROME

THE USE OF OPIOIDS DURING PREGNANCY CAN RESULT IN A DRUG WITHDRAWAL SYNDROME IN NEWBORNS CALLED **NEONATAL ABSTINENCE SYNDROME (NAS)**, WHICH CAUSES **LENGTHY** AND **COSTLY** HOSPITAL STAYS. ACCORDING TO A NEW STUDY, AN ESTIMATED **21,732 BABIES** WERE BORN WITH THIS SYNDROME IN THE UNITED STATES IN 2012, A **5-FOLD INCREASE** SINCE 2000.

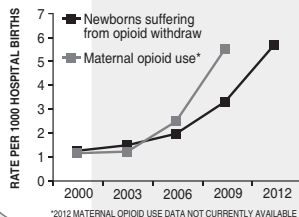


**EVERY 25 MINUTES,
A BABY IS BORN SUFFERING
FROM OPIOID WITHDRAWAL.**

AVERAGE LENGTH OR COST OF HOSPITAL STAY



NAS AND MATERNAL OPIOID USE ON THE RISE



NIH

National Institute
on Drug Abuse

Figure 7.9 Maternal opioid use and neonatal abstinence syndrome (NAS).

Source: Patrick et. AL., JAMA 2012, Patrick et. AL., Journal of Perinatology 2015

In addition to the fatal symptoms of respiratory arrest in persons experiencing opioid withdrawal, it is important to remember that IV use of opioids also impacts other body systems and increases the patient's likelihood for endocarditis, abscess, HIV, and hepatitis C. Opioids also cross the blood-placenta barrier, so pregnant women may have babies who will experience withdrawal, a syndrome known as neonatal abstinence syndrome (NAS). During a delivery when it is known or suspected that the mother has OUD, observation of the newborn must be treated as a pending possible emergency situation (Figure 7.9).

Fast Facts in the Spotlight

History has demonstrated that opioids have been around for a very long time, and each new iteration of the opioid drug, manufactured for consumption, has boasted that it would be less addictive and more effective. Each and every time that promise has been proven to be false. There will always be a market for pain medication as long as humans have pain; however, the question that needs to be asked is at what cost? The economic burden of the epidemic costs over \$78 billion a year through healthcare costs, criminal justice costs, lost productivity, and addiction treatment.

Some states are now suing the drug manufacturers for their role in fueling the opioid epidemic. Mississippi was the first state to sue, followed by Ohio, accusing the drug companies of exaggerating the benefits of opioids while downplaying the potential addictive nature of the drugs. Ohio sued five drug companies (Purdue Pharma, Endo Health Solutions, Teva Pharmaceutical Industries and subsidiary Cephalon, Johnson & Johnson and subsidiary Janssen Pharmaceuticals, and Allergan). In Ohio alone, about 200,000 people have an opioid use disorder. That is the same number as the population of Akron, Ohio. It is believed that about 52,898 Americans died in 2016 of a drug overdose. In 2017 that number rose to over 64,000. The Midwest alone saw a 70% increase in opioid overdoses between July 2016 and September 2017.

Naloxone is the drug that can reverse the respiratory depression that causes the death due to opioid overdose. The price of naloxone has increased every year as the opioid crisis expands. The sale of naloxone has increased from just over 21 million dollars in 2011 to over 74 million dollars in 2016.

What do you think can be done to bring the cost of the cure down to where families can afford it?

**NURSING, NURSE PRACTITIONER (NP), AND PA
CONSIDERATIONS FOR THE PERSON WITH OUD**

OUD affects people at all stages of their lives, from neonates to senior citizens. Nurses, NPs, and PAs in all specialties should expect to see patients who are using/misusing opioids.

NICU

Babies born to mothers who are using opioids during the pregnancy can be born addicted and will experience withdrawal. This is an

emergency situation for the baby. Establishing a good therapeutic alliance with the mother to determine the drugs taken during pregnancy and the severity of the OUD will help the medical team prepare to treat the neonate with NAS.

Adolescents and Young Adults

Pediatric patients who are placed on opioids for surgery or after surgical dental procedures can be sent home on oral medications that can develop tolerance and dependence due to persistent opioid use. A recent study demonstrated that children between the ages of 13 and 21 were given opioid prescription refills postoperatively for 90 to 180 days (Harbaugh et al., 2017). Patients on pediatric units are at high risk for OUD, and the American Academy of Pediatrics has been a leading advocate for using medication-assisted treatment coupled with counseling, but also stresses the importance for all medical healthcare providers to be aware of primary and secondary prevention measures in addition to the behavioral and medication-assisted treatments.

Emergency Departments (EDs)

Evaluating patients for pain management and getting a clear history of past medication use (prescribed and illicit) can help the healthcare team identify those with OUD and treat the patient appropriately. Patients with OUD have other medical and emotional problems that could bring them into the ED—from falling and injuring themselves to liver failure. Many patients come to the ED for treatment for pain, a psychiatric disorder, or other chronic medical disorder. It may not always be evident which patients have OUD, and this lack of knowledge can increase a patient's chances of a negative outcome. Utilizing the assessment criteria of substance use or if the patient appears to be showing signs of withdrawal using the COWS can help diagnose the patient and choose the correct interventions. There is presently a clinical trial being conducted on treating OUD in EDs, with four sites—Mt. Sinai Hospital in New York, Johns Hopkins Hospital in Maryland, The University of Cincinnati Medical Center in Ohio, and Harborview Medical Center in Washington—to gather information on the treatment of OUD in previously untreated patients engaging healthcare staff and community treatment providers. Links to a protocol for medication-assisted treatment of OUD and the COWS can be found in the links section at the end of this chapter.

Med/Surg

Patients with OUD have a number of chronic medical problems, for which they will seek treatment in hospitals and clinics. These medical

problems will persist during their OUD and during recovery. Patients known to have OUD should be routinely tested for hepatitis A, B, and C, sexually transmitted infections, tuberculosis (TB), HIV, liver and kidney diseases, infections, hypertension, and diabetes. Some acute and potentially fatal infections seen in this population are endocarditis, necrotizing fasciitis, wound botulism, and cellulitis. Infectious diseases like TB should be screened for. Those patients with HIV must be closely monitored when prescribed methadone, as many of the HIV drugs have interactions with methadone. Pain management presents its own problem for persons with OUD. Patients often have chronic pain and require pain management, but understanding nonpharmacologic approaches and use of nonopioid analgesics are important for the patient with an untreated OUD and in pain and the person in recovery.

Obstetrics

The use of opioids in pregnancy reflects the crisis of opioid use in the rest of the population; therefore, screening for opioid use should be an essential part of any OB/GYN assessment. It is important when conducting this assessment to understand the difference between medical use of opioids, misuse, and untreated/undiagnosed OUD. Women who take opioids during pregnancy and their children exposed to prenatal opioids may require long-term medical, developmental, and emotional/social support postpartum. These patients require a team of multidisciplinary specialists who can help the woman, her family, and the baby over time (Ko et al., 2017). A number of tools are available to screen your patients, including the National Institute on Drug Abuse (NIDA) Quick Screen and CRAFFT (Car, Relax, Alone, Forget, Friends, Trouble; for women 26 years or younger). Links to these free public tools are at the end of this chapter.

Fast Facts in the Spotlight

Things to Consider With Pregnant Women Who Might Be Using Opioids

The Born Free Project in California suggests screening pregnant women by asking a few pertinent questions like:

- During the pregnancy, were drugs and alcohol ever used?
- And in the past, were drugs or alcohol a problem for you?
- Is your partner using drugs or alcohol?
- Are you a child of a parent with a drug or alcohol use problem?

These simple four questions can help identify those at risk for substance use in pregnant women.

Geriatrics

Substance Abuse and Mental Health Services Administration (SAMHSA) estimates that the misuse of opioids in the geriatric population will double between 2004 and 2020. The Administration on Aging and SAMHSA uncovered that in 2016, more than 500,000 beneficiaries of Medicare Part D were prescribed high amounts of opioids. Considering the existing medical problems of the geriatric population, opioid misuse can impact respiratory rates, level of consciousness, the use of medical prescriptions through interactions, and increase the risk of falls. The scale that needs to be weighed is the benefit of opioids for chronic pain and the risk of developing tolerance and dependence. Removing pain for the older population can enhance their capacity for independence, but it must be carefully considered in light of the potential for misuse (Gold, 2012).

Healthcare Professionals (HCPs)

Just as in all other areas of society, HCPs are equally at risk for OUD, in fact the statistics show that opioid misuse and SUDs are the same and in some cases higher for HCPs as they are in the general population (Merlo & Gold, 2008). Unlike the general public, however, HCPs have greater access to drugs and can present serious issues in safe patient care delivery. In 2010, the board of nursing in Texas identified that 33% of the disciplinary actions against nurses involved drug and alcohol infractions (Ramshaw, 2010). Most states have programs for impaired healthcare providers, but it is not always easy to identify who is misusing medications or has an OUD. HCPs who misuse opioids have a higher relapse rate than the general public and so require more substantial programs for recovery (Domino et al., 2005). Despite the HCPs' higher risk for relapse, HCPs also have the highest success rates for 5 year sobriety postintervention (McLellan, Skipper, Campbell, & DuPont, 2008). Early intervention is always important, and understanding that getting a colleague's help is the first step needed to maintain a safe work environment as well as getting needed help for a serious disease.

Regardless of where you work geographically or what is your specialized unit or area of care, the likelihood that you will be working with a patient with OUD is very high. The opioid epidemic touches all lives, either professionally or personally, and the best preparation is to understand the disease and know the evidence-based interventions to use to help the patient to recovery (Figure 7.10).

Fast Facts in the Spotlight

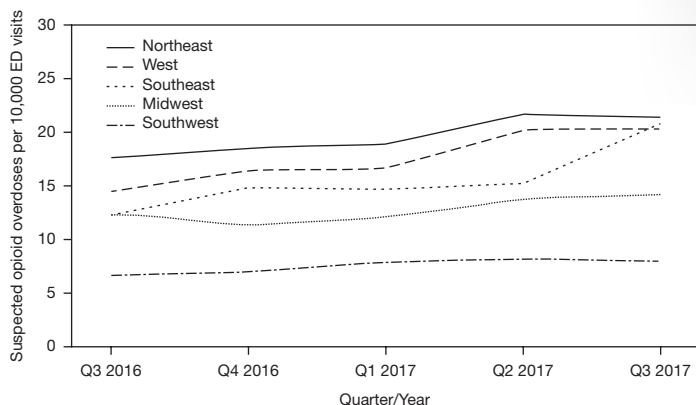


Figure 7.10 Suspected opioid overdoses in the U.S. by region 2016–2017.

Source: Vivolo-Kantor, A. M., Seth, P., Gladden, R. M., Mattson, C. L., Baldwin, G. T., Kite-Powell, A., & Coletta, M. A. (2018). Vital signs: Trends in emergency department visits for suspected opioid overdoses—United States. *Centers for Disease Control and Prevention*, July 2016–September 2017. Retrieved from <https://www.drugabuse.gov/drugs-abuse/opioids/opioid-overdose-crisis#ten>

Treatments for OUD and Resources for Recovery

Nurses, NPs, and PAs should be aware that the U.S. government, having identified the severity of the opioid crisis in the United States, has developed a five-point strategy to deal with it. These strategies have been identified as imperative to get ahead of the epidemic, and financial government grants have been secured to facilitate the implementation of these approaches. The five-point strategy from the U.S. Department of Health and Human Services (DHHS) to combat the opioid crisis includes:

- Improving access to treatment and recovery services
- Promoting use of overdose-reversing drugs
- Strengthening our understanding of the epidemic through better public health surveillance
- Providing support for cutting-edge research on pain and addiction
- Advancing better practices for pain management

Multiple links to online resources are at the end of this chapter, and a more in-depth discussion of treatments, nonpharmaceutical and pharmaceutical, can be found in Chapter 10.

Nursing Diagnoses for the Patient With OUD

A nursing diagnosis should be reflective of the patient's presentation and needs. Many of the previous chapters' nursing diagnoses might fit your patient with an OUD, but it is not one size fits all. The nursing diagnosis should fit the patient, not the medical diagnosis. Some suggestions for problems you might see with the patient with OUD are:

Ineffective Health Maintenance: As evidenced by poor general health and lack of knowledge regarding the impact of OUD on the body system.

Compromised Family Coping (Especially With Pregnant Females): As evidenced by a lack of family or community support during the prenatal, pregnancy, and perinatal periods secondary to OUD. The changing structure of the family unit with another child on the way can also precipitate the need for this nursing diagnosis.

Change Thought Process: Secondary to use of opioids or experiencing withdrawal.

NP and PA Interventions: Usually inpatient and residential treatment or intensive outpatient treatment is necessary for the person with SUD to enter into recovery and to assist them during the withdrawal phase of treatment. There are 28-day programs that then lead into partial hospital programs and case management. Referrals to community support services, peer support, and 12-step programs have been found to be beneficial. Cognitive behavioral therapy, motivational interviewing, and contingency management have all had success in supporting the patient in recovery from OUD.

Medication-assisted treatment is covered fully in Chapter 10.

All nurses (and non-nurses) have the capacity to provide Narcan during an overdose if it is available.

Fast Facts in the Spotlight—Time for Reflection

Mrs. M was a good mom, taking care of her five children during their childhood and college years. She lived a comfortable life as a stay-at-home mom. In the late 1960s, she was diagnosed with an anxiety disorder and put on Valium to “calm her nerves.” Her doctor added Ambien at night to help her sleep, and a PRN order of

(continued)

(continued)

Xanax to take when her nerves were very frazzled. One year ago her general practitioner died, and she was referred to a different doctor for treatment. She was told that she had become dependent on her benzodiazepines, and that she was going to be weaned from them to help her get off them.

It was not pleasant having her medications reduced, and her behaviors and mood swings did not go unnoticed by her twin daughters. They sat down with her to ask her about her problems, and she explained that she was not being given the medications that helped her all these years. The 20-year-old twins told her not to worry. They could get the drugs for her, but they would have to pay a lot more money. One of her daughters told her about sniffing heroin, which would be cheaper. It was not long before mom and daughters were sharing works and bags of heroin.

One afternoon, after shooting up heroin with her daughters, she awoke to find them both unconscious. She called 911, but not in time; both children died that day of an overdose. The mom is now being treated for detox and severe depression. She comes to you crying and worried about relapse. She is also afraid that the rest of her family will hate her.

How do you help Mrs. M? How do you help her family? What resources would you suggest in your community?

ROUNDUP

The global opioid crisis affects all people regardless of age, socioeconomic status, geographic location, race, religion, and profession. It is a crisis in the United States where unintentional overdoses in the 15- to 19-year-old population jumped 19% from 2014 to 2015 (Curtin, Tejada-Vera, & Warner, 2017). The increased use of synthetic opioids like fentanyl has made the opioid crisis even more deadly. This epidemic has robbed children of their parents and parents of their children and even threatens the lives and health of the smallest among us. It has destroyed neighborhoods and families in the United States and abroad. It is a preventable and treatable disease that will require all healthcare providers to work with those who have OUD and help prevent the spread to those who have yet to use, misuse, and develop a dependence on opioids.

LINKS TO LEARN MORE ON

This is NIDA: Opioids www.drugabuse.gov/videos/nida-opioids

Statistics on overdose death rates in the United States www.drugabuse.gov/related-topics/trends-statistics/overdose-death-rates

Opioid overdose prevention tool kit: store.samhsa.gov/shin/content/SMA16-4742/RecoveringfromOpioidOverdose.pdf

ED medication-assisted treatment of opioid addiction www.chcf.org/wp-content/uploads/2017/12/PDF-EDMATOpioidProtocols.pdf

Screening for substance abuse during pregnancy www.ncemch.org/NCEMCH-publications/SubAbuse.pdf

SCREENING TOOLS

NIDA quick screen www.drugabuse.gov/sites/default/files/pdf/nmas-sist.pdf

Clinical opioid withdrawal scale (COWS) www.drugabuse.gov/sites/default/files/files/ClinicalOpiateWithdrawalScale.pdf

CRAFFT screening interview: www.ceasar-boston.org/CRAFFT/pdf/CRAFFT_English.pdf

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Pharmacology and Substance Use Disorders: Detoxification and Maintenance Treatment Across the Lifespan

Alcohol Use Disorder: Detoxification and Stabilization

The symptoms of alcohol withdrawal may occur after abrupt cessation of ethanol-containing drinks after chronic use. Ethanol causes central nervous system (CNS) depression by means of two important chemical messengers (neurotransmitters) in the brain, namely, gamma-aminobutyric acid (GABA) and glutamate. GABA is the major inhibitory neurotransmitter in the brain. Ethanol potentiates GABA transmission, thus increasing activity at GABA receptors and mediating the depressant effects of ethanol. When an individual develops tolerance to alcohol, more GABA is required in order to maintain a constant inhibitory tone. In contrast to the inhibitory effects of GABA, the neurotransmitter glutamate is one of the most important excitatory neurotransmitters in the brain. Glutamate release is potentiated by its activation at the N-methyl-D-aspartate (NMDA) receptor. Ethanol effectively decreases glutamatergic action at the NMDA receptor, thus decreasing excitatory tone. As the individual develops tolerance to ethanol, the brain adapts by upregulating (i.e., increasing the number of) glutamate receptors in order to maintain normal states of arousal. In sum, the abrupt cessation of alcohol results in the loss of the inhibitory effects of GABA and the loss of the dampening of the excitatory effects of glutamate. This loss of homeostasis that has developed due to the sustained use of alcohol causes overactivity in the CNS and which leads to symptoms of withdrawal (Galanter, Kleber, & Brady, 2015).

In this chapter, you will learn:

- Basic neurobiology of alcohol withdrawal
- Signs and symptoms of acute alcohol withdrawal
- Pharmacotherapy for medically assisted withdrawal from alcohol
- Disposition consideration for medically assisted withdrawal management
- Medications used to promote abstinence in the individual living with alcohol use disorder (AUD)

SIGNS AND SYMPTOMS OF ALCOHOL WITHDRAWAL

Mild Withdrawal

The *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (DSM-5) classifies alcohol withdrawal as a clinical diagnosis and as such may require treatment. Symptoms run the gamut between mild and severe. Mild withdrawal symptoms typically appear within 6 to 36 hours of cessation of alcohol consumption and—barring progression to more serious withdrawal—usually resolve within 24 to 48 hours. It is important to note that symptoms of withdrawal can appear before the blood alcohol level (BAL) reaches zero and may even appear when a significant BAL is present. Some notable signs and symptoms of mild alcohol withdrawal are outlined in Table 8.1.

Severe Withdrawal

Withdrawal Seizures

Seizures are a serious, even life-threatening, manifestation of alcohol withdrawal. Withdrawal seizures typically manifest as a singular

Table 8.1

Signs and Symptoms of Mild Alcohol Withdrawal

Objective Signs	Symptoms
■ Tachycardia	■ Anxiety
■ Systolic hypertension	■ Restlessness
■ Visible tremor	■ Diaphoresis
■ Hypertonia	■ Headache
	■ Tremor
	■ Insomnia

Source: Adapted from Mirijello, A., D'Angelo, C., Ferrulli, A., Vassallo, G., Antonelli, M., Caputo, F., . . . Addolorato, G. (2015). Identification and management of alcohol withdrawal syndrome. *Drugs*, 75(4), 353–365. doi:10.1007/s40265-015-0358-1

event or as a brief flurry of generalized seizures (grand mal) with tonic-clonic motor symptoms. An important risk factor for the development of withdrawal seizures is a history of seizure disorder or withdrawal seizures—something that should be assessed during initial history taking. Some considerations while assessing and monitoring for withdrawal seizures are as follows:

- They usually occur within the first 24 hours after the last alcoholic drink but can appear after only 2 hours of cessation.
- They may also occur up to 5 to 7 days after the last alcohol-containing drink.
- Seizures occurring more than 1 week after cessation or prolonged seizures should prompt the clinician to consider an alternative etiology such as a comorbid seizure disorder or the presence of medications that lower the seizure threshold.

