Effects of Implementing an Interactive Substance Use Disorders Workshop on a Family Medicine Clerkship

Rebecca E. Cantone, MD; Nonda S. Hanneman, BA; Matthew G. Chan, MD; Rebecca E. Rdesinski, MSW, MPH

BACKGROUND AND OBJECTIVES: Substance use disorders (SUD) remain a public health crisis and training has been insufficient to provide the skills necessary to combat this crisis. We aimed to create and study an interactive, destigmatizing, skills-based workshop for medical students to evaluate if this changes students’ self-reported knowledge, skills, and attitudes toward patients with SUD.

METHODS: We surveyed students on a required family medicine outpatient rotation at a Pacific Northwest medical school during clerkship orientation on their views regarding SUDs utilizing the validated Drug and Drug Problems Perceptions Questionnaire containing a 7-point Likert scale. After attending a substance use disorder workshop, they repeated the survey. We calculated differences between the paired pre- to postsurveys.

RESULTS: We collected the pre- and postdata for 118 students who attended the workshop and showed statistically significant positive differences on all items.

CONCLUSIONS: The positive change in the medical students’ reported attitudes suggests both necessity and feasibility in teaching SUD skills in a destigmatizing way in medical training. Positive changes also suggest a role of exposing students to family medicine and/or primary care as a strategy to learn competent care for patients with substance use disorders.

(Fam Med. 2021;53(4):295-9.)
doi: 10.22454/FamMed.2021.399314
understand recommendations for treatment in primary care (Table 1).

The study included 295 medical students enrolled in one FM clerkship between January 2018 and December 2019, and received institutional review board approval. Student demographics were not collected to maintain anonymity to the clerkship director; however, the student body has an average age of 26 years, is over 50% female-identifying, and over 80% have Oregon residency or heritage.19

Table 1: SUD Workshop Curriculum

| Objective | Activity | Learning Points | Flipped Classroom? |
|-----------|----------|----------------|-------------------|
| Define SUDs | Review diagnostic criteria | • Focus on the treatable, medical disease | Yes—DSM previously reviewed by learners |
| Perform a comprehensive SUD history | Discuss barriers to obtaining a good history and reasons people seek care | • Avoid use of terms like “illicit” and “do you use any drugs” to focus on normalizing “what substances do you use?” • Discuss stigma and lack of resources available as limitation to seeking care and/or minimizing reported use of substances | Yes—Student driven based on prior communications workshops, faculty facilitates |
| Practice focused histories based on substance | Students volunteer what they would ask for each substance separately, including alcohol, tobacco, methamphetamines, and opioids | • Discuss harm reduction and patient-centered terms • Less focus on other stimulants as less common in this state compared to methamphetamines • Less emphasis on marijuana due to legalization in our state, but discussed later in workshop | Yes—Students review what they have seen in practice |
| Discuss physical exam findings | Students mention what they have seen or read about as signs of possible substance use | • Address signs of intoxication or withdrawal for multiple different substances, mental status exam, screenings for substance use and mood, physical signs of injection use | Yes—Students review pathophysiology |
| Define recommended workup | Interactive discussion of tests to order at visits where patient or provider notes SUD | • Discuss patient centered discussion for urine drug screening, infectious disease screening and echocardiogram based on type of use, consideration of liver function. | No—new information for most students |
| Discuss how to treat alcohol and tobacco use disorder | Students volunteer what they know | • Discuss quit lines, counseling/behavioral strategies, motivational interviewing. • Nicotine: nicotine replacement, varenicline, bupropion • Alcohol: naltrexone, acamprosate, gabapentin, topiramate, disulfuram, benzodiazepines | Yes—review prior teaching and practice experiences |
| Discuss medications to treat opioid use disorder | Students discuss methadone and buprenorphine and learn about naltrexone and naloxone | • Recommend naloxone for any patient using any type of opioid • Discuss differences in pharmacology and accessibility of buprenorphine and methadone, with emphasis that FM providers can prescribe buprenorphine in primary care if trained • Discuss oral and injectable naltrexone • Discuss initiation and maintenance medication, use in chronic pain, use in pregnancy, and treatment planning | No—instructor delivers new information |
| Discuss behavioral interventions for SUD | Discuss substances with no current medical treatment options | • Acknowledge withdrawal and tapering options | No—instructor leads |

