



# Flipped Classroom Curriculum Approach to Learning About Substance Use Disorders and Their Treatment

Philadelphia College of Osteopathic Medicine

## Authors:

Mirna Law, Devon Player, Sarah Glisan, Adrienne Fraczkowski, Kaitlyn Blair  
[ml0812@pcom.edu](mailto:ml0812@pcom.edu)

## Faculty Mentor:

Dr. Bettina Bernstein  
[BettinaBe@pcom.edu](mailto:BettinaBe@pcom.edu)

## A. Abstract

Training in substance misuse and substance use disorders and their treatment is important for medical students to develop positive attitudes towards patients struggling with substance abuse (Ayu et al., 2020). There is substantial evidence demonstrating that physicians in practice fail to recognize a large percentage of patients suffering from substance misuse conditions (Miller et al., 2001). Historically, a “negative attitude” of health care providers towards patients struggling with substance use may have originated from the lack of recognition of these issues as chronic medical conditions during training (Polydorou et al., 2008). Thus, substance misuse education early in medical training is impactful and should be considered.

The curriculum’s total length of time is eight hours, including seven hours of mandatory content and an optional hour-long SMART or AA meeting. Substance misuse training sessions with similar lengths have been shown to help students improve and retain knowledge (Brown et al., 2013). Overall, this engaging approach to teaching is aimed to escalate student awareness of these patients’ presentation and improve attitudes when approaching these patients in clinical settings.

## B. Educational Objectives

By completion of the curriculum, students should be able to:

1. Describe the difference between physical dependence and psychological substance misuse.
2. Analyze bias that exists when it comes to evaluating and treating patients with substance use disorder.
3. Understand how physical dependence and substance use disorder can present in a clinical setting and different patient populations.
4. Apply knowledge about the presentation of physical dependence and substance use disorder to various clinical scenarios.
5. Investigate ways to incorporate lessons learned from this curriculum into clinical practice.

## C. Introduction

This curriculum consists of four sessions and aims to improve students' attitudes regarding substance misuse. Session One engages students by identifying attitudes and misinformation surrounding the subject while also providing further learning resources. The first half will be virtual and self-paced content review. The second half will meet in person, where students participate in an interactive game to test and consolidate their knowledge. Session Two includes role-play of clinical scenarios, allowing students to practice motivational interviewing and clinical decision making. Students will be required to watch a video on reducing discriminatory practices in clinical settings in Session Three. Then, they can elect to attend either a Self-Management and Recovery Training (SMART) meeting or an Alcoholics Anonymous (AA) meeting as an optional way to engage students further and apply their knowledge. Session Four consists of the plan and reflection portion of the curriculum. Students will individually reflect on the material based on the discoveries made surrounding their pre-existing attitudes about substance misuse/use disorder. They will use their prior knowledge and learned skills in the course to create a plan to serve as a reminder of their goals before starting clinical years. Session Four will make use of smartphone devices that can be used by all learners, including those with sensory challenges such as visual impairment. Each session will be two hours in length.

## D. Curriculum Design

Pre-Work: Students are asked to take the Medical Condition Regard Scale (MCRS) survey on their Learning Management System before Session One. (Note: The school may need to obtain permission to use the survey from [gchristison@som.illu.edu](mailto:gchristison@som.illu.edu)). The scale was developed to measure medical students' attitudes towards patients with several medical conditions, including substance misuse (Christison et al., 2002). The scale has been used in several studies and shown to be a reliable and effective tool in measuring medical students' attitudes towards substance misuse (Ducray et al., 2017). This course adopted five questions with the highest statistical factor analysis shown in the original study conducted by Christison et al. (see **Appendix B**). Having students begin by taking a survey will require them to participate in the course interactively.

Along with completing the MCRS survey, students are directed to review educational resources from the National Institute on Drug Abuse (NIDA) and the American Society of Addiction Medicine (ASAM, posted in their Learning Management System (LMS), before Session One. These materials discuss the neurobiology of substance use and the terminology used in medicine (substance use disorder vs. tolerance vs. drug-seeking behavior). Reviewing these resources will prepare students for an interactive application of their knowledge during Session One (see **Appendix A** that outlines the course schedule with resources).