Delirium Tremens

Delirium tremens (DT) is a potentially life-threatening consequence of alcohol withdrawal and may present with the following signs:

- Hallucinations
- Alterations in mental status
- Tachycardia
- Hypertension
- Hyperthermia
- Diaphoresis
- Agitation

DT is a medical emergency and will generally require hospitalization where cardiac rhythm, hemodynamic status, temperature, and respirations can be closely monitored. Risk factors for the development of DT include history of withdrawal seizures and DT, increasing age, amount of alcohol consumed prior to withdrawal, number and severity of withdrawal episodes, and the presence of co-occurring medical and psychiatric disorders. The onset of DT can develop between 48 and 96 hours after cessation of alcohol intake and can last up to 5 days. DT is usually preceded by common withdrawal symptoms, and the treatment objective is to prevent the progression from less severe withdrawal to DT. This can be done by early treatment with benzodiazepines once the signs and symptoms of alcohol withdrawal appear. Note that DT should not be confused with alcoholic hallucinosis, which is characterized by visual and/or tactile hallucinations with onset even just a few hours after cessation of ethanol consumption. Alcoholic hallucinosis may occur without delirium or clouding of the sensorium (Hoffman & Weinhouse, 2017).

Fast Facts in the Spotlight

Delirium tremens (DT) does not develop suddenly but progresses from earlier withdrawal symptoms. Early intervention with benzodiazepines is the best method of preventing DT. Once DT starts, it can be difficult to treat.

TREATMENT OF ALCOHOL WITHDRAWAL**Benzodiazepines**

Historically, the drugs of choice for the treatment of alcohol withdrawal are benzodiazepines. The benzodiazepines are a safer alternative to the barbiturates and can help alleviate the discomfort and psychomotor agitation associated with withdrawal, help stabilize vital signs, and prevent progression from mild withdrawal to more serious sequelae such as seizures and DT (Amato, Minozzi, Vecchi, & Davoli, 2010). They work because they, like ethanol itself, potentiate the transmission of GABA (the inhibitory neurotransmitter), thus providing balance to the rush of glutamate (the excitatory neurotransmitter) that occurs after abrupt cessation of alcohol. It is this rush of glutamate that is responsible for much of the discomfort associated with withdrawal and with the onset of withdrawal seizures.

Fast Facts in the Spotlight

Although the benzodiazepines are the “gold standard” in the treatment of alcohol withdrawal and in the prevention of more serious sequelae such as seizures and DT, the anticonvulsant medications such as valproic acid (Depakote), carbamazepine (Tegretol), gabapentin (Neurontin), levetiracetam (Keppra), and pregabalin (Lyrica) are performing well in some scientific studies. Ethanol itself and antipsychotics should be avoided in the treatment of alcohol withdrawal.

Choice of Benzodiazepine

Although all of the benzodiazepines are effective in the treatment of alcohol withdrawal, the selection of agent often depends on clinician preference, the overall health of the patient, and the treatment

Table 8.2

Pharmacokinetic and Dosing Consideration Using Benzodiazepines for Alcohol Withdrawal

Medication	Time to Onset/Elimination of Half-Life	Dosage Forms	Initial Dose*
Diazepam (Valium)	20–5 hours/1–5 minutes IV	IV PO	10–20 mg IV 10–20 mg PO
Chlordiazepoxide (Librium)	24–48 hours/2–3 hours PO	PO	50–100 mg PO
Lorazepam (Ativan)	5–20 minutes IV/10–20 hours	IV PO	2–4 mg IV 2–4 mg PO
Oxazepam (Serax)	2–3 hours PO/3–21 hours	PO	15–30 mg PO

IV, intravenous; PO, per os.

*Initial dosing recommendations from: Long, Long, & Koefman (2017).

setting. Some clinicians prefer benzodiazepines with longer half-lives and active metabolites such as diazepam (Valium) and chlordiazepoxide (Librium). These longer acting agents may provide a smooth course of treatment and offer the greatest protection against progression to more serious withdrawal symptoms. However, pharmacokinetics may be a determinant in the choice of benzodiazepine in patients with hepatic disease (e.g., cirrhosis and alcoholic hepatitis) because the metabolism of benzodiazepines may be impaired in these patients. In these cases, the use of long-acting benzodiazepines can increase the sedative effect and risk obscuring the neurologic examination. For hepatically impaired patients, benzodiazepines with shorter half-lives and no active metabolites such as lorazepam (Ativan) and oxazepam (Serax) are preferred. Table 8.2 outlines some basic pharmacokinetic considerations, dosage forms, and suggested initial starting doses of the most commonly used benzodiazepines for alcohol withdrawal.

Dosing Strategies

Symptom-Triggered Strategy

With symptom-triggered dosing, the clinician administers medication on an as-needed basis in order to address signs and symptoms of withdrawal when they appear. The severity of signs and symptoms is determined by regular assessments using a validated tool such as

the Clinical Institute Withdrawal Assessment for Alcohol (CIWA-AR) scale (Sullivan, Sykora, Schneiderman, Naranjo, & Sellers, 1989). Recent trials have favored the symptom-triggered method as it reduces the risk of oversedation, allowing the patient to participate in other treatment modalities beneficial during early recovery.

Fixed-Dosing Strategy

While the symptom-triggered approach has gained the most attention in recent studies, some clinicians prefer the fixed-dosing strategy. This method involves a fixed, multiple daily dosing procedure where a benzodiazepine (usually a long-acting one) is administered on a tapering schedule on a regular round-the-clock basis whether the patient is showing signs of withdrawal or not. Despite evidence in support of the symptom-triggered approach, the fixed-dosing strategy is often used as a matter of provider convenience, in settings that have inadequate staffing, and in situations where staff are not adequately trained to carry out regular assessments using an instrument such as the CIWA-Ar (Table 8.3).

Table 8.3

CIWA-Ar Scale	
Patient: _____ Date: _____ Time: _____.	
(24 hour clock, midnight = 00:00)	
Pulse or heart rate, taken for 1 minute: _____ Blood pressure: _____	
NAUSEA AND VOMITING —Ask “Do you feel sick to your stomach? Have you vomited?” Observation.	TACTILE DISTURBANCES —Ask “Have you any itching, pins and needles sensations, any burning, any numbness, or do you feel bugs crawling on or under your skin?” Observation.
0 no nausea and no vomiting	0 none
1 mild nausea with no vomiting	1 very mild itching, pins and needles, burning or numbness
2	2 mild itching, pins and needles, burning or numbness
3	3 moderate itching, pins and needles, burning or numbness
4 intermittent nausea with dry heaves	4 moderately severe hallucinations
5	5 severe hallucinations
6	6 extremely severe hallucinations
7 constant nausea, frequent dry heaves and vomiting	7 continuous hallucinations

(continued)

Table 8.3

CIWA-Ar Scale (continued)

Patient: _____ **Date:** _____ **Time:** _____.

(24 hour clock, midnight = 00:00)

Pulse or heart rate, taken for 1 minute: _____ **Blood pressure:** _____

TREMOR—Arms extended and fingers spread apart. Observation.

0 no tremor

1 not visible but can be felt fingertip to fingertip

2

3

4 moderate, with patient's arms extended

5

6

7 severe, even with arms not extended

PAROXYSMAL

SWEATS—Observation.

0 no sweat visible

1 barely perceptible sweating, palms moist

2

3

4 beads of sweat obvious on forehead

5

6

7 drenching sweats

ANXIETY—Ask “Do you feel nervous?” Observation.

0 no anxiety, at ease

1 mild anxious

2

3

4 moderately anxious, or guarded, so anxiety is inferred

5

6

7 equivalent to acute panic states as seen in severe delirium or acute schizophrenic reactions

AUDITORY DISTURBANCES—Ask “Are you more aware of sounds around you?

Are they harsh? Do they frighten you? Are you hearing anything that is disturbing to you? Are you hearing things you know are not there?” Observation.

0 not present

1 very mild harshness or ability to frighten

2 mild harshness or ability to frighten

3 moderate harshness or ability to frighten

4 moderately severe hallucinations

5 severe hallucinations

6 extremely severe hallucinations

7 continuous hallucinations

VISUAL DISTURBANCES—Ask “Does the light appear to be too bright? Is its color different? Does it hurt your eyes? Are you seeing anything that is disturbing to you? Are you seeing things you know are not there?” Observation.

0 not present

1 very mild sensitivity

2 mild sensitivity

3 moderate sensitivity

4 moderately severe hallucinations

5 severe hallucinations

6 extremely severe hallucinations

7 continuous hallucinations

HEADACHE, FULLNESS IN HEAD—

Ask “Does your head feel different? Does it feel like there is a band around your head?” Do not rate for dizziness or lightheadedness. Otherwise, rate severity.

0 not present

1 very mild

2 mild

3 moderate

4 moderately severe

5 severe

6 very severe

7 extremely severe

(continued)

Table 8.3

CIWA-Ar Scale (continued)

Patient: _____ Date: _____ Time: _____.

(24 hour clock, midnight = 00:00)

Pulse or heart rate, taken for 1 minute: _____ Blood pressure: _____

AGITATION —Observation.	ORIENTATION AND CLOUDING OF SENSORIUM —Ask “What day is this? Where are you? Who am I?”
0 normal activity	0 oriented and can do serial additions
1 somewhat more than normal activity	1 cannot do serial additions or is uncertain about date
2	2 disoriented for date by no more than 2 calendar days
3	3 disoriented for date by more than 2 calendar days
4 moderately fidgety and restless	4 disoriented for place/or person
5	
6	
7 paces back and forth during most of the interview, or constantly thrashes about	

Total CIWA-Ar Score _____

Rater's Initials _____

Maximum Possible Score 67

Source: Center for Substance Abuse Treatment. (1997). *Treatment improvement protocol (TIP) series, no. 24*. Rockville, MD: Substance Abuse and Mental Health Services Administration (US).

Dosing

Benzodiazepine dosing and frequency of administration are based on a number of considerations including medical history, hepatic function, age, and other risk factors. Older individuals are generally more at risk for more severe withdrawal symptoms such as DT, while younger patients with fewer risk factors may be able to tolerate lighter sedation for symptom control. Although a number of dosing schedules can be employed, Long et al. (2017) recommend:

- Escalating doses of diazepam (Valium) which, due to its rapid onset, can be given every 5 to 10 minutes as needed until stabilization of symptoms,
- Lorazepam (Ativan) as an alternative to diazepam administered every 15 to 20 minutes as needed with a treatment target of symptom control, and
- Administration of the benzodiazepam of choice via the IV route for patients with seizures and DT.

Patients receiving IV treatment should be converted to PO administration once symptoms have stabilized. Patients with less severe

Table 8.4

Issues to Consider in Determining Whether Inpatient or Outpatient Detoxification Is Preferred

Considerations	Indications
Ability to arrive at clinic on a daily basis	Necessary if outpatient detoxification is to be carried out
History of previous delirium tremens or withdrawal seizures	Contraindication to outpatient detoxification: recurrence likely; specific situation may suggest that an attempt at outpatient detoxification is possible
No capacity for informed consent	Protective environment (inpatient) indicated
Suicidal/homicidal/psychotic condition	Protective environment (inpatient) indicated
Able/willing to follow treatment recommendations	Protective environment (inpatient) indicated if unable to follow recommendations
Co-occurring medical conditions	Unstable medical conditions such as diabetes, hypertension, or pregnancy: all relatively strong contraindications to outpatient detoxification
Supportive person to assist	Not essential but advisable for outpatient detoxification

Source: Center for Substance Abuse Treatment. (2015). *Detoxification and substance abuse treatment. A treatment improvement protocol*. Rockville, MD: Center for Substance Abuse Treatment.

withdrawal and patients being managed in an ambulatory setting are generally treated with PO benzodiazepines alone.

Disposition

The consideration of disposition of the individual experiencing alcohol withdrawal will depend on many factors. Patients with mild withdrawal symptoms may be discharged from the emergency department (ED) or clinic to an appropriate ambulatory setting with appropriate referrals for substance use disorder treatment (Table 8.4). Individuals with more severe withdrawal, recent intake of large quantities of alcohol, risk of withdrawal seizures or DT, or patients with medical comorbidities may require around-the-clock nursing care and may be more appropriate for closer monitoring in the controlled environment of the hospital, perhaps even the ICU if clinically indicated (Table 8.5).

Table 8.5

Symptoms and Signs of Conditions That Require Immediate Medical Attention

- Change in mental status
- Increasing anxiety and panic
- Hallucinations
- Seizures
- Temperature greater than 100.4°F (these patients should be considered potentially infectious)
- Significant increases and/or decreases in blood pressure and heart rate
- Insomnia
- Abdominal pain
- Upper and lower gastrointestinal bleeding
- Changes in responsiveness of pupils
- Heightened deep tendon reflexes and ankle clonus, a reflex beating of the foot when pressed rostrally (i.e., toward the mouth of the patient), indicating profound central nervous system irritability and the potential for seizures

Source: Center for Substance Abuse Treatment. (2015). *Detoxification and substance abuse treatment. A treatment improvement protocol*. Rockville, MD: Center for Substance Abuse Treatment.

MEDICATIONS USED TO PROMOTE ABSTINENCE

After the medically assisted withdrawal is complete, the treatment goal is, at best, sustained remission, or from a risk-reduction perspective, the minimization of future heavy drinking. There are several Food and Drug Administration (FDA) approved medications to help maintain abstinence and reduce risk—both of which can support the process of recovery (Jonas et al., 2014).

Naltrexone (ReVia)

Of the agents used to help maintain abstinence, naltrexone has demonstrated the most success in clinical trials as being superior to placebo. Naltrexone is even more effective in assisting the patient to sustained remission when used alongside psychosocial treatments such as counseling.

Mechanism of Action

Naltrexone is an opioid antagonist and when bound at the mu-opioid receptor prevents exogenous and endogenous opioids from binding

at the mu receptor. The resulting modulation of the opioid system theoretically reduces the reinforcing effects of alcohol consumption.

Precautions

As naltrexone is a mu-opioid receptor antagonist, it may precipitate withdrawal in individuals who are opioid dependent and who have opioids active at the mu-opioid receptor. Some of the common side effects are nausea, dizziness, and sedation. Naltrexone is contraindicated in patients with acute hepatitis or hepatic failure and in individuals who have a proven allergy to naltrexone (ReVia Package Insert, 2013).

Dosing

Naltrexone is generally dosed at 50 mg PO daily. Naltrexone is available in a depot formulation (Vivitrol) and is administered IM every 4 weeks in the gluteal muscle.

Acamprosate (Campral)

Acamprosate is FDA approved for the maintenance of abstinence from alcohol once detoxification is complete. Therapeutically it helps reduce some of the unpleasant feelings that the alcohol-dependent individual may experience in early abstinence.

Mechanism of Action

Although how acamprosate works is not fully understood, one theory suggests that acamprosate increases inhibitory GABA transmission and suppresses excitatory glutamate neurotransmission—the opposite of what happens with abrupt cessation of alcohol—acting as a sort of “alcohol substitute.” This may explain why it helps reduce uncomfortable feelings such as anxiety and dysphoria brought on by increased glutamate activity.

Precautions

Acamprosate is generally well tolerated, most notable side effects being diarrhea, nausea, anxiety, and depression. There have been patient reports of depressed mood and suicidality after starting acamprosate; thus acamprosate should be used cautiously in patients with a known psychiatric disorder. Acamprosate is contraindicated in individuals with a proven allergy or severe renal impairment as the drug is excreted unchanged by the kidneys. Due to lack of controlled studies in pregnant women, acamprosate is not generally recommended especially during the first trimester (Campral Package Insert, 2005).

Dosing

Acamprosate is dispensed in 333 mg tablets, and the recommended dose is 666 mg (two tablets) TID, 333 mg PO TID for patients with moderate renal impairment. Start as soon as possible after withdrawal as the benefits may be felt with an individual who is not yet abstinent.

Disulfiram (Antabuse)

The therapeutic effects of disulfiram are derived from the fact that it causes unpleasant effects such as flushing, headache, nausea, and vomiting. The aversive effects presumably lead to negative conditioning whereby individuals abstain from alcohol in order to avoid the negative effects. This is the ideal, but in fact clinical trials have shown that disulfiram is no better than placebo in promoting abstinence. It may, however, decrease frequency of drinking post relapse, serving as a sort of risk-reduction agent.

Mechanism of Action

Alcohol is metabolized in the body to acetaldehyde. Disulfiram works by inhibiting the enzyme that metabolizes acetaldehyde. If alcohol is ingested by a patient taking the drug, toxic levels of acetaldehyde build up, causing unpleasant side effects.

Precautions

The accumulation of acetaldehyde causes an acetaldehyde syndrome, which in its therapeutic form causes negative side effects. More severe acetaldehyde syndrome is life-threatening. Careful patient selection and supervised treatment are important. Disulfiram is contraindicated in patients with cardiovascular disease, who are psychotic, who have an allergy to disulfiram, and patients taking metronidazole, amprenavir, ritonavir, and sertraline.

Fast Facts in the Spotlight—Time for Reflection

Mary is a 60-year-old recently widowed woman. Her husband had had an alcohol use disorder and died of complications from cirrhosis of the liver. Since her husband's death, Mary's alcohol consumption has increased to the point where she starts drinking daily at lunchtime and does not stop until bedtime. Her relationships with her friends and family have deteriorated. Mary is present in your

clinic asking for help. She is highly motivated to stop drinking, names her three children and her five grandchildren as reasons to quit drinking. She has no history of withdrawal seizures. How will you approach withdrawal management? Which medications will you recommend for abstinence promotion?

ROUNDUP

- Medically assisted withdrawal may be performed in the outpatient setting to treat signs and symptoms of mild withdrawal. The treatment of moderate to severe withdrawal is best accomplished in an inpatient setting with round-the-clock nursing care.
- The medications of choice for the treatment of alcohol withdrawal are the benzodiazepines. However, the use of some anticonvulsants shows promising results.
- The more serious manifestations of alcohol withdrawal include withdrawal seizures and delirium tremens. These states should be treated as a medical emergency.
- The medications naltrexone, acamprosate, and disulfiram are available for promotion of abstinence. Naltrexone is the preferred medication as it has demonstrated the most impressive effect and is available in a depot formulation.

LINKS TO LEARN MORE

- Incorporating alcohol pharmacotherapies into medical practice (TIP 49) store.samhsa.gov/shin/content//SMA13-4380/SMA13-4380.pdf
- Medication for the treatment of alcohol use disorder (SAMHSA) store.samhsa.gov/shin/content//SMA15-4907/SMA15-4907.pdf
- Detoxification and substance abuse treatment (TIP 45): store.samhsa.gov/product/TIP-45-Detoxification-and-Substance-Abuse-Treatment/SMA15-4131
- Helping patients who drink too much: A clinician's guide: pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/clinicians_guide.htm

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9

Tobacco Use Disorder: Detoxification and Stabilization

Cigarette smoking is one of the leading modifiable risk factors associated with preventable morbidity and mortality worldwide. Stopping smoking has significant long-term and almost immediate health benefits. Continued smoking increases the risk of many acute and chronic diseases including heart disease and cancers. Effective treatments exist which can significantly increase rates of long-term abstinence (Treating Tobacco Use and Dependence, 2008). This chapter presents an overview of the medications that help individuals stop smoking and achieve lasting abstinence.

In this chapter, you will learn:

- Basic neurobiology of nicotine withdrawal
- Pharmacologic treatment of nicotine withdrawal and agents used to promote abstinence
- Treatment of tobacco use disorder during the perinatal period
- Special considerations for individuals with co-occurring psychiatric disorder
- Special considerations in hospitalized and surgical patients

Table 9.1

Signs and Symptoms of Nicotine Withdrawal Syndrome

Cravings	Anxiety
Dysphoria and depressed mood	Restlessness
Anhedonia	Sleep disturbance
Irritability	Decreased heart rate
Anger and increased hostility	Increased appetite and weight gain

NEUROBIOLOGY OF NICOTINE WITHDRAWAL

Like the other psychoactive drugs that cause physical dependence and tolerance, nicotine by means of the mesolimbic reward circuitry increases release of dopamine (DA) in the nucleus accumbens leading to feelings of reward and behavioral reinforcement. Blood levels of nicotine reduce rapidly, so in as little as 20 to 30 minutes after last exposure to cigarettes, nicotine-dependent individuals may experience cravings prompting continued nicotine use in an effort to satisfy these cravings, thus perpetuating the cycle of dependence. Abrupt cessation of nicotine use may precipitate the onset of subjective distress and clinical signs, some of which are outlined in Table 9.1.