Abbreviations: SUD, substance use disorder; DSM, Diagnostic and Statistical Manual of Mental Disorders, FM, family medicine.
We selected the 20-question, 7-point Likert scale Drug and Drug Problems Questionnaire (DDPPQ) as it was more patient-centered than other validated scales, despite some outdated terms. To preserve validity, language was not altered. We gave students this questionnaire (Table 2) at clerkship orientation, and again after the workshop (3 weeks later) in person or via email. We paired surveys by unique identifiers to observe changes via a pretest-posttest study design. To account for different starting scores due to prior experiences, we reported changes instead of the discrete number on the Likert scale. We

| Survey Item*                                                                 | Pre Mean (SD) N=118 | Post Mean (SD) N=118 | Mean Difference (SD) | S Score | P Value |
|------------------------------------------------------------------------------|---------------------|----------------------|----------------------|---------|---------|
| Q1 - I feel I have a working knowledge of drugs and drug related problems.  | 4.4 (1.2)           | 5.6 (0.7)            | 1.2 (1.1)            | 1,806.0 | <.0001  |
| Q2 - I feel I know enough about the causes of drug problems to carry out my role when working with drug users. | 3.5 (1.3)           | 5.2 (0.9)            | 1.8 (1.1)            | 2,710.5 | <.0001  |
| Q3 - I feel I know enough about the physical effects of drug use to carry out my role when working with drug users. | 3.8 (1.3)           | 5.2 (0.8)            | 1.4 (1.1)            | 2,254.5 | <.0001  |
| Q4 - I feel I know enough about the psychological effects of drugs to carry out my role when working with drug users. | 3.8 (1.4)           | 5.2 (0.9)            | 1.4 (1.2)            | 2,079.0 | <.0001  |
| Q5 - I feel I know enough about the factors which put people at risk of developing drug problems to carry out my role when working with drug users. | 4.2 (1.3)           | 5.4 (1.0)            | 1.2 (1.3)            | 1,851.5 | <.0001  |
| Q6 - I feel I know how to counsel drug users over the long-term.            | 2.6 (1.2)           | 4.8 (1.1)            | 2.1 (1.4)            | 2,717.0 | <.0001  |
| Q7 - I feel I can appropriately advise my patients/clients about drugs and their effects. | 3.4 (1.2)           | 5.1 (1.0)            | 1.7 (1.2)            | 2,665.0 | <.0001  |
| Q8 - I feel I have the right to ask patients/clients questions about their drug use when necessary. | 5.0 (1.2)           | 6.1 (0.9)            | 1.1 (1.2)            | 1,665.0 | <.0001  |
| Q9 - I feel I have the right to ask a patient for any information that is relevant to their drug problems. | 4.8 (1.2)           | 6.1 (0.9)            | 1.3 (1.3)            | 1,947.5 | <.0001  |
| Q10 - If I felt the need when working with drug users I could easily find someone with whom I could discuss any personal difficulties that I might encounter. | 4.4 (1.3)           | 5.9 (1.1)            | 1.5 (1.4)            | 2,171.0 | <.0001  |
| Q11 - If I felt the need when working with drug users I could easily find someone who would help me clarify my professional responsibilities. | 4.6 (1.2)           | 5.8 (1.1)            | 1.1 (1.3)            | 1,785.5 | <.0001  |
| Q12 - If I felt the need I could easily find someone who would be able to help me formulate the best approach to a drug user. | 4.4 (1.2)           | 5.8 (1.1)            | 1.4 (1.3)            | 2,047.0 | <.0001  |
| Q13R - I feel that there is little I can do to help drug users.            | 5.1 (1.2)           | 5.9 (1.0)            | 0.8 (1.2)            | 1,285.0 | <.0001  |
| Q14 - I feel I am able to work with drug users as well as other client groups. | 4.4 (1.4)           | 5.4 (1.2)            | 1.1 (1.4)            | 1,401.5 | <.0001  |
| Q15R - All in all I am inclined to feel I am a failure with drug users.    | 5.1 (1.0)           | 5.8 (1.0)            | 0.7 (1.2)            | 1,190.0 | <.0001  |
| Q16R - In general, I have less respect for drug users than for most other patients/clients I work with. | 5.7 (1.2)           | 6.2 (1.0)            | 0.4 (0.9)            | 564.5   | <.0001  |
| Q17R - I often feel uncomfortable when working with drug users.            | 4.7 (1.4)           | 5.4 (1.3)            | 0.7 (1.5)            | 1,011.5 | <.0001  |
| Q18 - In general, one can get satisfaction from working with drug users.   | 5.3 (1.0)           | 5.9 (0.9)            | 0.6 (0.9)            | 928.5   | <.0001  |
| Q19 - In general, it is rewarding to work with drug users.                 | 5.0 (1.0)           | 5.5 (1.1)            | 0.5 (1.0)            | 937.0   | <.0001  |
| Q20 - In general, I feel I can understand drug users.                     | 4.4 (1.1)           | 5.2 (1.1)            | 0.9 (1.1)            | 1,476.5 | <.0001  |

