

# Integrating Persons With Lived Experience in Opioid Use Disorder Education: A Small Group Exercise and Patient Panel

Journal of Medical Education and Curricular Development  
Volume 10: 1–6  
© The Author(s) 2023  
Article reuse guidelines:  
sagepub.com/journals-permissions  
DOI: 10.1177/23821205231180172



David P Serota<sup>1</sup>, Hansel E Tookes<sup>1</sup> , Jasmine Tomita-Barber<sup>1</sup>, Tyler S Bartholomew<sup>2</sup>, David W Forrest<sup>2</sup>, Joan St. Onge<sup>1</sup>, Henri Ford<sup>3</sup> and Sabrina Taldone<sup>1</sup>

<sup>1</sup>Department of Medicine, University of Miami Miller School of Medicine, Miami, FL, USA. <sup>2</sup>Department of Public Health Sciences, University of Miami Miller School of Medicine, Miami, FL, USA. <sup>3</sup>Department of Surgery, University of Miami Miller School of Medicine, Miami, FL, USA.

## ABSTRACT

**OBJECTIVES:** Based on increasing drug overdose deaths and a shortage of healthcare professionals trained in the management of opioid use disorder (OUD), it is imperative to improve health professional education in addiction medicine. This small group learning exercise and patient panel was designed to provide first year medical students with insights into the lives of people with OUD—through a lens of harm reduction—and to connect biomedical knowledge to the core values and professional themes of their doctoring courses.

**METHODS:** Facilitators were assigned to each small group of 8 students for the harm reduction-centered Long and Winding Road small group case exercise. This was followed by a patient panel of 2 to 3 persons with OUD. The small group was conducted with first-year medical students as a virtual training session due to the COVID-19 pandemic. Students completed pre- and post-session surveys about agreement with statements pertaining to the learning objectives.

**RESULTS:** The small group and patient panel were delivered over 8 sessions and attended by all first-year medical students (N = 201). Survey response rate was 67%. Post-session, there was significantly greater agreement with knowledge on all learning objectives compared to pre-session. Two relevant multiple-choice questions on the medical student final exam were answered correctly by 79% and 98% of students.

**CONCLUSION:** Centering on people with lived experience, we completed small groups and patient panels to introduce concepts of OUD and harm reduction to first year medical students. Pre- and post-session surveys showed short-term achievement of the learning objectives.

**KEYWORDS:** Harm reduction, medical education, opioid use disorder, substance use disorder

**RECEIVED:** July 7, 2022. **ACCEPTED:** May 18, 2023

**TYPE:** Original Research Article

**FUNDING:** The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study was funded by the Florida Department of Children and Families LDZ08 under a State Opioid Response grant. The funding body had no role in the design of the study, the collection, analysis and interpretation of data, nor writing the manuscript.

**DECLARATION OF CONFLICTING INTERESTS:** The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**CORRESPONDING AUTHOR:** Hansel E Tookes, Department of Medicine, University of Miami Miller School of Medicine, 1120 NW 14 St, Miami, FL 33136, USA.  
Email: hetookes@miami.edu

## Introduction

In his 2022 State of the Union Address, the President expressly identified increasing funding for “harm reduction” as part of his Unity Agenda.<sup>1</sup> This historic elevation of harm reduction as a key component to addressing the overdose crisis in the United States (US) followed the first National Harm Reduction Summit hosted by the US Department of Health and Human Services and the White House.<sup>2</sup> This focus on an often controversial yet evidence-based tool was a direct response to the 100 000 lives lost from a preventable drug overdoses in the first year of the COVID-19 pandemic.<sup>3</sup> Harm reduction is an approach of meeting people where they are, both mentally and physically, rooted in principles of humanism, pragmatism, autonomy, incrementalism and accountability without termination.<sup>4</sup> Harm reduction helps people who use drugs, many of whom have substance use disorders (SUDs). While harm reduction is not itself a treatment for SUD, it informs treatment and goes beyond treatment in focusing

especially on those who are not interested in stopping their use; a group often neglected by the healthcare system. The unmitigated overdose crisis in the United States has led to a necessary and long overdue embrace of harm reduction<sup>5</sup> by the National Institute on Drug Abuse and the Substance Abuse and Mental Health Services Administration, with concomitant unprecedented funding.<sup>6,7</sup> Medical schools must urgently heed the call of the President, integrating harm reduction into their curricula by centering on people who use drugs as the experts in their own health.