PHARMACOLOGIC TREATMENTS FOR TOBACCO USE DISORDER**Nicotine-Replacement Therapy**

Nicotine-replacement therapy (NRT) makes it possible for smokers to replace the nicotine they absorb from smoking with a pharmaceutical source of nicotine substitution, therefore avoiding the hazardous chemicals and carcinogens found in cigarettes. Using nicotine replacement alongside psychosocial interventions, the desired goal is to gradually taper the nicotine source in order to maintain comfort and stability while easing the patient into a nicotine-free life. Nicotine replacement comes in four formulations: gum, transdermal patches, nasal spray, and an inhaler.

Nicotine Gum

Nicotine gum is made up of nicotine bound to polacrilex. Chewing on the gum releases nicotine, which in turn enters systemic circulation by absorption through the oral mucosa.

Common Side Effects

The most common adverse effects are jaw muscle ache, sore throat, flatulence, and hiccups. Patients should be instructed on proper chewing to help avoid these effects.

Instructions for Use

Advise patients to chew the gum slowly and intermittently for around 30 minutes. Rapid chewing can release too much nicotine too quickly negating the gradual exposure to nicotine for which the product is intended. Food and beverages can reduce nicotine absorption, so advise patients to refrain from eating or drinking for 15 minutes before chewing and while chewing.

Dosing

The product is available in 2 mg and 4 mg per piece of gum. Dosing is individualized and based on the degree of nicotine dependence. Patients with low to moderate nicotine dependence (fewer than 25 cigarettes per day) should use the 2 mg strength, while patients who are highly nicotine dependent (more than 25 cigarettes per day) should use the 4 mg strength. In order to organize a taper and to achieve abstinence, dosing on a fixed schedule is more effective than as needed dosing. The average daily dosage is generally 9 to 12 pieces; the maximum daily dosing is 30 pieces of the 2-mg strength and 20 pieces of the 4 mg strength. Smoking should be stopped once the treatment is started. Table 9.2 outlines the recommended 12-week dosing and tapering schedule (Nicorette Gum Prescribing Information, 2009).

Nicotine Lozenges

The pharmacokinetics of nicotine lozenges is similar to that of the gum in that sucking on the lozenge releases nicotine that is then absorbed through the oral mucosa and released into the systemic circulation.

Common Side Effects

Hiccups, dyspepsia, mouth irritation, and nausea.

Dosing and Tapering Schedule for Nicotine Gum and Nicotine Lozenge		
Weeks 1–6	Weeks 7–9	Weeks 10–12
1 dose every 1 to 2 hours	1 dose every 2 to 4 hours	1 dose every 4 to 8 hours

Instructions for Use

Place the lozenge in the mouth and allow it to dissolve, usually over 20 to 30 minutes. Do not eat or drink for 15 minutes before administration and until the lozenge has completely dissolved. Do not chew or swallow.

Dosing

Like the gum, the lozenge is available in 2 mg and 4 mg strength. Unlike the gum, dosing is based on when the patient normally smokes the first cigarette of the day rather than the number of cigarettes smoked (Burchum & Rosenthal, 2016). The 2 mg strength is recommended for those who smoke their first cigarette over 30 minutes after waking up, and the 4 mg strength is indicated for those who have their first cigarette less than 30 minutes after waking. Patients should use no more than five lozenges every 6 hours with maximum of 20 lozenges per day. The recommended dosing and tapering schedule is the same as that of the nicotine gum (see Table 9.2).

Nicotine Transdermal System

This particular formulation involves nicotine-containing patches, which gradually release nicotine into the systemic circulation by the transdermal route, resulting in steady blood levels of nicotine.

Common Side Effects

Itching, burning, and erythema of the skin and insomnia.

Instructions for Use

Apply one patch daily to clean, smooth skin (not hairy) of the upper body or upper arm. Rotate sites daily, avoiding the same site for at least 1 week.

Dosing

The long-acting patches are available in 21 mg/14 mg/7 mg strengths. Initial dosing is based on the number of cigarettes smoked per day once the treatment is started. For individuals who smoke more than 10 cigarettes per day, the 21 mg patch is recommended for the first 6 weeks, followed by the 14 mg patch for the following 2 weeks, then the 7 mg patch for 2 weeks.

For individuals who smoke 10 or fewer cigarettes daily, start with the 14 mg patch for 6 weeks, followed by the 7 mg for 2 weeks. Note that the 8 to 10 week treatment schedule is not set in stone. Longer use of the product may contribute to higher success rates, and length of treatment should be adapted to the patient's individual clinical circumstances. Individuals may use the patch until they feel confident that they have established themselves as a nonsmoker.

Nicotine Inhaler

The nicotine inhaler is made up of a mouthpiece and a cartridge containing 10 mg of nicotine. Inserting the mouthpiece into the cartridge breaks a seal, and puffing on the mouthpiece releases nicotine-containing vapor, which is absorbed through the oral mucosa, not the lungs. Not only does the inhaler deliver nicotine but it also substitutes for some of the sensory and behavioral aspects of smoking such as the feel of the device between the fingers, the hand to mouth movements, and the puffing action itself.

Common Side Effects

Mild mouth and throat irritation and cough.

Instructions for Use

Puff over a period of 20 minutes, after which the cartridge can be discarded.

Dosing

Use 6 to 16 cartridges daily for first 3 months, gradually tapering off over the ensuing 2 to 3 months (Nicotrol NS Package Insert, 2010).

Nasal Spray

Unlike the other forms of NRT, nicotine absorbed through the nasal mucosa produces a more rapid rise in nicotine level more closely mimicking rapid changes in nicotine concentration that occur from smoking cigarettes. For this reason, the nasal spray may provide more of the immediate, subjective rewards associated with smoking.

Common Side Effects

Mouth and throat irritation, nasal irritation, rhinitis, coughing, sneezing, and tearing.

Dosing, Duration, and Instructions for Use

One to two sprays per hour, with maximum of five sprays per hour, maximum 40 per day over 3 months.

Non-Nicotine Containing Products

Bupropion SR (Zyban)

Also an antidepressant (Wellbutrin and Forfivo), bupropion is believed to help reduce the urge to smoke and relieve irritability and

anxiety associated with nicotine withdrawal by blocking the reuptake of dopamine and norepinephrine.

Common Side Effects

Insomnia, dry mouth, and agitation. Lowers the seizure threshold (dose dependent).

Instructions for Use and Dosing

Advise patients to take bupropion SR 150 mg PO in the morning for the first 3 days followed by 150 mg PO BID for the next 7 to 12 weeks. Because there is a delay in action of the drug, patients should be advised to begin therapy 1 to 2 weeks before the predetermined quit date. Some studies have shown that dosing beyond the 12 week period (up to 1 year) decreases chances of relapse and results in a higher rate of abstinence.

Varenicline (Chantix)

In a double-blind, randomized placebo-controlled clinical trial (the EAGLES study), varenicline stole the spotlight as being more effective in promoting abstinence from smoking as compared to bupropion, the nicotine patch, or placebo (Anthenelli et al., 2016). Varenicline works by acting as a partial agonist at a specific subset of the nicotinic receptor ($\alpha_4\beta_2$ nicotinic receptor), which, when activated, promotes DA release reducing craving for nicotine, thus ameliorating withdrawal symptoms. In fact varenicline has a higher binding affinity for the nicotinic receptor than nicotine itself; therefore, blocking nicotine from binding to the receptor should an individual choose to smoke during treatment with varenicline.

Common Side Effects

Nausea, sleep disturbances, headache, abnormal dreams, dry mouth, and flatulence.

Instructions for Use and Dosing

Initiate varenicline 1 week before quit date or start varenicline and then quit smoking between days 8 and 35 of treatment. On days 1 to 3, take varenicline 0.5 mg PO once daily; on days 4 to 7 increase to 0.5 mg PO twice daily; on day 8, increase to 1 mg PO twice daily for the ensuing 12 weeks (Chantix Prescribing Information, 2016).

For individuals who have achieved abstinence while taking varenicline, an additional 12 weeks of treatment may be beneficial as this may increase the likelihood of sustained abstinence. Individuals who are not successful in achieving abstinence after 12 weeks of treatment with varenicline or those who relapse can reinitiate treatment

once the contributing factors for treatment failure are addressed and treated and when circumstances are favorable.

Fast Facts in the Spotlight: Varenicline, Bupropion , and Adverse Psychiatric Side Effects

Earlier postmarketing data generated concern that varenicline and bupropion may cause adverse neuropsychiatric effects including mood changes, suicide, and suicidal ideation, especially among individuals with co-occurring psychiatric disorders. A Food and Drug Administration (FDA) mandated and manufacturer-funded large randomized control trial did not show an appreciable increase in neuropsychiatric adverse events as compared to the nicotine patch or placebo (Anthenelli et al., 2016). As a result, the FDA, in December 2016, lifted a black box warning for varenicline and bupropion and neuropsychiatric side effects. Nevertheless, labels for both products advise consumers to alert a healthcare provider and to stop using the product should changes in behavior or suicidal ideation occur.

Second-Line Agents

Nortriptyline

Although an off-label use, the tricyclic antidepressant (TCA) nortriptyline (Pamelor) has shown some efficacy as a second-line agent for individuals who cannot tolerate a first-line agent or who may require adjunctive therapy (Hughes, Stead, Hartmann-Boyce, Cahill, & Lancaster, 2014). Nortriptyline and other TCAs should be used with caution when combined with bupropion as bupropion can increase TCA levels, running the risk of toxicity. Combining nortriptyline and bupropion should be left to the expert such as APRNs with prescriptive privileges and physician assistants (PAs) fluent in the prescribing and combining psychotropic medications. Even when used to treat depression, TCAs are no longer generally considered as first-line agents given their extensive side effect profiles.

There is limited evidence to support the use of clonidine in smoking cessation, there is insufficient evidence for the use of benzodiazepines, beta blockers, naltrexone, and SSRIs as pharmacologic aids in smoking cessation.

Cytisine

Cytisine is a natural product that, much like varenicline, functions as a partial agonist at the $\alpha_4\beta_2$ nicotinic receptor. Used as an

aid in smoking cessation in Eastern Europe, cytisine is not as of yet FDA approved in the United States as a therapy for smoking cessation but has been approved for clinical development as an investigational new drug (Hajek, McRobbie, & Myers, 2013). The results from studies comparing cytisine with other pharmacologic treatments are promising and cytisine may one day be considered as a lower cost option (Zatonski & Zatonski, 2015).

Agents With Insufficient Evidence to Support Use in Smoking Cessation

- Nicotine “vaccine”
- Electronic cigarettes
- Naltrexone
- Benzodiazepines
- Beta blockers
- Antidepressants (other than bupropion SR and nortriptyline)
- Clonidine
- Silver acetate

SPECIAL POPULATIONS

Women in the Perinatal Period

Pregnancy

Smoking is one of the most prominent modifiable risk factors for pregnancy-related morbidity and mortality and is a leading cause of adverse perinatal events for the fetus, mother, and infant. Given insufficient data on the safety of pharmacotherapeutics in pregnancy, the first line of treatment for this population is counseling as a monotherapy.

Assessment of smoking status, readiness to quit, and immediate intervention is the responsibility of every RN, APRN, and PA at every encounter with pregnant and breastfeeding women and women who currently smoke who plan to become pregnant. Table 9.3 outlines the five As (ask, advise, assess, assist, and arrange), a quick and easily applied tool that the clinician can use to assess smoking status and to tailor interventions for pregnant women (Siu, 2015). Quitting smoking during the first trimester of pregnancy yields maximum risk reduction but quitting at any time during pregnancy may have benefit. See Table 9.4 for patient-friendly web resources specific to smoking and pregnancy and lactation to which the clinician can refer patients for further education.

Table 9.3

The Five As

ASK patient at prenatal, primary care, or mental health visit about smoking history, current status, and exposure to second-hand smoke

ADVISE the patient to quit smoking and offer education on the risks of continued smoking to the patient, fetus, and infant

ASSESS the readiness of the patient to make a quit attempt

ASSIST the patient willing to make a quit attempt by using counseling, behavioral interventions, and appropriate pharmacotherapy to help her quit

ARRANGE follow-up contact in order to monitor the patient's progress throughout pregnancy offering support and further intervention as indicated

Table 9.4

Patient Friendly Web Resources for Perinatal Women

National Cancer Institute. Smokefree women: Pregnancy and motherhood
<https://women.smokefree.gov/pregnancy-motherhood.aspx>

Centers for Disease Control and Prevention. Tobacco use and pregnancy
<https://www.cdc.gov/reproductivehealth/maternalinfanthealth/tobaccousepregnancy/index.htm>

American Cancer Society. Smoking while you are pregnant or breastfeeding
<https://www.cancer.org/cancer/cancer-causes/tobacco-and-cancer/smoking-while-you-are-pregnant-or-breastfeeding.html>

National Cancer Institute. Smokefree Women: Smokefree Mom
<https://women.smokefree.gov/smokefreemom.aspx>

Pharmacotherapy

Nicotine-Replacement Therapy

Little is known about NRT during pregnancy, and available studies are disparate and inconclusive. A systematic review by Coleman et al. (2015) found evidence to suggest that NRT increases rates of smoking cessation in late pregnancy by around 40% but may be no more effective than placebo when the less biased studies are excluded. This figure is in stark contrast to a meta-analysis by Cahill et al. (2013, 2016) wherein studies excluding pregnant women and disease group populations found that NRT helped approximately 80% more people quit than placebo (equal efficacy to bupropion). Why the disparity? One explanation may be that during late pregnancy nicotine is metabolized more rapidly, and at conventional doses serum levels of nicotine may be too low to be effective.

The same study found that there is insufficient evidence to suggest that NRT has either positive or negative birth outcomes such as miscarriage, stillbirth, preterm birth, and low birth weight.

Fast Facts in the Spotlight

Weighing the risks and benefits of using NRT during pregnancy can be difficult. The U.S. Preventative Services Task Force (Siu, 2015) concluded that insufficient evidence exists to reliably weigh the benefits and risks of NRT for smoking cessation during pregnancy. We do know that NRT exposes the pregnant woman and fetus to nicotine. However, stopping smoking during pregnancy eliminates the non-nicotine toxins found in cigarettes that may contribute to poor pregnancy outcomes.

Bupropion and Varenicline

Like NRT, there are no randomized trials involving pregnant women, which from an empirical standpoint shed light on the safety and efficacy of bupropion use during pregnancy. As with most medications with central nervous system (CNS) effects, bupropion crosses the placenta. However, there is some positive data as to efficacy of the use of bupropion during pregnancy, and epidemiological studies have not established a direct association between bupropion and congenital malformations.

According to one of the strongest voices in perinatal medicine in the United States, the American College of Obstetricians and Gynecologists (ACOG), there is inadequate evidence to support the use of varenicline and bupropion in pregnancy and breastfeeding as these two agents have not been adequately tested for efficacy and safety. Neither do these agents carry recommendation from clinical guidelines from similar agencies to ACOG in Canada, Europe, and the United Kingdom. Some small studies and systematic reviews show no clear evidence of teratogenicity but neither is there strong evidence to suggest safety. Furthermore, available studies for inclusion in systematic reviews are limited and are of low quality (Turner, Jones, Vaz, & Coleman, 2019).

Labor and Delivery

Based on what we know of effects of pharmacological therapies on mother and fetus during pregnancy, it is reasonable to conclude with available evidence that there is no further risk during the intrapartum period. As with many hospitalized patients, NRT may be beneficial in that it can suppress nicotine withdrawal symptoms while in the hospital.

Breastfeeding

NRT

Nicotine passes into breast milk and is absorbed orally by the breastfeeding infant. That having been said, the risks of breastfeeding while smoking may be greater than the risks of exposing the developing fetus to nicotine alone through the maternal use of nicotine-replacement products. According to the National Institutes of Health (NIH) database LactMed, nicotine in breast milk may be a risk factor for SIDS (sudden infant death syndrome) and can lower mother's overall milk production (U.S. National Library of Medicine, 2018). Alternative therapies such as counseling and bupropion are preferred.

Bupropion

Although there are no well-controlled human studies to establish safety and efficacy of the use of bupropion during breastfeeding, the data we do have suggest that the low levels of bupropion found in breast milk would not be expected to cause adverse effects. There is, however, limited evidence to suggest the increased risk of seizure in the infant. After the clinician performs a risk versus benefit analysis, he or she in collaboration with the breastfeeding woman may decide to continue therapy with bupropion. Per LactMed, if bupropion is clinically indicated to promote and sustain abstinence from smoking, then the aforementioned risks are not a reason to discontinue bupropion during breastfeeding.

Varenicline

As with pregnancy, there are no data in human studies to support use of varenicline during lactation and breastfeeding; thus, alternative approaches are preferred.

Postpartum Period

Although many women are motivated to abstain from smoking during pregnancy, the relapse rate among women in the postpartum period is inexorably high. The postpartum period can be a vulnerable time for many new mothers and there are numerous risk factors that may make the postpartum woman vulnerable to a return to smoking (see Table 9.5).

While setting treatment goals, the clinician and patient should consider increased risk of return to smoking and plan accordingly.

Individuals Living With Co-Occurring Psychiatric Disorders

The rate of smoking among individuals living with a psychiatric disorder is statistically higher than those in the general population.

Table 9.5

Risk Factors of Postpartum Return to Smoking

- Less educated woman
- Younger age
- Poor social supports
- Postpartum emotional fluctuations
- Role transition of being a mother
- Poor coping skills
- Family members or friends who smoke
- View that smoking cessation was temporary during pregnancy

Source: Orton, S., Coleman, T., Coleman-Haynes, T., & Ussher, M. (2017). Predictors of postpartum return to smoking: A systematic review. *Nicotine & Tobacco Research*. doi:10.1093/ntr/ntx163

Furthermore, individuals living with a psychiatric disorder are at higher risk of premature death from cardiovascular disease, stroke, diabetes, and cancer—all illnesses that are associated on some level with smoking. A 2008 position statement issued by the American Psychiatric Nurses Association advocates that all nurses working with individuals living with psychiatric disorders acquire the competencies to intervene, educate patients, and advocate for policy changes that would promote awareness and treatment for this vulnerable population. Some basic principles and considerations in the pharmacological treatment of persons with psychiatric and co-occurring tobacco use disorder are bulleted below.

- **Depression:** Bupropion is a reasonable option as it is also approved as an antidepressant (Wellbutrin). Nurses and PAs should consult the provider treating the depression to decide if bupropion is an appropriate option. Because there are no clear data that bupropion is superior to other agents in promoting smoking cessation in this population, NRT and varenicline remain reasonable treatment options as well.
- **Bipolar Disorder:** The medication regimens that help sustain mood stabilization in these individuals are often complex and best managed by the expert psychopharmacologist. As such, RNs, APRNs, and PAs should consult with the individual's psychiatric provider before initiating pharmacologic treatment for smoking cessation. There is evidence for the use of NRT and varenicline in this population (Evins et al., 2014)—bupropion should be used prudently as it may induce mania. However induction of mania occurs less often with bupropion than with many other antidepressants such as SSRIs and SNRIs (Stahl, 2008).

- **Schizophrenia Spectrum Disorders:** As with bipolar disorder, the medication regimens for these individuals may be multifaceted; thus, the psychiatric provider should be consulted before attempting pharmacologic treatment of tobacco use disorder with these individuals. Bupropion has shown positive effects in reducing rates of smoking among individuals living with schizophrenia but may or may not be appropriate with those living with schizoaffective disorder due to the mood component. Varenicline has shown promise as well, but possible psychiatric side effects of varenicline (and bupropion for that matter) should be taken into consideration—not necessarily to the exclusion of their use but the possibility of adverse psychiatric side effects should be monitored for and frequently reassessed (Tsoi, Porwal, & Webster, 2013).

