



SWK 3805: Module 13- OTC and Rx Abuse and Pharmacotherapy and Detox

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Module 13: Preface

Welcome to the online coursebook for Module 13 of our Theories and Biological Basis of Addiction course. The material is designed to be read interactively or after downloading; while the embedded interactive exercises require internet connectivity, each can also be downloaded for offline work. These exercises are presented to help you test and apply what you are reading, challenge yourself, prepare for quizzes, and have a little fun along the way. The list of key terms at the end explains text ***highlighted in bold italics*** throughout the book—in the interactive mode you can click on a highlighted word to jump to its explanation in the key terms section. Use the back arrow to return to where you were reading.

Module 13: Introduction

The reading for Module 13 introduces concepts essential for understanding over-the-counter and prescription drug misuse, pharmacotherapy as an option in treating substance use disorders, and the specific phase of treatment called detoxification (“detox”). This online coursebook includes content prepared by the book’s author, as well as several readings from the published literature.

Module 13 Reading Objectives

After engaging with these reading materials and learning resources, you should be able to:

- Explain the roles of prescription and over-the-counter medications in the substance misuse arena;
- Identify basic principles of pharmacotherapy for treating substance use disorders;
- Identify goals and practices of detox protocols;
- Define several key terms related to these topics.

Ch. 1: Introduction

This chapter offers an organizing framework for both new and familiar material; it includes both brief reminders of some points learned in earlier modules and recorded lecture content, as well as introducing several new points.

In this chapter you will read about:

- Distinctions, commonalities, myths and facts about misuse of prescription and over-the-counter (OTC) substances
- Approaches to addressing prescription drug abuse, and
- Key terms used in the field of substance use, substance misuse, substance use disorders and addiction.

Prescription and Over-the-Counter (OTC) Drugs



Let's begin with debunking a common myth: many people believe that **over-the-counter drugs** sold in general drug and grocery stores are safe because they do not require a prescription to purchase. This is the myth. The simple truth: ANY drug, whether over-the-counter or prescription, is potentially dangerous if misused. All drugs have potential side effects. This is a common feature of both prescription and OTC drugs.

So what is the difference? The main difference goes back to what we have already learned about the Drug Enforcement Administration (DEA) controlled substance schedules for classifying drugs. The federal Controlled Substances Act (CSA) defines regulations for different drugs' manufacture, importing, possession, use and distribution. In some cases, the major difference in classifying a substance as needing a prescription versus being accessible as an OTC medication lies in the concentration of active ingredients the substance contains. Thus, when taken as directed, there is little risk involved. That does not mean there is NO risk, only that the risk level is in a tolerable range for the general population. The risks, however, are much more difficult to judge for:

- Children



- Adolescents
- Individuals with certain types of physical conditions (including pregnancy)
- Individuals with a pre-existing substance use disorder

Therefore, what is true about the myth is that the DEA believes the OTC drugs to have low potential for abuse compared to drugs that become scheduled.

What Is OTC Misuse About?

You learned about the classes of sedative-hypnotic and CNS depressant drugs (Module 9), stimulant drugs (Module 10), and opioid and narcotic drugs (Module 11). In those modules, you learned a great deal about the epidemiology of who misuses the prescription forms of these substances. In the mainstream media, you hear a lot about the problem of prescription abuse, and these generally are the drugs they are talking about.

OTC abuse is not loom as large on the public's radar, however. There are three types of OTC drugs for us to consider in greater detail.



Decongestants. Until relatively recently, pseudoephedrine was easily purchased as an OTC for managing cold, flu, and allergy symptoms of nasal congestion. Since 2005, it has become more tightly controlled. Although these medication are still available without a prescription, they are no longer simple OTC products in the United States. Their status is as a behind-the-counter (BTC) medication in some countries. In the United States, we have a limited version of BTC policy. This means that a person can purchase the substance without a prescription, but only through interacting with a pharmacist and in small amounts. The reason: pseudoephedrine can be used as an ingredient in the illegal manufacturing of methamphetamine. Medications containing pseudoephedrine may be abused on their own for other purposes: weight loss or as a stimulating performance enhancer (see the weight loss drugs discussion below, for example).