There are 1.6 million people in the US living with opioid use disorder (OUD), yet only 18% have received the evidence-based treatment—medications for OUD (MOUD)—in the past year.<sup>8</sup> MOUD is highly effective at reducing the harms associated with opioid use including overdose, mortality, decreased quality of life, and drug use-associated infectious diseases.<sup>9–11</sup> Although recently overshadowed by the COVID-19 pandemic, the drug overdose crisis remains a critical public



Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits non-commercial use, reproduction and distribution of the work without

further permission provided the original work is attributed as specified on the SAGE and Open Access page (<https://us.sagepub.com/en-us/nam/open-access-at-sage>).

health problem, creating an urgent need to train physicians in the treatment and management of OUD.<sup>8,12</sup> Innovative curricula that teach harm reduction principles could help reform the medical profession from a punitive approach to OUD to one that acknowledges that some people do not want to stop using drugs.

In order to produce a vast and sustainable pipeline of physicians able to care for persons with OUD and other SUDs, an intervention must target practicing physicians, trainees in graduate medical education, as well as medical school students. Among the barriers to prescribing MOUD are a lack of sufficient training, education and experience in prescribing buprenorphine, and provider stigma against people who use drugs.<sup>13–17</sup> Part of the barrier to access to high quality addiction treatment in the United States is lack of trained providers.<sup>18</sup> Among a cohort of general internists, only 20% reported comfort screening for SUD and less than 10% were comfortable discussing medication treatment for OUD.<sup>19</sup> Similar findings have been described in cohorts of internal medicine residents<sup>20</sup> and medical students.<sup>21</sup>

Preclinical education of SUD typically focuses on the neurobiological basis of addiction, Diagnostic and Statistical Manual 5 (DSM-5) diagnostic criteria, and behavioral and pharmacologic treatment modalities. In our curricular intervention, we aimed to include important additional topics including social determinants of health, stigma against people who use drugs, and harm reduction. With this case, we sought to introduce first year medical students to the hallmarks of diagnosis and treatment of OUD through a lens of harm reduction. A recently published case for Medication-Assisted Treatments for Substance Use Disorders in Graduate Medical Education showed subjective increase in competence in managing patients with OUD.<sup>22</sup> At Brown University in 2016, an in-person inter-professional workshop on increasing student knowledge, skills, and attitudes toward opioid misuse via a patient panel and paper-based case workshop received high satisfaction scores from participants and increased medical knowledge of opioid use disorder<sup>23</sup>; we aimed to adapt a similar methodology into a virtual teaching modality. This curricular innovation is a key component to the longitudinal opioid use disorder curriculum at the University of Miami Miller School of Medicine, an approach informed by participants and staff at our on campus harm reduction program, the first legal syringe services program in the state of Florida.<sup>24</sup>

## Methods

This instructional session was designed for education of first-year medical students and was implemented in the Spring 2021 semester at the University of Miami in Miami, Florida, United States. This session's curriculum was repeated 8 times over the course of 2 weeks in order to accommodate schedules for all first-year medical students. The curriculum was designed

to be easily adaptable and applicable to other health profession students. The session was developed as part of a State Opioid Response curriculum development grant.

These medical students had already completed their foundational science curriculum focused on normal physiology and were in the neuroscience and psychiatry module at the time of this session. This session was presented in one afternoon as part of the medical students' Medicine as a Profession course in order to bridge core content of the organ system curriculum with themes of physicianship, social determinants of health, and medical ethics. Medicine as a Profession is a course that runs through all four years of medical school and includes clinical skills, medical ethics, critical appraisal, medical humanities, and wellness, among other topics. During the 2021 delivery of the curriculum reported here, physical therapy students were also included in the small groups mixed in with the medical students. Data for the physical therapy students is beyond the scope of this manuscript.

The curriculum for this session consisted of two parts. First, a 50-min small group session was conducted going over a case. This was immediately followed by a 40-min large group session with a patient panel. The small group instructional design was used to maximize student engagement and to achieve learning objectives.

## Objectives

By the end of this activity, learners will be able to:

1. Diagnose opioid use disorder
2. List the treatment options for opioid use disorder
3. Define the term "recovery" in substance use disorder
4. Explain the goals of treatments for substance use disorder
5. Describe how stigmatization of people who use drugs contributes to adverse health outcomes
6. Provide examples of "harm reduction" in substance use disorders

## Small Group Intervention Session

Students were given the cases one week before the session as well as a review article on primary care for people who inject drugs.<sup>25,26</sup> They were instructed to independently review and answer the case questions ahead of time. On the day of the sessions, students were placed into pre-assigned small groups of approximately 8 students per group with 1 faculty facilitator. Facilitators were all practicing physicians from internal medicine, infectious diseases, and gastroenterology. During the small group portion of the session, students read the case and questions aloud and the facilitators helped guide the student discussion to achieve the course objectives. Subsequent sessions of this curriculum have taken place in person.