Fast Facts in the Spotlight—Time for Reflection

A 29-year-old woman presents in your clinic and tells you that she is 8 weeks pregnant with her first child. She has been smoking a pack a day for years and tells you she is an “incurable nicotine addict.” She has attempted to stop smoking many times before but has used only counseling and the “strength of willpower” for assistance. She wants to stop smoking for the sake of the health of the infant but is at wits end as to how to give up cigarettes. Given that psychosocial interventions alone have failed before, you and the patient decide to augment this new round of counseling with medication. As a caveat, she informs you that she wishes to breastfeed after delivery. What medication(s) will you recommend? How will you come to terms with the risks versus benefits? How will you monitor mother and baby in the perinatal period?

ROUNDUP

- Smoking is the leading preventable cause of morbidity and mortality.
- Combining pharmacologic treatment with psychosocial interventions is more effective in achieving abstinence than either modality alone.
- FDA-approved pharmacologic therapies include NRT, varenicline, and bupropion.

- Special considerations are given to patients with co-occurring psychiatric illness, hospitalized patients, and those who are pregnant and/or breastfeeding.

Links to Learn More

- The American Psychiatric Nurses Association resources for smoking cessation
www.apna.org/i4a/pages/index.cfm?pageID=3643
- U.S Department of Health and Human Services
www.surgeongeneral.gov/tobacco/
- American Lung Association
www.lungusa.org/stop-smoking/
- Health Canada
www.hc-sc.gc.ca/hc-ps/tobac-tabac/index-eng.php

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Opioid, Cocaine, Methamphetamine, and Cannabis Use Disorders: Detoxification and Stabilization

The United States is in the midst of an opioid dependence epidemic. There is a litany of sequelae associated with chronic opioid use including threats to physical and mental well-being as well as occupational, financial, relational, and legal problems. Cocaine and other stimulant use disorders are major public health problems resulting in increased risk of physical and psychiatric problems, emergency departments visits, and deaths. Cannabis is the most widely used psychoactive drug worldwide, and dependence is associated with cognitive impairment, problems meeting school, family, or work obligations, and co-occurring psychiatric disorders such as mood, anxiety, and psychotic disorders. Adolescents are particularly vulnerable to the wide availability of cannabis, and early use is associated with abnormal neural development and cognitive deficiencies. Fortunately, there are well-studied and effective medications to support recovery in opioid use disorder (OUD). There are no FDA approved medications for the treatment of either cocaine or cannabis use disorder. Psychosocial interventions alone are often not enough, stimulating ongoing research into pharmacotherapies for these disorders.

In this chapter, you will learn:

- How to respond to an opioid overdose emergency
- The ins and outs of medically assisted withdrawal from opioids
- The use of methadone, buprenorphine, and naltrexone as agents of maintenance treatment
- Experimental (albeit not Food and Drug Administration [FDA] approved) medications to treat cannabis, cocaine, and other stimulant use disorders

PHARMACOLOGIC TREATMENT IN OUD

Some basic terms the RN, nurse practitioner (NP), or physician assistant (PA) may encounter when learning about treatments for OUD are listed below.

Definitions

- **Opium**—Refers to the compound that occurs naturally in the opium poppy, including morphine and codeine.
- **Opioid**—Any drug, whether natural or synthetic, which acts at any or all three opioid receptors.
- **Opiate**—More specific term referring to subclass of opioids that contain compounds that occur naturally in the opium poppy.
- **Synthetic/Semisynthetic Opioid**—Drugs that contain substances not naturally occurring but having the effect related to the naturally occurring compounds in opiates.
- **Heroin**—An opioid processed from morphine, a naturally occurring substance derived from the opium poppy.
- **Endorphins**—A group of naturally occurring endogenous peptides that includes enkephalins and dynorphins that have opioid-like properties.

It may also be helpful to become familiar with the different types of medications having an effect at opioid receptors: full opioid agonists, opioid agonist-antagonists, and opioid antagonists. Specific examples of these agents are outlined in Box 10.1.

Clinical Management of Opioid Overdose

The Centers for Disease and Control (CDC) estimates that 66% of drug overdose deaths in 2016 involved an opioid and that on average 115 Americans die every day from an opioid overdose. This alarming figure continues to rise. As RNs, NPs, and PAs, it is important to conduct

Box 10.1

Examples of Medications That Have an Effect at the Opioid Receptor(s)**Full opioid agonists**

Morphine
 Heroin
 Fentanyl
 Meperidine
 Methadone
 Hydromorphone
 Oxycodone
 Codeine
 Oxycodone
 Hydrocodone

Opioid agonist–antagonists

Buprenorphine
 Butorphanol
 Nalbuphine
 Pentazocine

Opioid antagonists

Naloxone
 Naltrexone

a thorough clinical evaluation when an opioid overdose is suspected and to recognize the clinical features of acute opioid intoxication (Box 10.2). Highlights from the World Health Organization (WHO) Recommendations for Community Management of Opioid Overdose (reviewed by the American College of Emergency Physicians, 2016) are as follows:

- Focus on airway management
 - In a community setting, this may involve rescue ventilations, using mouth barriers when available.
 - A clinical setting may involve the use of an endotracheal tube and bag mask ventilation with supplemental oxygen.
- In emergency situations, administer naloxone—preferably by the IV route for rapid onset but may also be administered by the intranasal, subcutaneous, or intramuscular route in a setting where IV naloxone is not available or when the establishment of IV access is delayed.
 - Adult dosing of naloxone IV, IM, and SQ: Initially, 0.4 to 2.0 mg repeating at 2 to 3 minute intervals until the desired

improvement in respiratory function is obtained. If after 10 mg of naloxone is administered and the desired response has not been attained, the diagnosis of opioid toxicity should be reevaluated and an alternative etiology should be considered.

- Because of the short half-life of naloxone, repeat doses may need to be administered after 20 to 60 minutes depending on the duration of the opioid.

Fast Facts in the Spotlight—Safe Use of Emergency Naloxone

The goal of emergency naloxone treatment for opioid overdose is for the reestablishment of normal ventilation. A complete reversal of opioid agonist effects will precipitate withdrawal, which may not be desirable. Precipitated withdrawal may induce an adrenergic crisis caused by a sudden release of epinephrine and norepinephrine. The most notable features of an adrenergic crisis are hypertension and tachycardia. Increased hydrostatic pressure may lead to increased capillary permeability risking development of naloxone-induced pulmonary edema, vomiting, and subsequent risk of aspiration (Connors & Nelson, 2016). Many an ED nurse who has administered IV naloxone has witnessed the sudden onset of severe anxiety, agitation, and even aggression. Precipitated withdrawal may increase risk of elopement from a clinical setting, which would be of particular concern if the individual had overdosed on an extended release or long-acting formulation of opioid as toxic effects may recur given the shorter half-life of naloxone. Take-away message: Administer naloxone cautiously, using the lowest effective dose, and continue to monitor until stable.

Medically Assisted Opioid Withdrawal

When an individual with a physiologic dependence on opioids reduces or stops using an opioid, a withdrawal syndrome may ensue. Common clinical features of opioid withdrawal are outlined in Box 10.2. Formerly called “detoxification,” medically assisted withdrawal involves two strategies: (a) the use of clonidine and other non-narcotic agents employing a symptom-targeting approach and (b) a gradual taper from opioid agonists such as buprenorphine or methadone. Most clinical guidelines prefer the use of opioid agonists where possible. If the long-term goal is abstinence from illicit opioids, then medically assisted withdrawal alone is not an effective means of achieving that end. For improved outcomes, medically assisted withdrawal should be accompanied by a treatment plan in mind, medication-assisted treatment (or “MAT,” discussed below) and psychosocial treatments.

Box 10.2

Clinical Features of Opioid Intoxication

Whenever possible, initial history taking for suspected opioid intoxication and overdose should include the type of opioid used, the specific dose, the formulation used, prior history of opioid use, and presence of other substances. The physical examination may help confirm the diagnosis of opioid intoxication. The classic objective signs of opioid intoxication and toxicity include:

- Decreased respiratory rate*
- Sedation/decreased mental status
- Decreased bowel sounds
- Constricted pupils (miosis)**

*Decreased respiratory rate is the most notable vital sign abnormality in opioid intoxication and may be the best objective sign to make that diagnosis.

**Normal pupil size should not rule out a diagnosis of opioid toxicity. Ingestion of meperidine (Demerol) may result in normal pupil size and ingestion of some sympathomimetics (such as amphetamine, cocaine, and ephedrine) as well as some anticholinergic medications may make pupil size appear normal or large.

Box 10.3

Symptoms of Opioid Withdrawal

- Dysphoria
- Restlessness
- Runny nose (rhinorrhea)
- Lacrimation (increased tears)
- Muscle and joint pain (myalgias and arthralgias)
- “Goose flesh” (piloerection)
- Nausea
- Vomiting
- Diarrhea
- Abdominal cramping
- Muscle spasms and restless legs
- Mydriasis (pupillary dilation)

Medically Assisted Withdrawal Using Nonopioid Agents

Many of the unpleasant symptoms of opioid withdrawal are caused by hyperactivity of the noradrenergic system once opioids are abruptly stopped. The centrally acting α_2 adrenergic

agonist clonidine (Catapres) has long been used off-label for the management of these symptoms. When clonidine is active at the α_2 adrenergic receptor, the sudden release of norepinephrine is inhibited. This slowing of norepinephrine release helps ameliorate autonomic symptoms such as diaphoresis, “restless legs,” GI upset, anxiety, and irritability (Gowing, Farrell, Ali, & White, 2014). Other drugs in this class are lofexidine (just recently FDA approved for this indication) and guanfacine (Tenex). Tables 10.1 and 10.2 outline a typical clonidine initiation and tapering scheme. Table 10.3 describes other nonopioid treatment options to target symptoms opioid withdrawal.

Table 10.1

Opioid Withdrawal Management Using Clonidine: Day 1

Assessment	Treatment
Check orthostatic blood pressure	If blood pressure at least 90/60 mm/Hg and heart rate at least 60 bpm: ■ Administer a test dose of clonidine 0.1 mg PO
Reassess after 45 minutes, if withdrawal symptoms present (COWS >8) and blood pressure and pulse remain with parameters	Administer 0.1 mg every 45 to 60 minutes up to four doses (0.4 mg)
Reassess COWS score, blood pressure, heart rate every 6 hours	■ For COWS 8–12, administer 0.1 mg ■ For COWS 12+, administer 0.2 mg

COWS, Clinical Opioid Withdrawal Scale.

*Maximum daily dose generally 0.8 to 1.2 mg daily.

Source: Prepared with recommendations from UpToDate and the American Society of Addiction Medicine (ASAM) National Practice Guidelines.

Table 10.2

Opioid Withdrawal Management Using Clonidine: Day 2 and Beyond

- Total clonidine dose from Day 1
- Schedule in equal divided dose three to four times per day through Day 4
- May begin taper on Day 5
- Taper in decrements of 0.1 to 0.2 mg per day

Table 10.3

Symptoms-Triggered Adjunctive Treatments

Symptom	Medication
Restlessness and anxiety	Diphenhydramine (Benadryl) Hydroxyzine (Vistaril and Atarax)
Myalgias and arthralgias	Ibuprofen (Motrin) Acetaminophen (Tylenol) Naproxen (Naprosyn)
Nausea and vomiting	Ondansetron (Zofran) Promethazine (Phenergan) Prochlorperazine (Compazine)
Diarrhea	Loperamide (Imodium)
Abdominal cramping	Dicyclomine (Bentyl)
Insomnia	Trazodone Diphenhydramine (Benadryl) Doxepin (Silenor)

Clonidine may also be used using a symptom-triggered approach for autonomic symptoms of opioid withdrawal (Table 10.1).

Withdrawal Management Using Buprenorphine

Although not specifically FDA approved for this purpose, buprenorphine has been shown to be an effective opioid agonist treatment for the medically assisted withdrawal from opioids. The initiation of buprenorphine for withdrawal follows the same procedure as the initiation (or induction) procedure for maintenance treatment (Table 10.5). Once withdrawal symptoms are stabilized (usually on 4 mg to 16 mg of buprenorphine), the dose can then be tapered in decrements of 2 mg to 4 mg per day. The duration of the taper is individualized based on clinical circumstances and may spread over anywhere from 3 to 30 days.

Withdrawal Management Using Methadone

Medically assisted withdrawal using methadone is best accomplished in an inpatient or opioid treatment program (OTP) setting. As with buprenorphine, there are many approaches to dosing and tapering. Per American Society of Addiction Medicine (ASAM, 2015) guidelines, the initiation of methadone begins in the 20 mg to 30 mg range. Once the patient is stabilized, the taper can begin as early as Day 2 and is often completed in 6 to 10 days. A brief approach is to taper in decrements of 5 mg per day, which, assuming a 30 mg starting dose, can be completed fairly quickly. As with buprenorphine, the tapering

schedule should be individualized and adapted to clinical circumstances such as patient motivation and risk for relapse if tapered too quickly. As the taper progresses, the patient may experience uncomfortable withdrawal symptoms, which may be treated with clonidine and other adjunctive symptom-targeting medications (Table 10.3).

Medication-Assisted Treatment

Medication-assisted treatment (MAT) combines medications with psychosocial therapies in a holistic way to support the individual trajectory of recovery from SUDs. The FDA-approved medications for maintenance treatment of OUD are buprenorphine, methadone, and naltrexone. Consistent with standards of care in other chronic medical and psychiatric conditions, these medications may be taken for months and even years, and there is no specific cut-off point where the medications should be withdrawn. A common misconception is that the use of these medications is nothing more than substituting one “addiction” for another. Buprenorphine, methadone, and naltrexone (sometimes referred to as “maintenance medications”) when used judiciously and under medical supervision at a safe dose, can help an individual overcome use of an abused opioid along with the physical, relational, financial, and legal risks associated with illicit opioid use. When used properly, these medications have no adverse effect on physical and mental functioning. The choice of which medication to select is a clinical judgment call and based on individual health status, medication tolerability, previous treatment successes or failures, pregnancy, degree of opioid dependence, motivation, and responsible use of medications. See Table 10.4 for considerations when selecting an appropriate medication.

MAT with Buprenorphine/Naloxone

When administered to an opioid-dependent individual buprenorphine can alleviate the cravings and uncomfortable withdrawal symptoms associated with discontinuation of full opioid agonists such as heroin, prescription pain medication, and methadone (Suboxone, 2017). Because buprenorphine is a partial agonist, it has moderate *intrinsic activity*, meaning that the degree of activation at the mu-opioid receptor is not as strong as that of a full agonist. What makes buprenorphine unique is that it works as an agonist–antagonist at the mu receptor. In other words, buprenorphine when active at the mu receptor partially activates the receptor to the degree that it assuages the effects of opioid withdrawal. It also has a high *affinity* at the mu opioid receptor, that is to say that the strength of the bond between buprenorphine and the mu receptor is strong. Buprenorphine’s antagonist effects can block the effects of full opioid agonists and can even displace opioids which

Table 10.4

Maintenance Medications: How They Work and Patient Selection

	Naltrexone	Buprenorphine	Methadone
Mechanism of action	-Opioid receptor antagonist -Helps maintain abstinence by blocking mu-opioid receptors, thus preventing exogenous opioids from binding at the receptor site, blunting the euphoric and rewarding effects of opioids	-Opioid receptor partial agonist -Reduces opioid withdrawal symptoms and cravings; diminishes the euphoric and rewarding effects of illicit opioids by cross tolerance	-Opioid receptor full agonist -Reduces opioid withdrawal and cravings; diminishes the euphoric and rewarding effects of illicit opioids by cross tolerance
Potentially appropriate patients	-Highly motivated patients -Patients with mild opioid dependence -Patients whose professions prohibit treatment with an opioid agonist -Patients who have already been medically detoxified in a controlled environment (hospitals and correctional facilities)	-Pregnant patients -Patients with prior positive response to buprenorphine -Patients who have demonstrated responsible use and are appropriate for office-based treatment -Patients who do not live close to an OTP -Patients for whom the side effects and drug interactions of methadone are problematic	-Pregnant patients -Patients with prior positive response to methadone -Patients who are appropriate for opioid agonist treatment who cannot afford buprenorphine products -Patients who may benefit from a highly structured outpatient program with supervision of proper use and adherence

OTP, opioid treatment program.

Table 10.5

Buprenorphine/Naloxone Induction and Stabilization Schedule

	Day 1: Induction	Day 2: Induction	Days 3 to 7: Stabilization
Buprenorphine	Start with 2 mg or 4 mg, titrate upward in 2 hour intervals to 8 mg	Single dose of 16 mg recommended	Adjust in increments/decrements of 4 mg or 2 mg

*The buprenorphine/naloxone combination product may be used for induction keeping the equivalent buprenorphine doses the same based on sublingual Subutex equivalents. Dosage forms will vary for Zubsolv sublingual tablet and Bunavail buccal film—consult prescribing information for induction guidance.

have a lower receptor affinity. Thus, administering buprenorphine while a full agonist is active at the mu receptor can precipitate a withdrawal syndrome. Most buprenorphine products FDA approved for OUD contain naloxone, which when administered by the transmucosal route (sublingual and buccal) is absorbed only minimally. The naloxone in the combination buprenorphine/naloxone product is added as an abuse deterrent because if the product is dissolved and injected, naloxone—an opioid antagonist—may precipitate withdrawal (Handford et al., 2012). See Table 10.5 for a typical *induction* (initiation) schedule for maintenance treatment with buprenorphine.

Given the unique pharmacologic properties of buprenorphine, some of the advantages of its use for maintenance treatment are:

- Partial activation at mu receptor suppresses cravings and withdrawal symptoms.
- Lower intrinsic activity produces a *ceiling effect* meaning that increased doses do not produce additional effect, thus reducing potential for abuse and rendering it safer in overdose.
- High receptor affinity is also associated with slow *dissociation* (or uncoupling rate) from the mu receptor resulting in a longer duration of action and reduction in severity of withdrawal symptoms, rendering it useful for taper during opioid detoxification.
- Addition of naloxone to the buprenorphine/naloxone combination product may reduce abuse potential when dissolved and administered parenterally given the opioid blocking effect of naloxone.
- Available in various transmucosal formulations (Table 10.6), in a buprenorphine only monthly SC injection (Sublocade), and in a 6-month subdermal implant (Probuphine).
- Available for outpatient office-based treatment eliminating the need to present daily at a clinic as with methadone programs.

Table 10.6

Buprenorphine Transmucosal Delivery Formulations

Product	Route of Administration	Available Dosages
Subutex* (buprenorphine) and generic equivalents	Sublingual tablet	2 mg/8 mg
Suboxone* (buprenorphine/naloxone) and generic equivalents	Sublingual tablet	2 mg/0.5 mg 8 mg/2 mg
Suboxone (buprenorphine/naloxone)	Sublingual film	2 mg/ 0.5 mg 4 mg/1 mg 8 mg/2 mg 12 mg/3 mg
Zubsolv (buprenorphine/naloxone)	Sublingual tablet	0.7 mg/0.18 mg 1.4 mg/0.36 mg 2.9 mg/0.71 mg 5.7 mg/1.4 mg 8.6 mg/2.1 mg 11.4 mg/2.9 mg
Bunavail (buprenorphine/naloxone)	Buccal film	2.1 mg/0.3 mg 4.2 mg/0.7 mg 6.3 mg/1 mg

*Subutex and Suboxone brand sublingual tablets have been discontinued in the United States in favor of Suboxone sublingual film.

Source: Compiled from Suboxone. (2017). *Buprenorphine and naloxone sublingual film: Full prescribing information*. Indivior. Retrieved October 16, 2017, from <https://www.suboxone.com/content/pdfs/prescribing-information.pdf>; Zubsolv. (2018). *Buprenorphine and naloxone sublingual tablets: Full prescribing information*. Orexo. Retrieved from <https://www.zubsolv.com/wpcontent/uploads/2015/01/ZubsolvFullPrescribingInformation.pdf>; Bunavail (buprenorphine and naloxone) buccal film: Full prescribing information. BioDelivery Sciences International, 2017.