Cough Medicines. *Dextromethorphan (DXM)* is an ingredient commonly found in many OTC products intended as a cough suppressant. At recommended doses, DXM works on the part of the brain region that controls coughing. However, at extremely high doses (10-50 times the recommended), it becomes a psychotropic drug, potentially causing euphoria or hallucinations (sometimes referred to as “robotripping” or “skittling”—see NIDA, 2014). The effect is as a dissociative hallucinogen, like with PCP or ketamine. Thus, it may not be for the alcohol content in cough medicine that people abuse these products (many forms are alcohol free nowadays, including tablets and capsules), instead it is about the DXM. Abuse of DXM is largely a young person’s behavior. One reason is that DXM is legal, easily accessible, and relatively inexpensive. Another is the perception of safety related to the myth we discussed above. And, it may be easier to hide from parents who are unaware that it represents a form of substance misuse.



One hazard related to DXM misuse is the potential for acquiring it from outside of the United States in a very highly concentrated form meant for pharmacies to use in formulating controlled doses; this “raw” or “pure” form may easily be taken in much higher doses than intended. The risks include impaired judgment and mental function (thus, impaired driving and bad decisions about risky behaviors), irregular/rapid heart rate, increased blood pressure (thus, stroke risk increases), vomiting (thus, risk of aspiration/choking), and coma/death.

Another hazard lies in taking DXM along with other substances. Furthermore, many of the formulations that contain DXM also have other medications in combination. For example, OTC cold/flu medications often contain acetaminophen, which can cause liver damage, heart attack, or stroke in overdose amounts. These formulations also may contain antihistamines and other substances intended to relieve cold/flu symptoms and that are dangerous at high doses. If a person is taking enough of the combination medications to “get high,” there may be enough of these other substances to cause irreversible or deadly damage.

Some prescription cough medicines include codeine or its closely related cousins. These medications may be abused by individuals because codeine shares the same receptor sites as opioids and heroin (remember our neurotransmitters discussions). These are potentially addictive medications because of their impact on the increased dopamine released in the brain’s reward system.

Weight Loss Aids. You learned about a variety of types of stimulant substances in Module 10, including amphetamines, cocaine, tobacco, and caffeine. One reason for misuse of stimulant drugs relates to their tendency to suppress appetite. In turn, this can contribute to weight loss. In the past, many individuals were prescribed stimulant drugs to achieve a weight loss goal. However, this practice has diminished markedly as a result of recognizing the high addictive potential associated with many of the stimulant prescription drugs. There are a wide range of OTC stimulant products on the market, with questionable levels of risk and benefit. Until recently banned, products sold in the United States might have included ingredients like ephedrine and ephedra or phenylpropanolamine. The pseudoephedrine discussed above as an ingredient in methamphetamine may be abused for weight loss purposes, as well. Ingredients like bitter orange and ma huang (acting like ephedra) can



cause nervousness, tremor, rapid/irregular heart rate, increased blood pressure, and stroke, as well as being potentially addictive (Cohen, 2013).

Relatively recently, a new approach to serious weight loss medication has emerged: prescription medications that influence the brain chemistry of appetite and craving (thus helping reduce caloric intake) without the stimulant effects on heart rate and blood pressure. They largely operate on the serotonin neurotransmitter systems of the brain. These are prescription medications because of their potential risks.

Addressing Prescription Drug Abuse

In earlier modules you learned about the problem of prescription drug abuse. Here is a sobering statistic that we have not yet addressed: the number of deaths nationally from opioid drugs alone (not all drugs) during 2015 was almost 35,000—very close to the 35,092 people who died in motor vehicle crashes (IIHS, 2016; NIDA, 2017). About 16,000 of these deaths involved prescription opioids and nearly 20,000 involved heroin or other non-methadone synthetics like illicit use of fentanyl (NIDA, 2017).



What can be done to address the problem? The United States Department of Health and Human Services (HHS) produced a report containing a list of recommendations for addressing the massive problem of prescription abuse in the United States.