The case follows the course of a young man with OUD as he seeks treatment for his OUD, begins MOUD, and eventually falls out of treatment and returns to drug use (see Supplemental Appendix A: Student Case and Supplemental Appendix B: Facilitator Guide). The case focuses on implementation of MOUD, harm reduction, and identifying and mitigating stigma toward people who use drugs.

### Patient Panel Session

Immediately following the small group, all students from the individual small groups convened on videoconference for a patient panel of 2 to 3 people with OUD in differing stages of recovery. One of the authors of this manuscript (HET) is the medical director for a local syringe services program and clinic. At this clinic, staff set up a laptop where panelists could have a comfortable and private setting to participate in the panel by videoconference. Panelists were approached through the on-campus syringe services program and were well known to members of the medical education team. Participants for this panel included an individual who had intermittently used MOUD in the past but was currently using fentanyl, an individual in sustained recovery on buprenorphine, and an individual in early recovery on buprenorphine. The patients received a stipend for attendance, paid for out of grant funds. Prior to the session, panelists were briefly prepped on the questions that would be asked of them. They were asked to answer questions as honestly as possible.

At the start of the patient panel, the facilitator provided brief guidance regarding person first language in addressing panelists with opioid use disorder.<sup>27</sup> Then panelists introduced

themselves. The facilitator then asked the following questions to the panelists:

- What does recovery mean to you?
- What medications for OUD—if any—are you taking and why?
- How has stigma against people who use drugs impacted your experience with healthcare?

Students were encouraged to ask questions and interact directly with the panelists throughout the session.

### Evaluation of Learning

Students completed a survey immediately before the small group session and then after completing the small group session but before the patient panel. We administered an anonymous short multiple-choice survey using a 5-point Likert scale (1 = *strongly agree*, 5 = *strongly disagree*) on an internet-based survey platform to determine their level of agreement with comments aligned with the learning objectives. While the educational sessions were required as part of the curriculum, responses to the pre- and post-surveys were strongly encouraged but were not required. They were further evaluated by two multiple choice questions on their physicianship (“Medicine as a Profession” course) final examination (Supplemental Appendix C). Pre- and post-small group session responses were compared using a chi-square test for independence with a significance value set at  $P \leq .05$ . Because these analyses were exploratory, no sample size/power calculations or statistical correction for multiple comparisons were performed.

**Table 1.** Pre- and post-session survey (N = 135).

	AGREE: PRE	AGREE: POST	P-VALUE <sup>a</sup>
I am able to explain how to diagnose opioid use disorder	39%	97%	< .001
I am able to describe the treatment options for opioid use disorder	45%	98%	< .001
I am able to explain what it means to be in recovery and define the goals of treatments for substance use disorder	40%	98%	< .001
I am able to explain how stigmatization of people who use drugs contributes to adverse health outcomes	69%	99%	< .001
I am able to give examples of “harm reduction” and how this concept fits in with the treatment of substance use disorders	41%	99%	< .001

<sup>a</sup>Chi-square test for independence.

### Results

Over eight afternoon sessions in April 2021, all first-year medical students (N = 201) completed the small group activity and patient panel. Due to social distancing policies at our institution, the curriculum was taught using a videoconference platform instead of on-site in the medical school. Overall, 135 of the students completed the pre- and post-session assessments for a 67% response rate. Table 1 shows a comparison between those who agreed (“strongly agree” or “agree”) with each statement regarding course objectives in the pre- and post-session surveys. In all domains, students reported statistically significant improvement in knowledge on OUD diagnosis, treatment, and, importantly, harm reduction. Between 97% and 99% of students agreed with the course objectives following the session. On the medical students’ “Medicine as a Profession” final examination, the students correctly answered the questions 79% and 98% of the time (Questions 1 and 2, respectively, in Supplemental Appendix C).