Session One starts with a presentation of the results of the MCRS survey. These results will be shared at the beginning of the session to draw the students' attention and identify their attitudes regarding substance misuse based on their results. Following a discussion of the survey, the rest of the in-person session will be spent playing an interactive game testing the retention of knowledge given before the first session (see **Appendix C**). The instructor will display questions via an online platform and students can select their answers on their smart devices. The questions are made of content from the AMERSA resources about substance use neurobiology and terminology. This approach is designed to engage the students with the

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material that they learned before the session interactively, as per the “flipped classroom” model. Guided learning outside of the classroom has been shown to be more effective than traditional lecture-style classes (Rose et al., 2016). Session One is expected to take about two hours, one hour to review the educational resources, and one hour to meet in-person.

Session Two will be in-person focusing on motivational interviewing skills facilitated by an addiction medicine specialist. The facilitator will review motivational interviewing skills along with presenting signs of substance misuse in a clinical setting. The physician will have the opportunity to discuss substance use disorder diagnosis and treatment in different medical specialties and patient populations. Students will break up into pairs of two and engage in role-play. They will practice interviewing skills and ability to recognize signs of substance misuse after reviewing examples from Case Presentations from the Addiction Academy (Laes, J. R., & Wiegand, T. (2016, see References FMI). The students will create their patient history and improvise with their partner. One student will act as the physician while the other acts as the patient. Students will switch roles halfway through the remainder of the session to experience both perspectives. Similar to the other sessions, the duration of Session Two is expected to be two hours.

For Session Three, students will continue their learning outside of the classroom. On their own time, they will watch SAMHSA’s free use video “Reducing Discriminatory Practices in Clinical Settings.” Students can choose to attend either a SMART meeting or an AA meeting. This assignment will allow students to review discriminatory practices and enable them to hear first-hand what local patients have been through in their recovery journeys.

Session Four will be focused on a reflection of the course as a whole. Students will innovatively reflect on how their perspectives might have changed throughout the course (**see Appendix D**). This approach includes technology accessible to all learners including those with sensory challenges such as visual impairment and that is conveniently available to consolidate learning the use of smart phone which provides flexibility such that students with visual challenges. This reflection can be in the form of a voice recording, an unpublished blog post, an essay, or an unpublished twitter thread and will be submitted to their LMS. Students will have the option to share their reflections in the final session. In addition to reviewing lessons learned from the course content as a whole, students will be asked to create a plan to apply this knowledge during clinical rotations. This plan will be typed out in the iPhone “notes” application or a similar platform on their mobile device to outline five bullet point reminders of advice or thoughts on approaching a patient with a substance use disorder that they learned in this course. To turn in this assignment, students will take a screenshot of their app and submit it via blackboard.

After Session Four, students will be asked to retake the initial MCRS survey to measure any changes in attitude and evaluate the course's effectiveness. As a final follow-up, students will be given the MCRS survey a third time after completing clinical rotations to assess the long-term changes in attitudes and results from the course. Students' attitudes will be measured using the MCRS survey before starting the course, after completing all four sessions, and at the end of clinical rotations. The results will enable assessment of if and how students' views on substance misuse, treatment, and prescribing controlled substances have changed based on our intervention.

# Appendix A

## Course Schedule

### Week One

1. Complete MCRS Survey prior to reviewing any course material
2. Review educational resources below (est. time 1 hour)
  - a. Free use presentation slides “Understanding Drug Abuse and Addiction: What Science Says” from the NIH
    - i. <https://www.drugabuse.gov/publications/teaching-addiction-science/understanding-drug-abuse-addiction-what-science-says>
  - b. “Definition of Addiction” from ASAM
    - i. <https://www.asam.org/Quality-Science/definition-of-addiction>
  - c. “What is an addiction?” from the NIH
    - i. <https://easyread.drugabuse.gov/content/what-addiction>
  - d. “Why is it so hard to quit drugs?” from the NIH
    - i. <https://easyread.drugabuse.gov/content/why-it-so-hard-quit-drugs>
  - e. “What are some signs and symptoms of someone with a drug use problem?” from the NIH
    - i. <https://easyread.drugabuse.gov/content/what-are-some-signs-and-symptoms-someone-drug-use-problem>
  - f. “What makes someone more likely to get addicted to drugs?” from the NIH
    - i. <https://easyread.drugabuse.gov/content/what-makes-someone-more-likely-get-addicted-drugs>
3. Attend first in person classroom session (1 hr)

### Week Two

1. Attend second in person classroom session (2hr) focusing on
  - a. Motivational interviewing
  - b. Signs of substance misuse in a clinical setting
  - c. Practice role-play

### Week Three

1. Watch SAMSHA’s free use video “Reducing Discriminatory Practices in Clinical Settings” (1 hr)
  - a. <https://www.youtube.com/watch?v=BWfbgJZ2ros>
2. (optional) Attend either a SMART meeting or AA meeting (1 hr)
  - a. SMART
    - i. <https://www.smartrecoverytest.org/local/>
  - b. AA
    - i. <https://aa-intergroup.org/oiaa/meetings/>