*Source: Watson H, Maclaren W, Kerr S. Staff attitudes towards working with drug users: development of the Drug Problems Perceptions Questionnaire. Addiction. 2007;102(2):206–15.
They reverse-scored items 13, 15, 16, and 17. We discarded surveys that could not be paired due to nonmatching identifiers or lack of both surveys. We compared differences in pre- and postscores using a one-sided Wilcoxon Signed Rank Sum test using SAS 9.4 software (SAS Institute Inc, Cary, NC) to observe if there was a positive shift in scores, defined as a change in the DDPPQ Likert scale in a direction of more positive self-reported knowledge, skills or attitudes.

Results
During the study, 210 students attended the workshop and 118 paired surveys were included in the analysis. There were statistically significant improvements in all items (Table 2), with the largest improvements on the following items: Q2—“I feel I know enough about the causes of drug problems to carry out my role when working with drug users” (1.8 increase), Q6—“I feel I know how to counsel drug users over the long-term” (2.1 increase), Q7—“I feel I can appropriately advise my patients/clients about drugs and their effects” (1.7 increase), and Q10—“If I felt the need when working with drug users I could easily find someone with whom I could discuss any personal difficulties that I might encounter” (1.5 increase).

Discussion
This study finds that teaching SUD as a treatable, medical disease is associated with improvements in self-reported knowledge, skills and attitudes in FM clerkship medical students, and that a short intervention can be associated with positive change associated with attending the workshop, versus completing the clerkship alone.

This study included only one institution’s FM curriculum and is thus limited in generalizability, but the intervention can be adopted by other programs. Our student demographics may not reflect other populations, so further studies are needed. Although not part of this study, follow-up surveys later in training would assist in learning if these changes persist. Additionally, as we did not test for knowledge gain and measured self-reported perceptions, measuring knowledge specifically may improve understanding of these interventions. More work should be done to continue to understand the most optimal training for SUDs to reduce barriers for the future medical workforce.

PRESENTATIONS: This work was briefly presented at the 2020 Society of Teachers of Family Medicine, Medical Student Education Conference, as part of the General Session entitled “Equity for Addictions Starts with Students.”

CORRESPONDING AUTHOR: Address correspondence to Dr Rebecca Cantone, 3181 SW Sam Jackson Park Rd. Mail Code FM, Portland, OR 97239. 503-494-6948. cantone@ohsu.edu.