Here is a copy of their summarized findings (CDC, 2013):

As described in this report, current HHS prescription drug abuse activities fall within the following eight domains: 1) surveillance, 2) drug abuse prevention, 3) patient and public education, 4) provider education, 5) clinical practice tools, 6) regulatory and oversight activities, 7) drug abuse treatment, and 8) overdose prevention. Each of these areas contributes to ensuring the safe use of prescription drugs and the treatment of prescription drug dependence. Although significant efforts are already underway, a review of current activities along with a review of the prescription drug abuse literature, identified opportunities to enhance policy and programmatic efforts as well as future research are presented. Below are the overarching opportunities to enhance current activities identified in this report.

Strengthen surveillance systems and capacity

Build the evidence-base for prescription drug abuse prevention programs

Enhance coordination of patient, public, and provider education programs among federal agencies

Further develop targeted patient, public, and provider education programs

Support efforts to increase provider use of prescription drug monitoring programs (PDMPs)

Leverage health information technology to improve clinical care and reduce abuse

Synthesize pain management guideline recommendations and incorporate into clinical decision support tools

Collaborate with insurers and pharmacy benefit managers to implement robust claims review programs

Collaborate with insurers, and pharmacy benefit managers to identify and implement programs that improve oversight of high-risk prescribing.

Improve analytic tools for regulatory and oversight purposes

Continue efforts to integrate drug abuse treatment and primary care

Expand efforts to increase access to medication-assisted treatment

Expand Screening, Brief Intervention, and Referral to Treatment services

Prevent opioid overdose through new formulations of naloxone

Described more fully in Section III of the report, the opportunities listed above serve to strengthen programs and policies to reduce prescription drug abuse and overdose in the U.S. HHS has been at the forefront of the response to this serious public health issue and is committed to working with our federal, state, local governmental and non-governmental partners to further the actions included in this report.

You can see from this report that there is no one single, simple solution or strategy that will solve the problem. The complex nature of the issues involved dictates applying complex, integrated approaches.



Considering this information about Over-the-Counter drugs, what do you think about the need for government bodies to have authority over these substances the way there is currently authority over prescription drugs? Which bodies should this be? On the other hand, how much discretion should manufacturers have over the claims they make about their OTC products and what should be their level of responsibility for consumer safety in using these products? What kinds of criteria should apply? The range could be anywhere from “buyer beware” to imposing strict controls.

Ch. 2: Pharmacotherapy

This chapter explores the use of medications in the treatment of substance use disorders. There are two general labels for this kind of strategy: **pharmacotherapy or medication assisted treatment (MAT)**. At this point, you will read a piece by Miller, Forcehimes, and Zweben (2011) entitled “Pharmacological adjuncts” from the book they published called *Treating addiction: A guide for professionals*.

In this chapter you will read about:

- Medications for drug withdrawal and maintenance (nicotine substitution, methadone, buprenorphine, naltrexone, disulfiram, acamprosate, topiramate)
- Combining medication with behavioral interventions
- Key terms related to pharmacotherapy.



As you read the chapter contents, consider several things. First, on the surface, it might seem a bit paradoxical to treat a drug problem with drugs. The strategy is not without controversy, particularly among practitioners who themselves have managed to overcome a substance use disorder without medication. Underlying many programs is a philosophy of total abstinence from all types of psychotropic substances, including medications prescribed in pharmacotherapy. However, there exists a sizable (and growing) literature supporting the use of certain medications to facilitate treatment of substance use disorders. The underlying assumption is