Fast Facts in the Spotlight

The Comprehensive Addiction and Recovery Act (CARA) signed into law in 2016 enables qualified NPs and PAs to obtain waivers to prescribe buprenorphine to up to 30 patients during the first year and 100 patients thereafter. These practitioners must complete 24 hours of additional training to qualify. Learn more and see various training opportunities at the Providers Clinical Support System website (pccsnow.org) or at the American Society of Addiction Medicine website (asam.org).

MAT with Methadone

Methadone is a long-acting synthetic opioid full agonist, which, when active at the mu-opioid receptor, reduces the withdrawal effects

from abrupt cessation of opioid use, reduces cravings, and blunts the euphoric effects of illicit opioid use. The half-life of methadone varies widely from patient to patient, ranging from 8 to 59 hours with an average of 24 hours. Methadone is the oldest, most frequently used, and most extensively studied medication for OUD worldwide. Methadone has a track record of proven efficacy, and some studies suggest that methadone, when used clinically, has reduced rates of mortality, HIV seroconversion, and in some studies, criminal behavior.

Methadone is regulated as a Schedule II drug in the United States and must be administered by a licensed OTP. OTPs must provide adequate medical and psychosocial services either onsite or by referral.

Methadone is a proven and reliable MAT for OUD and continues to provide risk reduction and lifesaving benefits for individuals living with OUD. It does have some notable drug class-related side effects, such as sedation, dizziness, diaphoresis, constipation, and sexual dysfunction in men. Some of the potential serious adverse effects of methadone include:

- QTc prolongation and risk for arrhythmias
- Overdose (methadone is a full opioid agonist with no ceiling effect as with buprenorphine)
- Multiple drug interactions due to metabolism by CYP450 particularly the isoenzyme 3A4 (some antibiotics, antidepressants, anticonvulsants, antifungals, and antiretrovirals)

Administration and Dosing

OTPs most often use a liquid concentrate formulation diluted in juice or water. Methadone is also available in a dispersible tablet. Methadone dosing is individualized and is reliant on rate of individual metabolism, degree of tolerance to opioids, and overall health. Methadone is typically dosed at 10 mg to 30 mg on the first day and titrated in 5 mg to 10 mg increments daily over several weeks until an adequate daily maintenance dose is achieved, 80 mg to 120 mg. Box 10.4 summarizes some of the basic tenets of methadone dosing. The ins and outs of methadone dosing are beyond the scope of this guide; see the web resources at the end of this chapter for more detailed dosing guidelines.

MAT with Naltrexone

Naltrexone is an opioid receptor antagonist that works by blocking mu-opioid receptors and preventing exogenous opioids from binding at the receptor therefore blunting the pleasurable and rewarding effects of opioids. Initiation onto naltrexone can be tricky as it must be preceded by a medically supervised withdrawal and 7 to 10 days free of opioids. Unless the patient is highly motivated or is treated in a controlled environment, the gap from withdrawal to initiation may be a risky

time for relapse. Naltrexone is available in two formulations: (a) an oral tablet (Revia) and (b) a long-acting monthly injectable (Vivitrol).

Oral Naltrexone

Oral naltrexone is available in 25 mg and 50 mg tablets, which, when administered daily, blocks the effects of full opioid agonists at the mu-opioid receptor. Oral naltrexone may be administered to an opioid-dependent individual after medically supervised withdrawal and following 7 to 10 days of abstinence from opioids. If this procedure is not followed, naltrexone may precipitate withdrawal in the opioid-dependent individual who has opioid agonists active at the receptor. Abstinence from opioids can be confirmed by urine screen and/or a naloxone challenge test. Patients should be started on oral naloxone 25 mg following which, if no signs of withdrawal occur, they can be switched to the recommended 50 mg daily dose thereafter (Burchum & Rosenthal, 2016).

Injectable Naltrexone

Injectable naloxone is a long-acting depot formulation that delivers steady naloxone concentrations and ongoing opioid antagonism for about 1 month. It is available in 380 mg to be administered by intramuscular gluteal injection every 4 weeks. As with the oral formulation of naloxone, the injectable formulation should be administered after 7 to 10 days free of opioids in order to avoid a precipitated withdrawal (Vivitrol: Full prescribing information, Alkermes, 2015).

Special Populations

Pregnancy

The use of MAT during pregnancy requires astute clinical judgment and sharp insight into the risks and benefits of using or not using medications. Some of the risks of continued illicit opioid use during pregnancy are the potential adverse effects that repeated exposure to and withdrawal from opioids may have on the mother and the developing fetus. Other associated risks of illicit opioid use during pregnancy are poor nutrition, smoking, and needle sharing. Ideally, MAT would be used in an integrative care environment where OUD, psychiatric, case management, and prenatal services are offered (Substance Abuse and Mental Health Services Administration, 2018a).

Opioid Agonist Treatment in Pregnancy

Methadone is considered the standard of care as it has been around longer and because more data are available to support its safety and efficacy. However, recent studies have shown that either methadone or buprenorphine may be used as maintenance medications during

pregnancy. In fact it is widely believed that the use of these medications during pregnancy result in better maternal and infant outcomes than with no treatment at all (Jones et al., 2012). That having been said, even when either methadone or buprenorphine is used during pregnancy, neonatal abstinence syndrome (NAS) may occur after delivery. The landmark M.O.T.H.E.R. (Maternal Opioid Treatment: Human Experimental Research) study, a double blind, double dummy randomized control trial comparing the use of buprenorphine and methadone in pregnancy and subsequent neonatal outcomes, found that in the buprenorphine arm of the study, fewer neonates required treatment for NAS, less morphine was required to treat NAS, and fewer number of days of continued hospitalization were required (Brogly, Saia, Walley, Du, & Sebastiani, 2014). These results notwithstanding, if an opioid-dependent pregnant woman is already adequately maintained on methadone, there is no compelling reason to switch over to buprenorphine as the switch may be destabilizing and risk return to illicit use. If circumstances determine that buprenorphine is the better option, then the switch should be performed by a skilled clinician, preferably in an inpatient setting, and ideally prior to conception.

NALTREXONE IN PREGNANCY

ACOG guidelines note that limited data exist as to the safety of naltrexone during pregnancy. It is not recommended to start naltrexone with pregnant women given the risks of precipitated withdrawal and the vulnerability to relapse during the opioid-free period that has to occur before initiation on naltrexone. Women already on naltrexone when they become pregnant should collaborate with their provider for a risk-versus-benefit discussions (American College of Obstetricians and Gynecologists, 2017).

Hospitalized Patients

It is essential to continue maintenance treatment in patients who present to the emergency department (ED) or who are admitted to the hospital for an acute medical or psychiatric condition. The clinician should contact the patient's opioid treatment program or their buprenorphine provider to verify dose and to arrange a seamless transition of care upon return to community-based treatment after discharge. Given the long half-life of methadone, the strong binding affinity and opioid antagonist effects of buprenorphine, and the opioid antagonist effects of naloxone, strategies around pain management in hospitalized patients on maintenance treatment are nuanced and require clinical flexibility and know how. Treating acute opioid

Table 10.7

Opioid Agonist Treatment Considerations for Hospitalized Patients

	Buprenorphine	Methadone
Pain	-Continue in hospital, dividing and/or temporarily increasing dose if pain can be managed with buprenorphine -Continue and add full opioid agonists for additional pain relief -Discontinue upon hospitalization or prior to anticipated need for pain relief, use opioid full agonists to treat pain and prevent withdrawal; reinstitute after pain crisis is over	-Maintain patient's full usual daily dose barring any contraindications, and add pain medication to the methadone dose as clinically indicated
Acute withdrawal	Authorized NPs and PAs may legally order buprenorphine without a waiver if an opioid-dependent patient not in treatment is admitted for a medical or psychiatric reason other than OUD, and where an acute opioid withdrawal would complicate the condition for which the patient was admitted	Authorized NPs and PAs may legally order methadone to patients admitted for reasons other than OUD and where an acute opioid withdrawal would complicate the condition for which the patient was admitted
Maintenance	Authorized NPs and PAs may order buprenorphine without a waiver for continuation of maintenance treatment during hospitalization where admitted for a reason other than OUD	Authorized NPs and PAs may legally order methadone for patients already on methadone maintenance if admitted for a reason other than OUD
Initiation	Authorized NPs and PAs may, without a waiver, initiate buprenorphine maintenance if arrangements are being made to discharge the patient to a waived prescriber in the community. Any prescription for buprenorphine to be taken outside of the hospital must be written by a waived prescriber. Nonwaived prescribers may arrange to have a patient return to the hospital ED for administration of medication for up to 3 days	Methadone maintenance may be initiated in the hospital if the patient can be discharged directly into an OTP program

ED, emergency department; NPs, nurse practitioners; OUD, opioid use disorder; PAs, physician assistants.

Source: Adapted from Substance Abuse and Mental Health Services Administration (2018b) and Title 21 Code of federal regulations § 1306.07: Administering or dispensing of narcotic drugs

Box 10.4

Methadone Dosing Summary

The initial goal is to safely reduce opioid withdrawal and craving.

- Use the “start low and go slow” approach but increase dose at a rate that minimizes chances of continued illicit drug use, while monitoring for side effects.
- Increase doses gradually over several weeks.
- Assess for sedation at peak serum concentration (2–4 hours after the dose).

The eventual target is an adequate dose that:

- Stops withdrawal symptoms for 24 hours,
- Reduces or eliminates craving, and
- Blunts or blocks euphoria from self-administered illicit opioids.

In general, after induction is complete, higher doses are more effective than lower doses.

Source: From *TIP 63: Medications for opioid use disorder*. Substance Abuse and Mental Health Services Administration (2018b).

Box 10.5

Pain Management for Individuals on Naltrexone

Since oral naltrexone can block the effects of opioids for up to 72 hours, and the long-acting injectable formulation of naloxone for up to 4 weeks, pain management in these patients can be tricky. The following are some considerations for pain management with patients on naloxone maintenance treatment:

- Nonopioid approaches such as regional anesthesia and injectable NSAIDs are possible options.
- The opioid antagonist effects of naloxone can be overcome with higher doses of opioids.
- When using higher doses of opioids, patients should be closely monitored for signs and symptoms of opioid overdose, particularly with patients for whom oral naloxone has been discontinued.

Any authorized prescriber may initiate maintenance treatment with naloxone without a waiver or OTP affiliation.
NSAIDs, nonsteroidal anti-inflammatory drugs.

Table 10.8

Medications for Cannabis Withdrawal

Medication	Labeled Use	Mechanism of Action
Dronabinol (Marinol)	Appetite stimulant, antiemetic	Activates cannabinoid receptors CB ₁ and CB ₂ , thus reducing withdrawal symptoms
Gabapentin (Neurontin)	Partial seizures, postherpetic neuralgia	Modulates excitatory neurotransmitter release
Zolpidem (Ambien)	Insomnia	A nonbenzodiazepine GABA-A agonist binds selectively to subtype of benzodiazepine receptor, inhibitory actions in sleep center of brain

withdrawal for the hospitalized opioid-dependent individual, maintaining a patient already on maintenance treatment, and initiating treatment while the patient is admitted require some foreknowledge (Table 10.7 and Box 10.5).

Nurses and PAs should not forfeit the opportunity to intervene with patients with an OUD not already in treatment while they are captive audience in the hospital. Patients whose hospitalization became necessary as a consequence of opioid use may be particularly motivated to seek help.

CANNABIS USE DISORDER

There are no FDA-approved medications for the treatment of cannabis use disorder. Severe cannabis intoxication is rare, but when it does occur it is treated medically according to symptoms and medical condition. However, there have been studies where existing medications have shown some promise in ameliorating some of the uncomfortable symptoms of cannabis withdrawal, such as irritability, anger, disturbed sleep, depression, gastrointestinal upset, headache, and muscle twitching (Gorelick, 2016).

COCAINE AND OTHER STIMULANT USE DISORDERS

Cocaine use disorder is a severe disorder for which there are no FDA-approved medications. Table 10.9 outlines medications that have shown some promise in small clinical trials, which may help promote abstinence and amelioration of withdrawal symptoms in cocaine use disorder (Castells, Cunill, Pérez-Mañá, Vidal, & Capella, 2016).

It would be beyond the scope of this chapter to include all there is to know about the treatments outlined. There is no substitute for careful patient assessment, sharp insight, acute clinical judgment, and collaboration with patients and with other specialties when applied any treatment. RNs, NPs, and PAs should become familiar with the FDA prescribing information for each medication as well as the latest clinical guidelines and society recommendations to guide individualized care.

Table 10.9

Medications for Cocaine Use Disorder

Medication	FDA-Approved Use	Mechanism of Action in Cocaine Use Disorder
d-amphetamine (Dexedrine)	ADHD	As a dopamine agonist, d-amphetamine binds to the same receptor as cocaine but is less abusable than cocaine because of relatively slower uptake and longer duration of action
Modafinil (Provigil)	Narcolepsy and shift work sleep disorder	
Bupropion (Wellbutrin; Zyban)	Major depressive disorder and nicotine use disorder	Useful in cocaine withdrawal by boosting dopamine transmission
Topiramate (Topamax)	Seizures, migraine prophylaxis, and weight management	Potentiates GABAergic neurotransmission; reduces the dopaminergic reward response to both cocaine administration and to conditioned reminders of prior cocaine use

ADHD, attention deficit hyperactivity disorder; FDA, Food and Drug Administration; GABA, gamma-aminobutyric acid.

Fast Facts in the Spotlight—Time for Reflection

Joe is a 38-year-old man whom you have been seeing in your primary care clinic for the past 5 years. He had undergone an ACL surgery last year secondary to a sports injury he sustained while playing college football. The surgeon prescribed a brief course of opioid pain medications after Joe went home from the hospital. Quickly, Joe found himself asking for more pain medication and when eventually refused,

(continued)

(continued)

he began to seek opioids on the Internet and eventually buying pills off the streets. In a matter of months Joe found himself devoting an inordinate amount of time for obtaining opioid pills in order to avoid the unpleasant effects of withdrawal. His work performance and relationships are deteriorating. On a routine office visit, a brief screen of problematic substance use reveals Joe's problem. He is embarrassed and ashamed and is asking for your help. What kind of attitude are you going to take as Joe's primary care provider? What medications might you consider in helping Joe stabilize from his OUD?

ROUNDUP

- The United States is in the midst of an OUD epidemic. RNs, NPs, and PAs need to have as part of their skill set knowledge around recognition of and response to opioid overdose.
- Methadone, buprenorphine, and clonidine have proven effective in the medical management of opioid withdrawal.
- The relapse rate in OUD is high without MAT. Methadone, buprenorphine, and naltrexone are FDA approved and evidence-based maintenance treatment can promote abstinence in OUD.
- There are no FDA-approved medications in the treatment of cannabis and other stimulant use disorders. However, some existing medications may be useful to treat these disorders on an off-label basis.

LINKS TO LEARN MORE

- For FDA prescribing information (package inserts) dailymed.nlm.nih.gov/dailymed/index.cfm
- Providers clinical support system (PCSS) pcssnow.org/
- Federal guidelines for OTPs store.samhsa.gov/shin/content//PEP15-FEDGUIDEOTP/PEP15-FEDGUIDEOTP.pdf
- Clinical use of extended-release injectable naltrexone in the treatment of opioid use disorder: A brief guide store.samhsa.gov/product/Clinical-Use-of-Extended-Release-Injectable-Naltrexone-in-the-Treatment-of-Opioid-Use-Disorder-A-Brief-Guide/SMA14-4892R
- To qualify for a buprenorphine waiver (NP/PA) www.samhsa.gov/medication-assisted-treatment/qualify-nps-pas-waivers

- FDA information about prescribing opioid agonists to persons taking benzodiazepines
www.fda.gov/downloads/Drugs/DrugSafety/UCM576377.pdf
- Managing concurrent use of MAT and benzodiazepines
ireta.org/wp-content/uploads/2014/12/BP_Guidelines_for_Benzodiazepines.pdf
- Risk evaluation and mitigation strategies (REMS) for buprenorphine products
www.accessdata.fda.gov/scripts/cder/remis/index.cfm
- SAMHSA opioid overdose prevention toolkit
store.samhsa.gov/shin/content/SMA16-4742/SMA16-4742.pdf
- Treatment of persons with co-occurring psychiatric disorders
store.samhsa.gov/shin/content//SMA13-3992/SMA13-3992.pdf
- Treating co-occurring OUD and PTSD
store.samhsa.gov/shin/content//SMA12-4688/SMA12-4688.pdf
- Drug testing in primary care
<https://store.samhsa.gov/shin/content//SMA12-4668/SMA12-4668.pdf>
- TIP 63: Mediations for opioid use disorder (free download)
<https://store.samhsa.gov/product/SMA18-5063FULLDOC>

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IV

Nonpharmacological Treatments for Substance Use Disorders

Complementary and Alternative Medicine for Treatment of Substance Use Disorders

When one encounters terms like “natural treatments,” or “complementary” or “alternative” medicine when referring to practices that fall outside of mainstream healthcare practice, it is easy to become confused by these labels and just precisely which each one means. The National Center for Complementary and Integrative Health (NCCIH) defines nonmainstream practices that are used together with conventional medicine as being complementary and nonmainstream practices used in place of conventional medicine as being alternative. This chapter uses Complementary and Alternative Medicine (CAM) as a collective term when referring to treatment falling outside of the nursing and medical mainstream, whether applied alone or integrated with mainstream treatment. One way of viewing CAM is as a broadening of the conceptualized framework of applied healthcare as it relates to overall well-being and is inclusive of treatments that target symptoms not addressed by orthodoxy. The NCIHH views most CAM approaches as falling into two broad categories: natural products/dietary supplements and mind and body practices. Other complementary approaches include traditional healers, homeopathy, and naturopathy, but there is a paucity of research in their use for the treatment of substance use disorder (SUD).

In this chapter, you will learn:

- Definition of CAM
- Safety considerations around CAM
- Overall effectiveness of CAM in treating SUD
- Dietary supplements to treat SUD
- Mind/body practices to treat SUD
- Where to find reliable information about CAM

STATISTICS

According to statistics from the National Health Interview Survey (Clarke, Black, Stussman, Barnes, & Nahin, 2015), 34% of adults in the United States used one or more complementary approaches to health and well-being in 2012. Nonvitamin/nonmineral dietary supplements were the most often used (17.7%), followed by deep breathing exercises (10.9%) and yoga, tai chi, and qi gong (10.1%) (Clarke, Black, Stussman, Barnes, & Nahin, 2015). The prevalence of CAM usage among individuals living with SUDs is high. One can speculate as to the reason for this phenomenon. One explanation may be the availability of CAM treatments marketed specifically for the treatment of SUD-related concerns. One of the perceived benefits of these products is that they may allow the individual to integrate CAM into the medical and nursing treatment they are participating in and another may be that some people prefer to avoid mainstream medical practices altogether. Perhaps some individuals with SUD feel that mainstream medicine has failed to adequately address their particular needs so they seek alternative solutions. Others may not look for medical advice at all be it for lack of access, concerns about privacy, or feelings of shame and stigma around their SUD.

EFFECTIVENESS OF CAM FOR SUD

A comprehensive study by Posadzki, Kahil, AlBedah, Zhabenko, & Car (2016) examined available evidence evaluating the effectiveness of CAM for various SUDs. Despite the limitations identified by the authors (e.g., the variety of CAM techniques and abused substances and methodological weakness of some of the randomized control trials), their overall conclusion is that of the 27 systematic reviews included in the study, the evidence evaluating the effectiveness of natural products for the treatment of SUD is often negative (meaning that they are not effective) and is frequently confusing, contradictory, and ambiguous. What the researchers were able to glean however is that the evidence to support the effectiveness of certain mind-body techniques is more favorable than for natural products or dietary supplements.