### Week Four

1. Attend third in person classroom session (2hr)
  - a. Complete reflection assignment using the probing reflection questions.
    - i. Optional to share with the class
  - b. Create a plan on how to apply knowledge from this course during clinical rotations
  - c. Complete MCRS survey a second time

**Post Third Year Clinical Rotations:** Complete MCRS survey a third time

## Appendix B

### Medical Condition Regard Scale (MCRS) Survey (modified)

The questions are rated from 1-6. The highest scores showed the highest regard towards patients misusing substances. Lowest scores showed the lowest regard towards patients misusing substances. Students' attitudes will be measured using the MCRS survey before starting the course, after completing all four sessions, and at the end of clinical rotations. The results will allow us to assess if and how students' views on substance misuse, treatment, and prescribing controlled substances have changed based on our intervention.

*Please circle the number following each question that best represents your stance on the following statements regarding patients with substance misuse disorders*

*1 = strongly disagree*

*2 = disagree*

*3 = not sure but probably disagree*

*4 = not sure but probably agree*

*5 = agree*

*6 = strongly agree*

· I prefer not to work with patients like this

1  2  3  4  5  6

· Patients like this irritate me

1  2  3  4  5  6

· I enjoy giving extra time to patients like this

1  2  3  4  5  6

· Patients like this are particularly difficult for me to work with

1  2  3  4  5  6

· Working with patients like this is satisfying

1  2  3  4  5  6

## Appendix C

### Interactive Game Questions and Answer Choices (correct answer highlighted)

1. Addiction is
  - a. a character flaw
  - b. a brain disorder**
  - c. a personal failing
  - d. dark magic
2. Prevention efforts and treatment approaches for addiction are generally as successful as such for other chronic diseases
  - a. true**
  - b. false
3. People don't plan to get addicted to drugs
  - a. true**
  - b. false
4. A \_\_\_\_ is anything that makes a person want to go back to using drugs
  - a. precipitant
  - b. suppressant
  - c. trigger**
  - d. inducer
5. Which of the following is a type of trigger?
  - a. a person
  - b. a place
  - c. something stressful
  - d. all of the above can be triggers**
6. The reward pathway in the brain involves the ventral tegmental area, nucleus accumbens, and the \_\_\_\_\_.
  - a. precentral gyrus
  - b. postcentral gyrus
  - c. prefrontal cortex**
  - d. primary visual cortex
7. Cocaine blocks the removal of dopamine from the synapse by binding to
  - a. postsynaptic vesicles
  - b. dopamine
  - c. presynaptic vesicles
  - d. dopamine transporters**
8. Which of the following is a risk factor for drug misuse identified by the NIH
  - a. lack of mutual attachments and nurturing
  - b. ineffective parenting
  - c. perceptions of approval of drug-using behaviors
  - d. all of the above**
9. Which of the following are protective factors identified by the NIH?
  - a. prosocial institutions
  - b. strong family bonds
  - c. parental involvement
  - d. all of the above

10. The best programs to treat drug misuse involved \_\_\_\_ to meet the needs of the individual patient
  - a. a combination of therapies
  - b. just counseling
  - c. just medication
11. To be effective, treatment must address any associated medical, psychological, social, vocational, and legal problems.
  - a. true
  - b. false
12. There is a predetermined treatment length for substance misuse
  - a. true
  - b. false
13. Research shows that drug addiction treatment reduces the risk of HIV infection
  - a. true
  - b. false
14. Interventions to prevent HIV are more costly than treating HIV-related illnesses
  - a. true
  - b. false
15. Treatment of substance misuse is less expensive than not treating substance misuse or incarcerating those who misuse substances
  - a. true
  - b. false
16. Every \$1 invested in treatment of substance misuse yields a return of \_\_\_\_ in reduced drug related crime, criminal justice costs, and theft alone.
  - a. \$2
  - b. \$3
  - c. \$4
  - d. \$4-\$7

## **Appendix D**

### **Probing Reflection Questions**

Students may use these questions as a jumping off point for their reflection assignment but are not restricted to them.

- What did you find surprising throughout the course?
- Was there anything you didn't find surprising?
- Were there any tools or suggestions brought up during the SMART or AA meeting you found interesting?
- What thoughts or feelings did this course evoke?
- How has this course influenced your perception of substance use disorder?



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