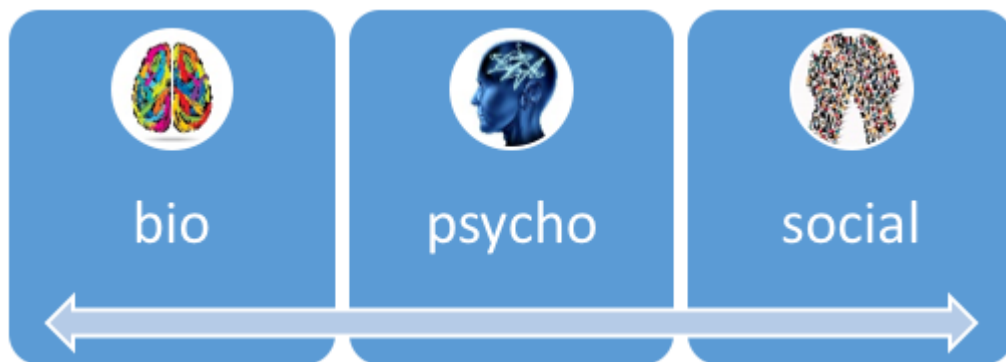
that substance use disorders and addiction are diseases of the brain and brain chemistry, therefore attacking those brain chemistry mechanisms is a reasonable approach to treatment.

Second, it is important to note that the evidence supports combining psychological, social, and biological approaches in combination—medications alone are not sufficient. Above, you read the phrase “supporting the use of certain medications to facilitate treatment.” In other words, medication alone is not sufficient treatment, which is why the concept of medication assisted treatment (MAT) is so important. This is the theme of the guidelines published by the Substance Abuse and Mental Health Services Administration (SAMHSA, 2016) for medication assisted treatment of opioid addiction. These guidelines indicate that the following steps are critical:

- Evaluate the need for medically managed withdrawal from the opioids (remember this topic was covered in Module 11).

- Addressing co-occurring problems (more about this in Module 14)
- Integrate pharmacologic and nonpharmacologic therapies—medications are a part of a comprehensive, individualized treatment plan that includes counseling and other psychosocial therapies and mutual-help programs.

This should remind you of our class emphasis on the biopsychosocial perspective on substance misuse and substance use disorders.



Third, the medications used to treat substance use disorders are not without side effects and risks themselves. This includes the fact that some treatment medications have addictive potential themselves (e.g., methadone). The hope is that these known risks can be managed more safely than occurs in the uncontrolled world of substance misuse, especially illicit substances, “street” drugs, drugs imported from other countries, and illicit use of prescription drugs.

In short, keep in mind that MAT, or pharmacotherapy, is a tool in the collection of options available for the treatment of substance use disorders. As we have learned throughout this course, no one-size-fits-all approach works for everyone. Treatment programs need to be tailored to individuals and their circumstances, and often need to be modified as a person’s circumstances change over time.



[Click here for a link to our Carmen course](#) where you can locate the assigned pdf file(s) for this chapter. You will need to be logged into our Carmen course, select Module 13, and proceed to the Coursework area. Under the Readings heading you will find a box with links to the readings for relevant coursebook chapters. Don’t forget to return here in your coursebook to complete the remaining chapters and interactive activities.

Ch. 3: Detoxification and Stabilization

One place where addiction treatment might be supported with medication is in the immediate **detoxification process (detox)**. Detox is considered a **stabilization process**. You are going to be reading segment excerpted from a Treatment Improvement Protocol (TIP #45) produced by the Substance Abuse and Mental Health Services Administration (SAMHSA, 2015), titled *Detoxification and Substance Abuse Treatment*. You will read about:

- Detox as part of a continuum of care
- The goals of the detox process
- Features of withdrawal associated with 4 specific types of substances

Keep in mind that you are reading only 6 pages of a 257 page manual. One thing that might be a bit confusing if you are not used to the jargon is the levels of care in the detox protocol. They are listed in your reading from least to most intensive: Level I being “ambulatory” to Level IV being intensive inpatient care.

The other thing that it is very important to keep in mind as you read this material is that detox or stabilization is part of a continuum of care to treat individuals experiencing a substance use disorder or addiction. A stabilization program may consist of specific stages or phases with different aims at each point in the process.