NATURAL PRODUCTS/DIETARY SUPPLEMENTS

Safety

Natural products or dietary supplements (terms used interchangeably in this chapter) such as vitamins, minerals, herbs, and amino acids represent the most common form of CAM. Many of these supplements can exert significant pharmacologic effects, both positive and negative. Nurses and other clinicians do well to approach prescribing these agents with caution and with a questioning attitude as there is a limited amount of reliable evidence as to their safety and efficacy. This may be because, unlike conventional over-the-counter and prescription drugs, natural products do not have to undergo rigorous trials demonstrating safety and efficacy before being marketed to the consumer. Natural products such as herbs and other botanicals, amino acids, and vitamins and minerals are classified as dietary supplements and are therefore exempt from the rigorous testing that conventional drugs undergo. In fact the Food and Drug Administration (FDA) can only intervene if a natural product is deemed harmful or if it does not live up to the manufacturers' claims of efficacy. The FDA will regulate, limit, or withdraw a natural product only after it has been marketed—a sort of “safe until proven otherwise” system. In response to the fact that dangerous products have been marketed to consumers in the past, the FDA now requires manufacturers to list on their label active and inactive ingredients as well as the purity and strength of the natural ingredient(s). Table 11.1 lists private organizations that have taken it upon themselves to hold manufacturers of dietary supplements accountable to this FDA requirement.

Table 11.1

Independent Organizations Assuring Product Quality

The four private organizations listed below test dietary supplements for quality. Their standards include that products be devoid of adulterants, contaminants, impurities, and that their labels accurately reflect the identity and strength of their ingredients. Look for their seal of approval on natural products, but note that these organizations attest to ingredients, not to safety or efficacy.

- U.S. Pharmacopeia (USP)
- ConsumerLab
- NSF International (formerly National Sanitation Foundation)
- Natural Products Association (NPA)

Fast Facts in the Spotlight: Kratom

Kratom (*Mitragyna speciose*) is the name of a tree native to Southeast Asia whose extracts have opioid-like qualities. In cultures where the plant grows, kratom has been used in traditional medicine as an analgesic and stimulant. Kratom may cause serious adverse effects including respiratory depression, exacerbation of psychotic symptoms, suicidality, nausea, vomiting, seizures, and severe withdrawal upon cessation of habitual use. Hospitalizations and deaths due to kratom overdose have been reported. The FDA has issued an advisory about the risks of using kratom-containing "dietary" products, and the Drug Enforcement Administration (DEA) has sought to schedule kratom as a controlled substance as many other countries have already done. The proposal to prohibit kratom has been withdrawn, pending further scientific study as proponents cite its analgesic properties and use in treatment of opioid withdrawal.

Dietary Supplements for SUD

Table 11.2 outlines some of the more commonly used natural products for the treatment of SUD. There are no common guidelines for dosing and administration of these products, and the available evidence as to the safety and efficacy of natural products is equivocal at best. The Therapeutic Research Center (TRC) offers a peer-reviewed, evidence- and consensus-based database of information on the effectiveness and safety of CAM therapies (see the resources listed at the end of this chapter and other evidence-based resources). The TRC database is available by subscription and aims to inform and guide clinicians on dosing, use during pregnancy and lactation, possible drug and food interactions, and pharmacokinetics and pharmacodynamics of nutritional supplements.

Mind–Body Practices for SUD***Yoga***

Yoga is enjoying increasing empirical support as a modality for the treatment of SUDs (Posadzki, Choi, Lee, & Ernst, 2014). Several hypotheses have been postulated as to why yoga is effective. One hypothesis suggests that yoga is a healthy, recovery-enhancing substitute for the state of reduced arousal that an individual may experience after they consume their drug of choice. Another is that yoga fills the void and sense of emptiness when the offending substance is removed and helps assuage negative emotions and anticipated stress and fear of withdrawal that often contribute to relapse.

Table 11.2

Commonly Used Natural Products for SUD

Natural Product	Use
Passion flower (<i>Passiflora incarnata</i>)	Anxiety, irritability, insomnia, and agitation associated with opioid withdrawal
Tyrosine (2-amino-3-(4-hydroxyphenyl)propionic acid)	Stress reduction in people with alcohol use disorder; withdrawal symptoms associated with opioid withdrawal
N-acetyl cysteine (N-acetyl-L-cysteine)	Reduce cocaine craving
Kava (<i>Piper methysticum</i>)	Benzodiazepine withdrawal
Rosemary (<i>Rosmarinus officinalis</i>)	Opiate withdrawal
Black seed (<i>Nigella sativa</i>)	Symptoms of opioid withdrawal
Kudzu (<i>Pueraria montana</i>)	Aids in reducing alcohol consumption
Phenylalanine (2-amino-3-phenylpropanoic acid)	Improve mood symptoms during alcohol withdrawal
Black pepper (<i>Piper nigrum</i>)	Reduction in symptoms of nicotine withdrawal
Milk thistle (<i>Silybum marianum</i>)	Treatment of alcoholic hepatitis/cirrhosis
Coenzyme Q10 (Ubiquinol)	Reduces cocaine use
Ginkgo (<i>Ginkgo biloba</i>)	Maintenance of abstinence from cocaine
Iboga (<i>Tabernanthe iboga</i>)	Symptoms of opioid, alcohol, tobacco, cocaine, and cannabis withdrawal; increase length of abstinence

CAM, complementary and alternative medicine; SUD, substance use disorder.

Source: Items extracted from the Therapeutic Research Center: Natural Medicines (trchealthcare.com/solutions/natural-medicines), a peer-reviewed, evidence- and consensus-based database of data on the effectiveness and safety of CAM therapies, together with information to inform and guide clinicians on dosing, use during pregnancy and lactation, possible drug and food interactions, and pharmacokinetics and pharmacodynamics of nutritional supplements.

There are many different types of yoga and the body of research around yoga in all its various practices provides support for its safety and efficacy. Integrative yoga practices that employ posture, breathing, meditation, and spirituality are the most effective. Kundalini yoga in particular incorporates a blend of the physical and spiritual practices derived from other types of yoga. Kundalini yoga is said to induce neuroadaptation in the mesocorticolimbic system (the “reward system”) as well as neuroadaptation in the hypothalamic–pituitary–adrenal (HPA) axis. HPA axis dysfunction is associated with many

psychiatric disorders including substance dependence. Physiologically, integrative yoga practices are purported to reduce cortisol levels, increase parasympathetic tone while decreasing sympathetic tone, lower heart rate and blood pressure, improve digestion, and improve respiratory function. Behaviorally, yoga and mindfulness can reduce negative emotion and promote increased self-awareness and directness of thoughts. Research shows that yoga is particularly effective in the treatment of SUDs when employed alongside behaviorally based interventions such as CBT (Khanna & Greeson, 2013).

Auriculotherapy

Auriculotherapy is a therapeutic technique that employs methods of stimulation of the various parts of the outer ear. In theory, auriculotherapy focuses on the connection of the ear, the affected organ, and the central nervous system. Auriculotherapists use a variety of techniques including transcutaneous electrical nerve stimulation (TENS) units, lasers, magnets, and ear pellets. Much of the research around this modality has focused on smoking cessation. A meta-analysis by Di et al. (2014) showed that in a group of studies that included ear-specific acupuncture/acupressure or auriculotherapy, outcomes were superior for smoking cessation at 3 and 6 month follow-up than with nonintervention controls. There have also been studies demonstrating tentative impact on retention in OUD treatment, but further research is needed (Baker & Chang, 2016).

Guided Imagery

Guided imagery uses words, thoughts, and images to visualize solutions to problems and to envisage positive outcomes to stressful situations and disease states. It has been speculated that evoking positive emotions helps the process healing of disease and reduces the psychological impact of stressful situations. Guided imagery may be conducted by a therapist in a group setting, one-on-one, with recordings, or individually self-guided. Although not rigorously tested, it has been hypothesized that guided imagery may exert its physiologic effects on the body by reducing cortisol levels. Some preliminary research has shown that guided imagery may lead to reduce rates of smoking as compared to placebo.

Acupuncture

Acupuncture is a 2,000 year old Chinese technique whereby trained practitioners stimulate certain points on the body by inserting fine needles through the skin or by applying electrical current or heat. Acupuncture has gained popularity in Western medicine as a legitimate therapy. Most states now regulate the practice of acupuncture, and

masters and doctoral programs exist to prepare practitioners for certification in this specialty. Acupuncture is generally safe when applied properly and with sterile needles. While the most convincing evidence for the effectiveness of acupuncture has been in pain studies, some research suggests that acupuncture may reduce cravings for alcohol and may help reduce the unpleasant effects of opioid withdrawal when used alongside traditional medically assisted withdrawal (LaPaglia, Bryant, & Serafini, 2016). A preliminary study suggests that a specific form of acupuncture using electrical stimulation to specific points on the body alongside buprenorphine/naloxone treatment resulted in fewer study participants using opioids in the 2-week period after the intervention was completed (Meade et al., 2010).

Hypnotherapy

Hypnotherapy is the application of hypnosis by a qualified hypnotherapist in order to achieve a desired therapeutic result. In theory, hypnosis seeks to relax the conscious mind so that the unconscious mind is more available and responsive to suggestion. The mechanism of action of hypnosis is poorly understood, but some have proposed that the pathways that connect neuroendocrine functions with the mind—namely, the HPA axis and the limbic system—are activated during hypnosis. Hypnotherapy has popularly been used to promote smoking cessation, but there is in fact insufficient reliable evidence to support the efficacy of hypnotherapy in smoking cessation over other therapies such as relaxation therapy.

Aromatherapy

Aromatherapy involves the use of essential oils extracted from plants for therapeutic purposes and has been a topic of renewed interest in nursing research and interventions. There is no reliable evidence that aromatherapy can either prevent or cure disease, but there is some evidence that suggests that the practice may be effective in the promotion of emotional and physical well-being. Aromatherapy is administered most commonly by inhalation but is sometimes used topically as in massage, or less commonly (and potentially dangerously) by ingestion. Some components of vapors inhaled using a special vaporizer or by addition to a warm bath exert a pharmacodynamic effect as they bind to olfactory receptors in the nose and communicate signals to the brain via the olfactory nerve. The constituents found in the vapors of essential oils may also enter the circulation via the lungs, and some may cross the blood–brain barrier. Although there is insufficient evidence to support the efficacy of aromatherapy in the treatment of SUDs, some preliminary research has shown that certain aromas can be effective in mitigating the unpleasant symptoms of alcohol

withdrawal and that the essential oils of black pepper and angelica can reduce nicotine cravings (Cordell & Buckle, 2013).

Fast Facts in the Spotlight—Time for Reflection

A new patient called Bob, age 48, has presented in your clinic for an initial wellness visit. In your assessment, Bob discloses that he is a pack a day smoker and has been since he was in college. He has not heretofore thought about quitting but tells you in your exam that he is contemplating quitting given the fact that he feels he is “getting on in years” and would like to “be around” to see his children grow up, get married, and produce grandchildren. Bob welcomes any psychosocial interventions you can provide but is inherently opposed to medications, preferring “natural remedies.” How will you educate Bob about dietary supplements? Where will you turn for reliable information? What admonishments will you give Bob for when he is shopping in his local health food store?

ROUNDUP

- CAM is a collective term referring to treatment falling outside of the nursing and medical mainstream, whether applied alone or integrated with mainstream treatment.
- The evidence evaluating the effectiveness of natural products for the treatment of SUD is specious and often confusing, contradictory, and ambiguous.
- Evidence suggests that mind–body techniques have more demonstrated effectiveness than natural products in effective treatment of SUDs.

LINKS TO LEARN MORE

- Allied and Complementary Medicine Database (AMED)
www.ebsco.com/products/research-databases/amed-the-allied-and-complementary-medicine-database
- Alt HealthWatch
www.ebscohost.com/academic/alt-healthwatch
- Consumer Lab
www.consumerlab.com/
- Medline Plus Herbs and Supplements Information
medlineplus.gov/druginfo/herb_All.html

- National Center for Complimentary and Integrative Health (NCCIH)
nccih.nih.gov/
- NIH Office of Dietary Supplements ods.od.nih.gov/
- Public Health Agency of Canada Complementary and Alternative Health website:
www.phac-aspc.gc.ca/chn-rcc/cah-acps-eng.php
- Therapeutic Research Center Natural Medicines:
trchealthcare.com/solutions/natural-medicines (subscription only)
- U.S. Food and Drug Administration (FDA)
www.fda.gov/Food/DietarySupplements/default.htm

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12

Psychotherapeutic Treatments for Substance Use Disorders

Given the chronic and relapsing nature of substance use disorders (SUDs), ongoing community-based psychosocial treatment is often indicated. There are various therapeutic approaches, each with a different primary focus. For example, psychotherapy can teach stress-coping skills to the patient, target relationship dynamics and communication, reinforce motivation to remain sober, or target underlying psychological problems such as symptoms of anxiety and depression. Individuals in recovery who are engaged in therapy as either an adjunct or as a monotherapy have an increased likelihood of achieving remission. Cognitive-behavioral therapy (CBT) and motivational interviewing (MI) have empirically been shown to be effective, but other forms of therapy such as dialectical behavioral therapy have been increasingly evaluated. Therapy can be used alongside MAT and used as an adjunct to participation in support fellowships such as alcoholics anonymous (AA) or narcotics anonymous (NA).

In this chapter, you will learn:

- The definition of brief psychotherapies and their effectiveness in treating SUDs
- Types of psychotherapies, either brief or longer term

- The basic tenets of MI in treating SUDs
- Brief therapy designed to enculturate individuals into 12-step programs
- Interventions for harder to treat patients

BRIEF PSYCHOTHERAPIES

Brief psychotherapies are systematic, problem-, and solution-focused therapeutic modalities where patient and therapist agree on short-term goals with a view toward immediate results. For SUDs these are often adaptations of established, longer-term psychotherapies (such as cognitive behavioral therapy existential therapies, and psychodynamic therapies) but differ from their antecedents in that they focus on problems in the here and now and seek to develop coping skills to address current symptoms, without delving too much into past history (Table 12.1). The desired outcome of brief therapies is on specific behavioral changes rather than on broader and more pervasive changes as is often the emphasis of the long-term therapies.

Table 12.1

Therapeutic Modalities in Treatment of SUDs	
Cognitive behavioral therapy (CBT)	This approach combines elements of cognitive and behavioral therapies, but in most substance abuse treatment settings it is considered a separate therapy. This approach focuses on learning and practicing a variety of coping skills. The emphasis is placed on developing coping strategies, especially early in the therapy. CBT is thought to work by changing what the client does and thinks rather than just focusing on changing how the client thinks.
Strategic/interactional therapies	These approaches seek to understand a client’s viewpoint on a problem, what meaning is attributed to events, and what ineffective interpersonal interactions and coping strategies are being applied. By shifting the focus to competencies, not weaknesses and pathology, the therapist helps clients change their perception of the problem and apply existing personal strengths to finding and applying a more effective solution.
Solution-focused therapy	Using this approach, the therapist helps a client with a substance abuse disorder recognize the exceptions to use as a means to reinforce and change behavior. Future behavior is based on finding solutions to problem behaviors. Little or no time is spent talking about the problem; rather, therapy is focused on solutions that have already worked for the client in the past.

(continued)

Table 12.1

Therapeutic Modalities in Treatment of SUDs (*continued*)

Humanistic and existential therapies	These therapies assume that the underlying cause of substance abuse disorders is a lack of meaning in one's life, a fear of death, disconnectedness from people, spiritual emptiness, or other overwhelming anxieties. Through unconditional acceptance, clients are encouraged to improve their self-respect, self-motivation, and growth. The approach can be a catalyst for seeking alternatives to substances in order to fill the emptiness experienced and expressed as substance abuse.
Psychodynamic therapy	The psychodynamic therapist works with the assumption that a person's problems with substances are rooted in unconscious and unresolved past conflicts, especially in early family relationships. The goal is to help the client gain insight into underlying causes of manifest problems, understand what function substance abuse is serving, and strengthen present defenses to work through the problem. A strong therapeutic alliance with the therapist assists the client to make positive changes.
Interpersonal therapy	This therapy, which combines elements of cognitive and psychodynamic therapies, was originally developed to work with clients with depression but has been used successfully with substance-abusing clients. It focuses on reducing the client's dysfunctional symptoms and improving social functioning by concentrating on a client's maladaptive patterns of behavior. It is supportive in nature, providing encouragement, reassurance, reduction of guilt, and help in modifying the client's environment.
Family therapy	While not a distinct "school" of therapy, family therapy is a modality that either treats the client as part of a family system or considers the entire family as "the client." It examines the family system and its hierarchy to determine dysfunctional uses of power that lead to negative or inappropriate alignments or poor communication patterns and that contribute to substance use disorder by one or more family members. The therapist helps family members discover how their own system operates, improve communication and problem-solving skills, and increase the exchange of positive reinforcement.
Group therapy	This modality (also not a distinct theoretical school) uses many of the techniques and theories described to accomplish specified goals. In some group therapy, the group itself and the processes that emerge are central to helping clients see themselves in the reactions of others, although the content and focus of the groups vary widely.

Source: Adapted from Substance Abuse and Mental Health Services Administration. (2012). *Brief interventions for substance abuse*. Treatment Improvement Protocol (TIP) Series, No. 34. Rockville, MD: Center for Substance Abuse Treatment.

Evidence suggests that brief therapies, when administered properly, are as effective as longer-term therapies in the treatment of SUDs. Because many clinicians and counselors are strapped for time and have to juggle large, quick turnover caseloads, these interventions are ideally suited for SUD treatment, particularly in early recovery. Some individuals will invariably be good candidates for longer-term therapy, such as those who are living with co-occurring psychiatric disorders, who have poor social supports, and who have had previous unsuccessful treatments.

MOTIVATIONAL INTERVIEWING

When individuals with an SUD are in early recovery or are contemplating change, it is not uncommon for those individuals to experience some ambivalence around their substance use. For instance, individuals may see the ill effects that continued use is having on their health and their lives, but may also remember what they perceive to be the positive experiences, such as escapism and the feeling of being “high.” MI helps people explore and resolve ambivalence by activating their innate motivation. The skilled MI therapist will assess a patient’s level of change using constructs such as Prochaska and DiClemente’s (1984) transtheoretical model of change as a framework (see Chapter 13, Table 13.4). In a seminal work on MI and addiction, Miller and Rollnick (1991) posit that the skill involved in MI is “more persuasive than coercive, more supportive than argumentative.” MI technique favors elicitation with the goal of stimulating the patient’s own spontaneous motivational statements as a means of self-directed behavioral change. MI generally abides by the following principles (Substance Abuse and Mental Health Services Administration, 2013):

- Express empathy through reflective listening whereby the therapist expresses empathy and understanding of the patient’s unique circumstances.
- Develop and point out discrepancy between clients’ goals or values and their current behavior in order to help clients see more clearly how their current behavior may be at odds with their true nature and values.
- Avoid argument and direct confrontation that are generally not good for the therapeutic relationship in MI. Instead, the therapist recognizes client resistance as a cue to change strategies.
- Adjust to client resistance rather than opposing it directly as the therapist recognizes that this is an opportunity to more fully understand the client’s unique experience.

- Support self-efficacy and optimism by recognizing the client's strengths and conveying hope and the possibility of achieving change.

MI is a rich and ever-evolving therapeutic intervention that has shown promise in SUD treatment in empirical studies (Smedslund et al., 2011). Obviously the full scope of MI is broader than what this brief description can cover, and when properly applied, MI requires training and practice. There are a multitude of training opportunities, and interested clinicians are encouraged to refer to <http://www.motivationalinterviewing.org> for more information and for training opportunities.