References
1. Lipori RN, Van Horn SL. Trends in Substance Use Disorders Among Adults Aged 18 or Older. Substance Abuse and Mental Health Services Administration. https://www.samhsa.gov/data/sites/default/files/report_2790/ShortReport-2790.html. Accessed August 26, 2020.
2. McCance-Katz, EF. The National Survey on Drug Use and Health: 2018. Substance Abuse and Mental Health Services Administration. https://www.samhsa.gov/data/sites/default/files/chs-qrc-gs/PDFs/2018-CDS-report.pdf. Accessed August 26, 2020.
3. Ahmad FB RL, Sutton P. Provisional drug overdose death counts. National Center for Health Statistics. 2020. https://www.cdc.gov/nchs/nvsalvrdr/drug-overdose-data.htm. Accessed August 26, 2020.
4. Van Boekel LC, Brouwers RPM, Van Weeghel J, Garretsen HFL. Stigma among health professionals with substance use disorders and its consequences for healthcare delivery: a systematic review. Drug Alcohol Depend. 2013;131(1-2):23-35. doi:10.1016/j.drugalcdep.2013.02.018
5. Silins E, Conigrave KM, Rakvin C, Dobkins T, Curry K. The influence of structured education and clinical experience on the attitudes of medical students towards substance misuse. Drug Alcohol Rev. 2007;26(2):191-200. doi:10.1080/09595230601184661
6. Koyi MB, Nelliot A, MacKinnon D, et al. Change in medical student attitudes towards patients with substance use disorders after course exposure. Acad Psychiatry. 2018;42(2):283-287. doi:10.1007/s40596-017-0722-4
7. Chapman EN, Kaata A, Carnes M. Physicians and implicit bias: how doctors may unwittingly perpetuate health care disparities. J Gen Intern Med. 2013;28(11):1504-1510. doi:10.1007/s11606-013-2441-1
8. Miller NS, Sheppard LM, Colenda CC, Magen J. Why physicians are unprepared to treat patients who have alcohol- and drug-related disorders. Acad Med. 2001;76(5):410-418. doi:10.1097/00001888-200105000-00007
9. Motzkus C, Wells R, Wang X, et al. Pre-clinical medical student reflections on implicit bias: implications for learning and teaching. PLoS One. 2019;14(11):e0225058. doi:10.1371/journal.pone.0225058
10. Polydorou S, Gunderson EW, Levin FR. Training physicians to treat substance use disorders.Curr Psychiatry Rep. 2008;10(5):399-404.
11. Cape G, Hannah A, Sellman D. A longitudinal evaluation of medical student knowledge, skills and attitudes to alcohol and drugs. Addiction. 2006;101(6):841-849. doi:10.1111/j.1360-0443.2006.01476.x
12. Ram A, Chisom MS. The time is now: improving substance abuse training in medical schools. Acad Psychiatry. 2016;40(3):454-460. doi:10.1007/s40596-015-0314-0
13. Muzyk A, Smothers ZPW, Akrobetu D, et al. Substance Use Disorder Education in Medical Schools: A Scoping Review. Acad Med. 2019;94(11):1825-1834.
14. Walters ST, Matson SA, Baer JS, Ziedonis DM. Effectiveness of workshop training for psychosocial addiction treatments: a systematic review. J Subst Abuse Treat. 2005;29(4):283-293. doi:10.1016/j.jstat.2005.08.006
15. Babor TF, Higgins-Biddle JC, Higgins PS, Gassman RA, Gould BE. Training medical providers to conduct alcohol screening and brief interventions. Subst Abus. 2004;25(1):17-26. doi:10.1300/J465v25n01_04

16. Baer JS, Rosengren DB, Dunn CW, Wells EA, Ogle RL, Hartzler B. An evaluation of workshop training in motivational interviewing for addiction and mental health clinicians. Drug Alcohol Depend. 2004;73(1):99-106. doi:10.1016/j.drugalcdep.2003.10.001

17. Lewis DC. Medical education for alcohol and other drug abuse in the United States. CMAJ. 1990;143(10):1091-1096.

18. Feeley RJ, Moore DT, Wilkins K, Fushenheim R. A focused addiction curriculum and its impact on student knowledge, attitudes, and confidence in the treatment of patients with substance use. Acad Psychiatry. 2018;42(2):304-308.

19. OHSU School of Medicine Welcomes MD Class of 2019. August 12, 2015. https://news.ohsu.edu/2015/08/12/ohsu-school-of-medicine-welcomes-m-d-class-of-2019#:~:text=The%20event%20will%20take%20place,and%20various%20other%20notable%20areas. Accessed September 12, 2020.

20. Chappel JN, Veach TL, Krug RS. The substance abuse attitude survey: an instrument for measuring attitudes. J Stud Alcohol. 1985;46(1):48-52. doi:10.15288/jsa.1985.46.48

21. Goodstadt MS, Cook G, Magid S, Gruzen V. The Drug Attitudes Scale (DAS): its development and evaluation. Int J Addict. 1978;13(8):1307-1317. doi:10.3109/10826087809003944

22. Watson H, Maclaren W, Kerr S. Staff attitudes towards working with drug users: development of the Drug Problems Perceptions Questionnaire. Addiction. 2007;102(2):206-215. doi:10.1111/j.1360-0443.2006.01686.x