1. First, the goal is to monitor the acute medical situation or crisis, ensuring safety as the misused substances leave the body (withdrawal). Administering medications to support the person medically could take place during this phase, but only if the medical team knows what drugs the person has taken—a polydrug use crisis might leave the team unwilling to risk administering medications. The initial detox stabilization phase might last a matter of hours.
2. The second phase of stabilization involves a more extended detoxification treatment plan (measured in days) to manage the next phase of the early withdrawal period and to support the person in obtaining ongoing treatment for the substance use disorder. This might involve starting a medication assisted treatment (MAT) plan.
3. The next phase of a stabilization plan might continue for days to weeks with the goal of making a successful transition to long-term treatment, often involving counseling, supportive “recovery” housing, and MAT.

Finally, in this chapter you are asked to read a brief news article about the recent death of another star: Nelsan Ellis. This news article has us considering what might happen to a person who abruptly stops taking a substance

like alcohol to which an addiction has developed. Abrupt cessation does not cause death from acute withdrawal for all substances, but death could be a result when the addiction involves alcohol or barbiturates. (article retrieved from Washington Post is *Nelsan Ellis died of alcohol withdrawal. Family hopes his death will be a ‘cautionary tale.’*)



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Ch. 4: Policy Considerations

The final reading for Module 13 brings us back full-circle to our Module 1 content about policy approaches for addressing substance misuse and addiction. You will be reading a brief opinion piece related to the implications for developing humane policy responses that come from what you have learned this semester about the biopsychosocial aspects of substance misuse and addiction. We are reading it in Module 13 because it places detox in context, but also because it serves as a chance for us to look back and begin synthesizing the complicated content studied in this course (more of that in Module 14). The reading is Humphreys, K., Malenka, R.C., Knutson, B., & MacCoun, R.J. (2017). Policy forum: Neuroscience and addiction—Brains, environments, and policy responses to addiction. *Science*, 356, 1237-1239.

In this brief article, you will read about:

- The role of neuroscience in shaping policy about substance use and addiction
- The role of environment in the course of addiction
- Several policy response ideas from other nations.



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What do you think about this author's stance about allowing "free market" principles to operate with regard to psychoactive substances like alcohol, tobacco and other drugs? Where do YOU think the evidence leads with regards to such policy positions?

Ch. 5: Summary

In this Module 13 online coursebook, you learned basic principles about prescription and over-the-counter drug misuse, pharmacotherapy as an intervention approach, and the early treatment phase called detox or stabilization. We explored some of the most commonly misused OTC substances and looked into recommendations for crafting a response to the problem of prescription drug abuse. Then we were introduced to the principles of pharmacotherapy and medication assisted treatment (MAT), learning about some of the specific medications used for this purpose. The next topic we explored was detox and stabilization as part of a continuum of care for treating individuals who experience a substance use disorder, and how medication might be a part of the various phases of the stabilization process. At this point, we also looked at some of the characteristics of withdrawal from four types of substances: cocaine, alcohol, heroin, and marijuana. We looked at a brief news article, as well, that made real what might happen if a person abruptly stops taking certain substances to which the body has developed an addiction. Finally, we briefly started looking back over our entire course and considered how the biopsychosocial aspects of substance misuse and addiction might relate to developing policy responses. This will carry us into some of our learning activities for the next and final module in our course, Module 14.

You are now ready to review some of the key terms related to substance use disorders introduced in this book.

Module 13: Key Terms

behind-the-counter drugs (BTCs): medications available for purchase without a prescription but requiring interaction with a pharmacist to access; policy for specific substances in some countries.

detoxification process (detox): an initial step in the treatment process where psychotropic substances (toxins) are safely removed from the body, minimize difficulty in withdrawal (stabilization), and support a transition to long-term treatment and recovery from addiction.

dextromethorphan (DXM): an active ingredient in many over-the-counter medications; may be abused as a psychotropic substance in extremely high doses.

medication assisted treatment (MAT): a combination of medications and behavioral therapy to treat a person's substance use disorder.

over-the-counter drugs (OTCs): medications available for purchase without a prescription.

pharmacotherapy: therapy involving the administration of pharmaceutical drugs.

prescription drugs: substances/medications requiring a prescription produced by a licensed medical provider in order to legally purchase.

stabilization process: the process of safely removing abused substances from the human body; see detoxification.

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