TWELVE-STEP FACILITATION

Twelve-step facilitation (TSF) is an individualized, manualized treatment modality designed to familiarize individuals with the principles of AA and NA and to ultimately facilitate participation in 12-step programs. TSF differs from AA/NA in that it is a professionally conducted treatment where AA and NA are fellowships of peers who have an SUD in common and are guided by the 12 steps and traditions (Nowinski & Baker, 2017). The only requirement for involvement in these fellowships is the desire to stop drinking/using. TSF as manualized therapy was born of project MATCH, a clinical trial of alcohol use disorder treatment whereby participants were randomly assigned to receive TSF, cognitive-behavioral therapy, or motivational enhancement therapy (an outcrop of MI manualized specifically for the study). The premise was that not all treatments are equally effective in all individuals, so the project sought to “match” treatments with the individual needs of participants. Not without its critics, project MATCH resulted in an even split where participants in all three interventions performed equally with a significant reduction in drinking. Although results are mixed at 1 year follow-up, at 3 years follow-up TSF showed an advantage with higher abstinence rates. TSF has two major goals, both of which relate directly to the first three steps of AA: acceptance and surrender.

- Acceptance by patients that they suffer from the chronic and progressive illness
- Acceptance by patients that they have lost the ability to control their drinking
- Acceptance by patients that, since there is no effective cure for SUD, the only viable cure is abstinence

- Surrender insofar as acknowledgment on the part of the patient that there is hope for recovery (sustained sobriety) but only through accepting the reality of loss of control and by having faith that some higher power can help the individual whose own willpower has been defeated by SUD

CONTINGENCY MANAGEMENT

There is no “cure” per se for an SUD but many individuals—with the help of brief interventions and psychotherapies—achieve sustained remission of their symptoms. However, some individuals may be more treatment resistant and susceptible to relapse than others. Strong risk factors for relapse include:

- Co-occurring psychiatric disorder
- Homelessness
- Poor social supports
- Limited financial resources
- History of treatment followed by relapse
- Ongoing cravings
- Maintaining environments and social groups that are triggering

Therapeutic approaches involving contingency management (CM) are effective for patients who are more vulnerable to relapse. CM is intended to be applied in the context of a SUD treatment program and as an adjunct to pharmacotherapy and psychotherapies. CM has its theoretical framework as the process of *operant conditioning*, a learning process whereby the strength of a given behavior (e.g., to use or to not use substances) is modified either by reenforcement of positive consequences of the behavior or by “punishment.” In persons living with SUDs, the continued use of drugs or alcohol is the operant behavior that is reinforced by the physiologic reward of continued use (the “high”) as well as the relief from withdrawal symptoms that continued use provides. CM flips it the other way around and seeks to reinforce the positive consequences and feeling associated with abstinence.

For some persons living with SUDs, particularly those in early recovery, the reinforcing benefits of long-term abstinence may seem far off or out of the immediate picture. CM attempts to impose interventions that show benefits in a more immediate way and in a way salient to the individual (DePhilippis, Petry, Bonn-Miller, Rosenbach, & McKay, 2018). In our society things that carry some sort of monetary value are particularly reinforcing. This can take the form of cash payments reloadable debit cards, gifts cards for retail goods, or prizes. The trick is that the reward has to be desirable and significant

to the person with an SUD in order to reinforce any sort of meaningful change in drug or alcohol use behavior (Pan, Gowing, Li, & Zhao, 2012). Certain principles, when maintained consistently, lead to more successful outcomes:

- Rewards are to be based on objective measures of abstinence (urine and serum screening, breathalyzer tests, and Secure Continuous Remote Alcohol Monitor (SCRAM) bracelets).
- Rewards are to be delivered frequently soon after the desired behavior (attendance at face-to-face sessions or group meeting, negative toxicology screen) and are to be delivered on a consistent basis.
- Rewards have to carry some meaning, value, and salience for the individual.

Fast Facts in the Spotlight—Time for Reflection

You are an NP or PA in a clinic treating persons living with opioid use disorder. Harry is a 41-year-old man, recently unemployed and separated from his partner as a result of his opioid dependence. He has been in 30-day inpatient treatment twice but has always relapsed to opioid use. You have prescribed buprenorphine/naloxone 16 mg sublingually daily, but Harry's urine screens have consistently resulted as negative for buprenorphine but positive for other opioids. Harry eventually confides that his compulsion to use heroin is so strong that he has been selling his buprenorphine/naloxone on the streets to raise money to buy heroin. How will you advise Harry? Will you recommend for a higher level of treatment and if so, what?

ROUNDUP

- SUDs are chronic and relapsing diseases that may require a combination of varying treatment methods to promote and maintain abstinence or to reduce risk.
- Brief psychotherapies have evidence-based support in their effectiveness and draw upon existing psychotherapeutic methods and theories.
- These same psychotherapies may be used on a long-term basis if indicated.
- MI is an evidence-based therapy to help patients garner their own desire and motivation to reduce substance use.

- TSF is a brief manualized therapy to help enculturate individual into twelve-step fellowships.
- Some patients are harder to treat than others and may require close supervision and CM.

LINKS TO LEARN MORE

- MI network of trainers
<http://www.motivationalinterviewing.org>
- Brief marijuana dependence counseling
nrepp.samhsa.gov/ProgramProfile.aspx?id=92
- SAMHSA TIP 34: Brief interventions and brief psychotherapies
store.samhsa.gov/product/TIP-34-Brief-Interventions-and-Brief-Therapies-for-Substance-Abuse/SMA12-3952

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Care for Substance Use Disorders in the Clinic and Community

Despite the prevalence of substance use disorders (SUDs) in the United States, these disorders are often undetected in the primary care environment. The U.S Preventive Services Task Force (USPSTF) recommends that clinicians screen all adults age 18 and older for problematic or risky alcohol use and to engage patients in brief interventions to help with risk reduction. Screening for the abuse and misuse of other substances can be performed as well. The assessment of unhealthy substance use and the planning and implementation of appropriate interventions fits squarely within the scope and practice of the RN, consistent with Hildegard Peplau's interpersonal theory of nursing whereby the nurse's role is as teacher, resource person, counselor, and surrogate (Peplau, 1991). Assessing for potential problem substance use and promptly intervening is not solely within the purview of the nursing profession. Some of the other professionals outside of the SUD or psychiatric specialty who can assess and administer brief interventions are:

- Nurse practitioners (NPs), physicians, and physician assistants (PAs) in primary and specialty care
- Emergency department clinicians
- Social workers
- Mental health workers

- Teachers
- Clergy

This chapter provides a broad review of screening tools and brief interventions that can be applied within the primary care or community clinic setting.

In this chapter, you will learn:

- What is meant by unhealthy or risky substance use
- The definition of screening, brief intervention, and referral to treatment (SBIRT)
- How to use prescreening and full screening tools
- The components of brief interventions and how you, regardless of training, can implement these interventions

WHAT IS PROBLEM OR LOW-RISK USE? WHAT IS HIGH-RISK USE?

The potential risks associated with alcohol and illicit drug consumption vary from person to person. Other than for alcohol there are no agreed upon parameters for what would be considered high or low risk consumption (Table 13.1). What would be considered unhealthy

Table 13.1

Definition of Drinking Levels

Levels at low risk of developing AUD	Healthy men under age 65 ■ No more than 4 standard drinks in a day, and ■ No more than 14 standard drinks in a week Healthy women under age 65 and healthy men over age 65 ■ No more than 3 standard drinks in a day, and ■ No more than 7 standard drinks in a week
Binge drinking	■ 5 drinks for men in 2 hours ■ 4 drinks for women in 2 hours ■ Pattern of drinking that results in blood alcohol concentration of 0.08 g/dL
Heavy alcohol use	Binge drinking on 5 or more days in the past month

AUD, alcohol use disorder.

Source: National Institute on Alcohol Abuse and Alcoholism. (2016). *Helping patients who drink too much: A clinicians guide*. Washington, DC: National Institutes of Health. Retrieved from https://pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/clinicians_guide.htm; <https://pubs.niaaa.nih.gov/publications/Practitioner/Clinicians-Guide2005/guide.pdf>

or risky use varies between substances and people, notwithstanding the fact that many substances of abuse are illegal. From a diagnostic perspective, substance use becomes a problem when recurrent use interferes with the ability to fulfill major educational, occupational, or relational role obligations, causes or increases the risk for related health problems, or exacerbates existing health problems.

SCREENING, BRIEF INTERVENTION, AND REFERRAL TO TREATMENT (SBIRT)

SBIRT is an empirically validated tool used to screen patients for risky use of drugs and alcohol, and if the screen is positive to swiftly intervene in order to prevent and reduce opportunities for harm and dependence (Young et al., 2014). The SBIRT model was developed in response to the Institute of Medicine's recommendation calling for community-based screening for health risk behaviors, including substance use. The SBIRT model incorporates three components:

- *Screening:* The nurse or PA screens for risky or unhealthful substance use in any clinical setting, using a standardized, empirically validated screening tool.
- *Brief Intervention:* The nurse or PA employs a specific therapeutic modality to help the patient explore risky substance use and to motivate the patient for change.
- *Referral to Treatment:* The nurse or PA makes a referral for further treatment or to brief therapy for patients who screen positive. The RN, NP, or PA may also deliver these treatments if qualified.

Screening Tools

Problematic substance use—alcohol in particular—is prevalent amongst the general population. However, these problems often go undetected in the primary care, emergency department (ED), and other clinical environments. The National Institute on Alcohol Abuse and Alcoholism (NIAAA, 2016) encourages primary care clinicians to incorporate alcohol screening and brief intervention as a routine component of practice. There are many types of clinical encounters that can act as “cues” to prompt the clinician to conduct a screening:

- Routine patient encounters
- ED and urgent care visits
- When prescribing a medication which has potential interactions with alcohol or other drugs
- When a patient is pregnant or trying to conceive
- Patients who are in high-risk groups (smokers, adolescents, young adults)

Single-Item Screening Tool

An uncomplicated method of screening for risky alcohol use is to simply ask the question, “How many times in the past year have you had 5 (4 for women) or more drinks in a day?” This tool is an easy to remember, straightforward, and time-saving approach that has been empirically validated in the primary care setting (Smith, Schmidt, Allensworth-Davies, & Saitz, 2009). This same tool has been adapted to the screening of other substances as well. The question, “How many times in the past year have you used an illegal drug or used a prescription medication for nonmedical reasons?” may be posed, and if asked for clarification the clinician may add “for instance, because of the experience or feeling it caused (Smith, Schmidt, Allensworth-Davies, & Saitz, 2010).” The NIAAA suggests screening or unhealthy alcohol use like this:

- Prescreen by asking, “Do you sometimes drink beer wine, or other alcoholic beverages?”
- If the answer is “No,” then the screening is complete.
- If the answer is “Yes,” then ask the screening question, “How many times in the past year have you had 5 (4 for women) or more drinks in a day?” If positive, then may assess for alcohol use disorder (AUD) or refer to someone who can. Sample questions to assess may be found at <https://www.niaaa.nih.gov/guide>.

Alcohol Use Disorders Identification Test (AUDIT)

The AUDIT is a 10-item clinician-administered screening tool developed by the World Health Organization (WHO) and is used to screen for drinking habits and problem use. It is an empirically validated tool and is well suited in primary care environments. It is scored on a scale of 0 to 40 points, with a score of 8 or greater considered positive for unhealthy alcohol use and 20 or greater as an indication of alcohol dependence.

The tool is in the public domain. The WHO document with background information and instructions for scoring may be obtained at apps.who.int/iris/handle/10665/67205.

The alcohol use disorders identification test—consumption (AUDIT-C) is a briefer but still reliable version made up of three questions from the full AUDIT (Table 13.2). In it, each question carries 0 to 4 points. For women a score of 3 or greater and for men a score of 4 or greater is considered positive. The positive score would be helpful in identifying hazardous drinking. The higher the score generally, the more the patient’s drinking is impacting safety.

CAGE-AID

CAGE-AID is an acronym representing four questions and is another straightforward and user-friendly screening tool (see Box 13.1). It can

Table 13.2

AUDIT-C**1. How often do you have a drink containing alcohol?**

Answer	Points
Never	0
Monthly or less	1
Two to four times a month	2
Two to three times a week	3
Four or more times a week	4

2. How many standard drinks containing alcohol do you have on a typical day?

Answer	Points
None	0
1 or 2	0
3 or 4	1
5 or 6	2
7 to 9	3
10 or more	4

Q3: How often do you have six or more drinks on one occasion?

Answer	Points
Never	0
Less than monthly	1
Monthly	2
Weekly	3
Daily or almost daily	4

be self-reported or clinician administered and is in the public domain. While not as comprehensive a screening tool as the AUDIT as it lacks a quantity of use component, it is quick and easy to remember, and it may be used to supplement a positive score on the single-item tool in order to assess for a more severe problem.

CRAFFT

CRAFFT is a six item self-reported or clinician administered instrument used to screen for alcohol and drug use in adolescents age 14 to 18 (Box 13.2). Like CAGE, it is quick and easy to use but does not include a measure for assessment of amount or frequency of consumption. However, a positive screen may open the door for a more in-depth discussion about use.

Box 13.1

CAGE-AID

- Have you ever felt you should Cut down on your drinking?
- Have people Annoyed you by criticizing your drinking?
- Have you ever felt bad or Guilty about your drinking?
- Have you ever taken a drink first thing in the morning (Eye-opener) to steady your nerves or get rid of a hangover?
- Altered to Include Drugs

Scoring: A score of 1 or more is considered positive. Two or more points may indicate clinically significant substance use.

Box 13.2

CRAFFT

Screening using the CRAFFT tool begins by asking the adolescent to “Please answer these next questions honestly” and telling the person “Your answers will be kept confidential”; and then asking three opening questions.

If the adolescent answers “No” to all three opening questions, the provider only needs to ask the adolescent the first question—the CAR question. If the adolescent answers “Yes” to any one or more of the three opening questions, the provider asks all six CRAFFT questions.

CRAFFT is a mnemonic acronym of first letters of key words in the six screening questions. The questions should be asked exactly as written.

- C - Have you ever ridden in a CAR driven by someone (including yourself) who was “high” or had been using alcohol or drugs?
- R - Do you ever use alcohol or drugs to RELAX, feel better about yourself, or fit in?
- A - Do you ever use alcohol/drugs while you are by yourself, ALONE?
- F - Do you ever FORGET things you did while using alcohol or drugs?
- F - Do your family or FRIENDS ever tell you that you should cut down on your drinking or drug use?
- T - Have you gotten into TROUBLE while you were using alcohol or drugs?

Additional screening tools are listed in Box 13.3.

Box 13.3

Additional Screening Tools

- Alcohol, smoking, and substance involvement screening test (ASSIST)
- AUDIT-C
- Michigan alcohol screening test (MAST)
- NIDA drug use screening tool
- Problem-oriented screening instrument for teenagers (POSIT)
- Tolerance, worried, eye-openers, amnesia, [K] cut down (TWEAK)

Fast Facts in the Spotlight: Prescreening

Prescreening, not a core component of SBIRT but is frequently used, reduces the time needed by busy clinic staff to identify patients with risky behavior. Prescreening using an abbreviated screening tool enables staff to triage patients quickly for the need for additional screening or necessary treatment services. Shortened screening approaches may facilitate healthcare providers' implementation of SBIRT services because they require less time to administer than do standard screening approaches. Shorter approaches eliminate a commonly cited time barrier to SBIRT implementation. One validated tool is the AUDIT-C, which uses the first three alcohol consumption questions of the full, 10-item AUDIT questionnaire. Other useful tools include the NIAAA single-item screening tool outlined earlier and the one-question prescreening tool for illicit drug use. If a patient scores high on any domain in the prescreen, a full screen is conducted.

Source: Adapted from Substance Abuse and Mental Health Services Administration. (2013). *Systems-level implementation of screening, brief intervention, and referral to treatment. Technical Assistance Publication (TAP) Series 33*. HHS Publication No. (SMA) 13-4741. Rockville, MD: Substance Abuse and Mental Health Services Administration.

BRIEF INTERVENTION

Brief interventions are evidence-based strategies that help patients become motivated to change unhealthy habits, practices, or behaviors once a screening tool has produced a positive result. The RN, APRN, or PA uses these practices to help patients understand how their substance use puts them in harm's way for health and/or psychological problems down the road if their current use is not curbed. Brief interventions are

not intended to treat individuals living with severe SUDs but can be used to connect this population with more intensive treatment within the current care setting or for a referral to such services.

The Transtheoretical Stages of Change (Prochaska, DiClemente, & Norcross, 1992) is an integrative biopsychosocial model used to conceptualize an individual's readiness to change an unhealthful behavior (Table 13.3). The model is particularly helpful to clinicians as it assists the nurse or PA to fashion brief interventions according to where patients are in their decision-making process.

In a model developed by Miller and Sanchez (1993), there are six steps that are integral to brief interventions: feedback, responsibility, advice, menu of strategies, empathy, and self-efficacy. These elements are summarized in the acronym FRAMES as shown in Box 13.4. These are elements critical to helping patients curb their substance use behavior and should remain consistent, although flexible enough to combine elements in different ways.

Clinical skills the nurse or PA should draw on when performing brief interventions:

- An overall attitude whereby the clinician conveys understanding, empathy, and a nonjudgmental attitude as it is important to assure the patient that the clinician will listen attentively and will do his or her best to help
- Skills such as active listening help patients explore and resolve ambivalence and keep the clinician focused on the patient's unique experience. Therapeutic communication skills such as reflection, clarification, and summarizing are also useful.
- A focus on identifiable and achievable intermediate goals
- A working understanding of the stages-of-change model (Table 13.3)

Box 13.4

FRAMES

- Feedback is given to the individual about personal risk or impairment.
- Responsibility for change is placed on the participant.
- Advice to change is given by the provider.
- Menu of alternative self-help or treatment options is offered to the participant.
- Empathic style is used in counseling.
- Self-efficacy or optimistic empowerment is engendered in the participant.

Source: Substance Abuse and Mental Health Services Administration. (2012). *Brief interventions for substance abuse Treatment Improvement Protocol (TIP) Series, No. 34. Center for Substance Abuse Treatment*. Rockville, MD: Substance Abuse and Mental Health Services Administration.

Table 13.3

Transtheoretical Model (Stages of Change)

Stage of Change	Definition	Treatment Need
Precontemplation	The user is not considering change, is aware of few negative consequences, and is unlikely to take action soon.	The client needs information linking his or her problems with the substance abuse. A brief intervention might be to educate the client about the negative consequences of substance abuse.
Contemplation	The user is aware of some pros and cons of substance abuse but feels ambivalent about change. The user has not yet decided to commit to change.	The client should explore feelings of ambivalence and the conflicts between the substance abuse and personal values. The brief intervention might seek to increase the client's awareness of the consequences of continued abuse and the benefits of decreasing or stopping use.
Preparation	This stage begins once the user has decided to change and begins to plan steps toward recovery.	The client needs work on strengthening commitment. A brief intervention might give the client a list of options for treatment, then help the client plan how to go about seeking the treatment.
Action	The user tries new behaviors, but these are not yet stable. This stage involves the first active steps toward change.	The client requires help executing an action plan and may have to work on skills to maintain sobriety. The clinician should acknowledge the client's feelings and experiences as a normal part of recovery.
Maintenance	The user establishes new behaviors on a long-term basis.	The client needs help with relapse prevention. A brief intervention could reassure, evaluate present actions, and redefine longterm sobriety plans.

Source: Substance Abuse and Mental Health Services Administration. (2013). *Enhancing motivation for change in substance use treatment*. Treatment Improvement Protocol (TIP) Series 35. Rockville, MD: Substance Abuse and Mental Health Services Administration.

Fast Facts in the Spotlight—Time for Reflection

You are an RN, NP, or PA working in a busy outpatient community primary care clinic where you see four patients every hour in 15 minute time slots. Regardless of your role or credentials, it is

(continued)

(continued)

within your scope of practice to initiate SBIRT. Given the high traffic environment in the clinic—the lab specimens that need to be collected, the prescriptions that need to be sent to the pharmacy, the follow-up and referral appointments to be scheduled, and the inevitable emergencies and unforeseen circumstances—how are you going to incorporate substance use screening and, if necessary, brief intervention and referral into your standard of practice? How will you make time for this essential component of care? To whom might this intervention be delegated?

ROUNDUP

- Unhealthy amounts of alcohol have been defined as more than 14 standard drinks per week or more than 4 standard drinks per day for men under age 65, and more than 7 standard drinks per day and more than 3 standard drinks per day for women under age 65 and older adults.
- Risky and unhealthy amounts of other substances vary by drug and are difficult to quantify given the illicit nature of many illegal substances.
- Single-item screening tools are quick and easy to employ in the community clinic environment and can help triage patients who may require additional screening.
- Brief intervention is the standard of care to treat adults in community clinics who may screen positive for unhealthy substance use or for a mild SUD.
- Patients with a more advanced SUD should be referred to more intensive SUD treatment.

Links to Learn More

- National Institute on Alcohol Abuse and Alcoholism
www.niaaa.nih.gov/
- *Helping Patients Who Drink Too Much: A Clinicians Guide*
pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/clinicians_guide.htm
- AUDIT: The Alcohol Use Disorders Identification Test: Guidelines for Use in Primary Health Care
apps.who.int/iris/handle/10665/67205
- AUDIT-C Overview
www.integration.samhsa.gov/images/res/tool_auditc.pdf

- Screening/SAMHSA-HRSA
www.integration.samhsa.gov/Screening Tools: www.integration.samhsa.gov/clinical-practice/screening-tools#drugs
- Alcohol and Drug Abuse Institute-University of Washington lib.
ada1.washington.edu/instruments/
- SBIRT training, screening tools see NY State Office of Alcoholism and Substance Abuse Services
www.oasas.ny.gov/admed/sbirt/index.cfm#screening

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14

The Innovations and Programs Addressing the Opioid Epidemic

This chapter looks at cutting edge, innovative programs and initiatives that are being developed to fight the opioid pandemic. It presents, without bias for or against, programs that have been discussed, developed, and implemented to try to save lives and reduce the enormous toll substance use disorders (SUDs) that have taken on human life.

In this chapter, you will learn:

- The changing understanding of opioid addiction from a neurologic view point
- Some programs being done at a local level
- State run programs
- Substance Abuse and Mental Health Services Administration (SAMHSA)/National Institute on Drug Abuse (NIDA) federal programs
- International programs

THE CHANGING NEUROBIOLOGY ABOUT OPIOIDS

The NIDA, part of the National Institutes of Health (NIH), have been examining neuronal cell bodies' binding response to opioids using a molecular probe (NIDA, 2018, May 10). They have discovered that

the opioids used in medicines interact quite differently with the neuron cells than the endogenous opioids. Our bodies make the endogenous opioids, which also have a therapeutic effect, but which do not have the dangerous side effects that lead to dependence. The study used nanobody research on the mu-receptor molecules, which are on the surface of the neurons, and showed that the opioid enters the nerve cells. This was never known before, as it was believed that only the surface of the neurons was affected by the opioid. This ground breaking science has discovered that opioid drugs impact the body of the neuron cell (endosomes) and affect the Golgi apparatus in the body of the neuron. This discovery indicates that medicinal opioids are interfering and changing mu-opioid receptor signaling and activation capacity. This is an impact that is not seen with our own natural opioids. The importance of this discovery is the belief that now scientists will be able to design new medications that do not enter the endosomes nor interfere with the mu-opioid receptors, which would not produce the tolerance and dependence now seen with current opioid medications (Figure 14.1).

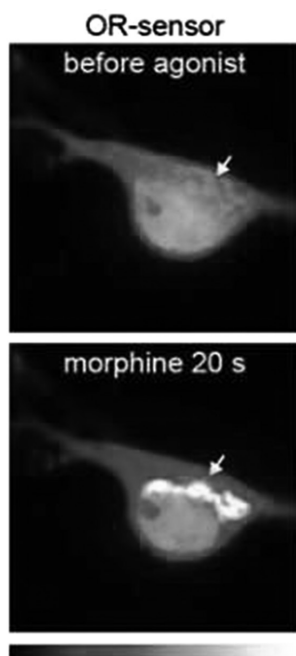


Figure 14.1 Opioid impact on the body of the neuron's cells.

LOCAL PROGRAM—WEBER COUNTY, UTAH

It is estimated that about 1 million children are displaced from their own home to their grandparents' home due to a parent's SUD. A Salt Lake City, not-for-profit organization has amended its Grandfamilies program to meet the rising need of families affected by the opioid epidemic. Since 2015, Utah's Weber County Grandfamilies program serves those families where the parents can no longer parent due to opioid use disorder (OUD), incarceration, and deployments, so the children are now being raised and cared for by their grandparents. SUD is the primary reason that children are in the full care of their grandparents. Weber County estimates that almost 2,000 children presently live with and are being raised by their grandparents due to SUDs/opioid use disorder (OUD).

The innovative aspect of this program is threefold. First, by supporting grandparents in their care of the children, they are keeping the children out of the welfare system. This serves the children better and saves the government money that would have to be spent on foster care, which comes to more than \$6.5 billion a year. Second, it brings these families together, so they do not feel alone in their situation, and allows them to get community support and a place to talk about what they are going through. Finally, it provides education to the families and decreases the stigma and shame that many families dealing with SUDs feel when they need help. This program provides therapy, legal services, and support groups at no cost. Their educational program includes a 10-week course that helps families deal with SUDs, boundary issues, family dynamics, skills to cope with life's difficulties, and other things (Whitaker, 2018).

The Call From the National League of Cities

As the opioid crisis expands, and the drug fentanyl is finding its way into other drugs like marijuana, the need to respond on a local level has increased. It is estimated that about half of the overdoses from opioids now result from the addition of fentanyl to the drug mix. The National League of Cities and the National Association of Counties combined forces to examine how they could improve education, prevention, treatment, and leadership on a local level.

Their report provides information on many programs that have been implemented on a local level and have been effective in helping those with SUDs move toward recovery, and those in need of education, therapy, and interventions achieve their goals. The report speaks about a detention center treatment program in Kenton County, Kentucky, developing a dormitory with about 100 beds to

provide a 6-month program of detox, therapy, intensive counseling, and medication interventions. Since 2016 they have had about 200 inmates completing this program with a recidivism rate of lower than 10% (opioidaction.org/report/).

The Angel Program in Massachusetts

This program was developed in a small fishing town that was being hard hit by the opioid crisis. The police department in Gloucester, Massachusetts, decided that it would be better to help people with SUD rather than to incarcerate them. To achieve this, they collaborated with the local hospital, and, when a person with SUD arrived at the jail, they brought them to the local hospital where they paired a volunteer “angel.” What is so unique about this program is that on their Gloucester Police Department website, they clearly state that the person with a drug problem will not be arrested or charged with a crime. They will receive help for their substance use problem (gloucesterpd.com/addicts/). In their first year (2015–2016), this small town helped almost 400 addicts and was able to provide help to 95% who sought treatment. This program demonstrates the need for law enforcement and healthcare collaborations. This program now exists in over 150 police departments in 28 states and has created a place for a positive connection between those who are needing help for SUDs and their local police departments.

Fast Facts in the Spotlight

Forget About About the Box

We often say to think outside the proverbial box, but what if we forget about the box? An example of this is in Erie County, Pennsylvania, where shopping malls are now having posters to teach parents about the signs and symptoms of drug use hanging in open-bedroom displays!

In Ocean County, New Jersey, persons who have their lives saved by naloxone treatment are matched with recovery coaches in the emergency department. Those who accept the ongoing treatment have 8 weeks of coaching and free subsidized ongoing treatment. About 70% of revived patients have accepted this treatment. These innovative local programs have called for interdisciplinary/interprofessional collaboration to achieve a common goal. What opportunities are present in your community?

STATE PROGRAMS

As the opioid epidemic affects more families and more states and cities both rural and urban, the need for centralized state-supported programs has risen. The programs that are presented here are only a few of the excellent, innovative programs that focus on the specific needs of individual states dealing with the opioid crisis. States have developed laser-focused programs, some that identify the needs of a particular population, others by geographic location.

Texas: Madison Outreach and Services Through Telehealth (MOST) Network

Population Focus: Rural Hispanic Texans

This program, though specific to the rural needs of Texas, was federally funded by the Federal Office of Rural Health Policy (HRSA) once the need of increased mental health/substance prevention and treatment practitioners was identified for reaching rural Texans. The state worked on developing a counseling telehealth system that would be able to deliver the needed services to their predominantly Hispanic clients in Brazos Valley, Texas. Evaluation of this program demonstrated increased knowledge and improved awareness of Spanish programs available to the community.

California: 4Ps Plus Pregnancy Support Project—Focus Native American Women With SUDs

This project provides Native American women in Lake County, California, with an integrated behavioral health service network to improve their understanding of the effect of substances on the fetus and provide them with programs to support their recovery. The evaluated outcome of this program was a reduced exposure to alcohol, tobacco, and other drugs for the Native American newborns.

Vermont: Medication-Assisted Treatment (MAT) Program—The Hub and Spoke Model Focus: People With SUDs/ODUs

This program works to integrate SUD and its treatment into primary care, so that if a patient comes to the clinic for general health matters, and it is understood that there is an SUD, the general practitioner can refer that patient to an addiction specialist, the same as we do now for diabetes or cardiac disease. It allows the patient to get the intensive treatment by the specialist with follow-up visits to the general practitioner. The MAT program provides patients with the medications needed

to detox from the opioids and get back to their lives. For Vermont, the use of methadone or buprenorphine, coupled with therapy, is provided by the hub, a place they visit regularly (as medication requires), and the spokes are where they would go for follow-up care once they can get their treatment on a weekly or monthly basis. This program has been successful in eliminating wait times for persons with SUDs to be treated, reducing the possibility of an unintentional overdose while waiting to get into a treatment program, which often happens. The death rate for overdose in Vermont between 2013 and 2015 flattened out, where the rest of the country's overdose rates were rising. In 2016, there was an increase in the overdose rate, due to the increased use of fentanyl in heroin—an increase seen across the United States. About 50% of those with OUD get assistance in the Vermont model, as compared to only 10% in the rest of the United States (Exhibit 14.1 and Figure 14.2). The success of this program has made it an innovation that other states and countries are working to replicate (Lopez, 2017).

Exhibit 14.1

The Hub-and-Spoke Model

Hub: This is typically a primary care setting. The general practitioner helps patients in receiving treatment for their SUD. Patients are referred to specialists for intensive treatment, represented by spokes in the hub-and-spoke model. Patients are assisted with:

- Assessment
- Care coordination
- Methadone
- Complex addictions
- Consultation

Spokes: These include healthcare services and settings that provide specialized care. Here patients undergo treatment and follow-up care as required:

- Residential services
- Inpatient services
- Pain management clinics
- Medical homes
- Substance abuse outpatient treatment
- Mental health services
- Family services
- Corrections probation and parole

SUD, substance use disorder.

	January 2014	2015	2016	July 2017
Approximate number of people in treatment/ waiting	1,751/513	2,800/490	3,000/400	3,148/<400

Figure 14.2 Vermont Hubs: Number of people in treatment and those on waiting lists in Vermont from 2014 to 2017.

Source: Adapted from Lopez, G. (2017). I looked for a state that took the opioid epidemic seriously. I found Vermont. *Vox media*, October 31. Retrieved from <https://www.vox.com/policy-and-politics/2017/10/30/16339672/opioid-epidemic-vermont-hub-spoke>.

Ohio

Ohio's overdose rate in the United States is fifth in the nation with 24.6 per 100,000 people (Penm et al., 2017). In order to tackle this problem, the state developed a Governor's Cabinet Opiate Action Team. This multifaceted approach resulted in the decrease of dispensing opioids to Ohioans through the state-wide prescription drug-monitoring program and increasing naloxone to first responders, which resulted in reducing unintentional overdoses from 45% in 2011 to 22% in 2015. Pharmacists and other healthcare providers were included in the action team, all working on innovations to reduce the access to opioids as well as treat those with OUD and prevent overdoses for those who continue to use. Ohio's attorney for the Northern District of Ohio has developed best practices through the formation of a working group from law enforcement, hospitals, pharmacies, rehab, and public schools. Relink is another system being developed and implemented in Ohio using technology and business savvy to provide a state-of-the-art digital marketplace of health providers to de-silo the ability of a patient or family member to access services. This program makes finding a treatment center or a place to dispose of unwanted drugs as easy as clicking on one link (using the model of Orbits or Kayak) and having the display show distance, accessibility, and contact numbers.

FEDERAL PROGRAMS

The federal government has a five-point strategy to combat the opioid crisis in the United States, including improved services (prevention, treatment, and recovery), better data collection, rethinking pain management for more effective outcomes with less SUDs, targeting overdose problems, and more research. This initiative is backed by increased government funding (over \$800 million for treatment, prevention, and

recovery in 2017) as well as waivers for treatment through Medicaid. More funding is also being targeted for research, including grants and evaluation programs. The HHS.Gov website has an extensive discussion on these programs, of which two will be highlighted in this chapter. The website link is listed at the end of this chapter.

The Helping to End Addiction Long-Term (HEAL) Program: Helping to End Addiction Long-Term Initiative

This program crosses agencies searching for scientific answers to help combat the opioid crisis. It includes funding that will examine opioid misuse secondary to pain medication, the neuropathology that ensues with SUD/ODU, and basic science related to neuronal pathways indicated in OUD. It is from this program that nasal naloxone to quickly and easily reverse overdose was developed, as well as buprenorphine, the medication used in MAT. Other initiatives housed in the HEAL program are to prevent addiction by enhancing methods to treat and manage pain and researching avenues to help people with OUD recover their health and their lives. Evaluation of complementary and alternative medicine (CAM) in the treatment of OUD is also part of this initiative (Figure 14.3).

The National Drug Early Warning System (NDEWS)

This national initiative was started in 2014 and provides a broad national network to look for, identify, and monitor drug problems in



Figure 14.3 NIH's HEAL initiative.

Source: National Institutes of Health. (n.d.) HEAL initiative. Retrieved from <https://www.nih.gov/heal-initiative>

their emergent phase. It exposes drug trends and, through the multidisciplinary collaboration of researchers, healthcare providers, and addiction specialists, provides a virtual community of experts. This group looks at the epidemiology of the drug problem and shares its information on a national website (ndews.umd.edu/). Accessing this website provides the most up to date information on opioids including fentanyl, emerging threats, and other services that are being developed, initiated, and tested across the country. There is a link to webinars, hot-spot reports, drug information, sentinel sites, and community drug early warning systems.

INTERNATIONAL PROGRAMS

Portugal

Portugal is publicly funding facilities that provide treatment to over 4,000 people with OUD. Initially the country with the worst drug problem in Europe, it has now turned it around and provides an innovative program that many other countries are copying. The program removed all criminal penalties for drug use and instead provided people with OUD access to treatment and recovery programs. This program has drastically reduced the number of deaths from overdose (only 30 a year now) and cut in half the number of Portuguese citizens with OUD. Mortality from drugs in Portugal is four times lower than Europe's average. The program itself includes harm reduction through a national needle exchange program, changing the "Just Say No" slogan to "Say NO" to a used syringe. Those who use drugs with a syringe can get a clean kit, a condom, and an educational message about AIDS in any pharmacy in Portugal. Also included in this comprehensive initiative are drug treatment facilities, both inpatient and day centers, run by private and public companies. These treatment centers provide all services free of charge from detox, MAT, to ongoing therapy. Another aspect of this program is after care and social re-integration, helping to train the person in OUD recovery for employment and finding permanent housing. Of interest, however, is the illegal status of cannabis in Portugal. Persons with SUDs are seen as patients, not criminals, and as such are capable of seeking and receiving help for their disease (Greenwald, 2009; Hughes, 2007).

Canada: Federal Initiatives

Vancouver, Canada, has been recognized as one of the world's most innovative areas in combatting the opioid crisis. In a very bold move,

Canada has suggested an evidence-based program that fights OUD by legalizing prescription heroin. Those who are using syringes for heroin use are provided supervision by a staff who are prepared to provide naloxone if the person experiences an overdose. Those using the safe spaces are provided with clean syringes for shooting the drugs, are monitored for untoward effects, and are offered access to treatment centers for recovery. This program emanated from growing evidence that programs like this (the first was in Switzerland) reduces drug related crimes and helps persons with OUD find programs for recovery, employment, and stable housing. All evidence indicates that this program results in drops in heroin use, overdoses, and drug-related crimes. The other benefit is that when the person with OUD gets heroin from a pharmacy, rather than on the street, there is less likelihood that it will be mixed with fentanyl or other drugs, reducing the probability of overdose or other side effects. The other positive coming from this program is the reduction in dirty syringe sharing, reducing the incidence of HIV, hepatitis, and other blood-related diseases.

Fast Facts in the Spotlight Final Reflection: Getting Involved

Many of the initiatives that have been presented in this chapter grew from one person who saw the problem and decided to work with other people to develop an answer. Sometimes we think so big that the answer to the smaller problem we face on an everyday basis becomes invisible. With your colleagues, what is a small problem you see every day when providing treatment for an SUD to a person in your healthcare environment. It might not even be the person with the SUD; it might be a family member, an employer, and maybe it's a person in health care who realizes there is a problem with a colleague.

What can you do?

Where can you find support for your idea?

How can you come up with a solution that is concrete, measurable, local, and needs a program?

The solution starts with you.

ROUNDUP

Problems faced by drug use are not new, but the way the world is coming together to combat them is. This pandemic that is taking many

lives and destroying many others is not undefeatable unless we stop caring. Programs that start at a very local level, like the one in Gloucester, Massachusetts, have been able to be expanded to help people all over the United States, and Portugal's program has found a global response. Keeping up to date on the information needed to fight this war and save patients is imperative. Focusing on the person with an SUD, rather than criminalizing behaviors over which the person has no control, is the first step to helping. Evaluating your own attitudes and beliefs about SUDs and the people who are diagnosed with them is a good starting point. This book has presented the facts on SUDs, the methods to treat them, the programs that have been identified as successful and promising, and multiple links for more information. We are at the front lines of this war; it's time to get (back to) work!

Links to Learn More

- Portugal: Treating OUD as a medical issue
www.npr.org/sections/parallels/2017/04/18/524380027/in-portugal-drug-use-is-treated-as-a-medical-issue-not-a-crime
- Shaping the narrative on SUD through community action
medium.com/@AlumniTIES/shaping-the-narrative-on-substance-use-disorder-through-community-action-488ea5b146a3
- New federal initiative to address the opioid crisis: Canada
www.canada.ca/en/health-canada/news/2017/11/new_federal_initiativestoaddresstheopioidcrisis.html
- A prescription for action: local leadership in ending the opioid crisis
opioidaction.org/report/federal

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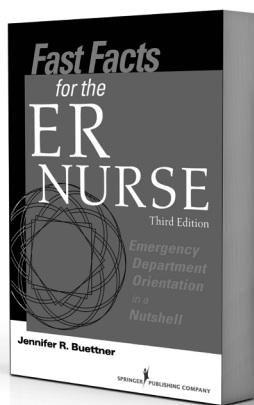
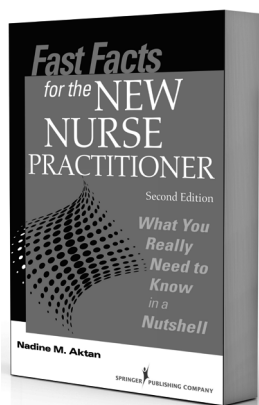
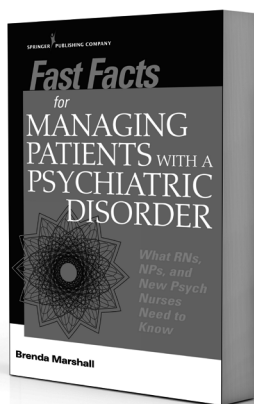
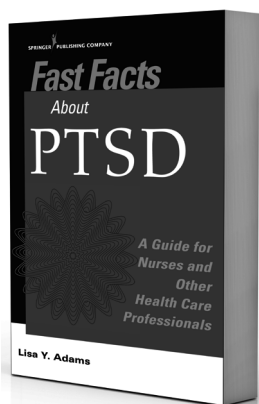
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