## Discussion

Our small group case and patient panel session was effective in increasing knowledge and understanding of OUD, and harm reduction among first year medical students. After the session,  $\geq 97\%$  of students reported confidence in diagnosing OUD, describing treatment options for OUD, and understanding how stigma impacts healthcare for people who use drugs. This session served as the first part of a longitudinal opioid use disorder educational curriculum implemented in our medical school. This session would later be followed by sessions on opioid use disorder in pharmacology<sup>28</sup> and the internal medicine clerkship.<sup>29</sup> Our small group patient panel session described in this manuscript was innovative in its centering on harm reduction and delivery with a panel of persons who use drugs. Promoting a harm reduction approach to teaching about substance use is a signature approach of the Miller School of Medicine and is supported by our institution's pursuit and founding of the first legal syringe services program in the state. This two-part discussion was designed with our patients to convey key principles of harm.<sup>4</sup> The patient panel further reinforced these core harm reduction principles, and the delivery remote from the syringe services program highlighted the ways in which we must meet people where they are. The pharmacology case, also delivered in the preclinical phase of the curriculum, sought to educate medical students on the pharmacology and physiologic effects of opioids, as well as the pharmacology and clinical application of lifesaving MOUD.<sup>28</sup> The curriculum culminates in the internal medicine clerkship case in which students participated in an Objective Structural Clinical Examination (OSCE) that provided the opportunity to synthesize principles from the preclinical cases to record and document a patient history for a patient with OUD using non-stigmatizing language, to recommend treatment options for people with OUD and complications of injection drug use, and to apply harm reduction strategies to their treatment.<sup>29</sup>

The session described herein as well as the curriculum overall focused on helping medical students foster empathy for people who use drugs and recognize the stigma patients face in their healthcare experiences. We believe it is critical to develop a cadre of healthcare professionals in all fields who are understanding and prepared to help people who use drugs. Utilizing patient panels in medical education can help humanize the patient experience of illness as well as provide social and personal context for patients' medical conditions, from the view of healthcare team. Patient panels have been shown to reduce stigma toward patients with diverse medical conditions, including diabetes and OUD.<sup>30,31</sup> In the patient panel described by Dumenco et al,<sup>31</sup> students from all disciplines reported high rates of attitude change toward people with OUD after hearing from people with lived experience. The patient panel has become a critical component of our OUD education across the curriculum which always elevates people who use

drugs as experts in their own health. The earlier in education that students are introduced to patients with OUD, the less likely they are to develop stigma and negativity described among trainees later on in their training.<sup>32</sup>

In addition to structural (eg, poverty, unstable housing, incarceration, and racism), system (lack of access to transportation), and individual-level (substance use, mental health comorbidities, and food insecurity) barriers, intransigent stigma and discrimination within the healthcare system related to person's substance use, HIV and/or HCV have remained profound barriers to engaging people who use drugs in life-saving care.<sup>33,34</sup> They often experience discrimination and considerable social disadvantage when accessing traditional healthcare services.<sup>35</sup> In a study of people who inject drugs with skin and soft tissue infections, over a third delayed seeking medical attention due to concern over how they would be treated.<sup>36</sup> It is within this context that we presented all material framed in terms of the principles of harm reduction. Harm reduction involves meeting people where they are with regards to their substance use and providing care in whatever way is acceptable to the patient in order to improve the health of people who use drugs. Our case includes discussion of a patient who continues to use cocaine despite being in recovery from OUD on buprenorphine. Students also discuss syringe services programs, HIV pre-exposure prophylaxis, and how physicians must often balance "standard of care" treatment with what is feasible and therapeutic for an individual patient. There has been increasing acknowledgement by public health and federal authorities that harm reduction is a critical tool to curb the ongoing drug overdose and HIV crises, yet there are few examples of harm reduction being explicitly taught in undergraduate medical education.<sup>37,38</sup> A harm reduction approach to substance use disorder has become a cornerstone of the Miller School curriculum.

This work has a few limitations. First there is a lack of information on long term attitude and behavior change on account of the session. Immediate pre- and post-session surveys represent initial changes in confidence in achieving the course objectives, but this study does not prove a long-lasting effect. Lack of a control group of students who did not receive the curriculum further hinders drawing conclusions about causality. Second, due to logistical challenges of the videoconference platform and time constraints, students completed the post-session survey after the small group but before the patient panel. Thus, the results do not represent impact of the patient panel. Third, we did not perform any a priori sample size or power calculation, therefore results should be interpreted as hypothesis-generating. Lastly, while we had the ability to assign one facilitator to each small group, the session could have been completed with fewer facilitators circulating through the student-led groups, as has been demonstrated in other studies.<sup>39</sup> We believe this educational exercise could benefit from a variety of approaches including students of social

work, nursing, pharmacy, and occupational therapy. Our hope is that this case could be easily adjusted to increase relevance to other health professions.

## Conclusion

In conclusion, we have shown that rooting our longitudinal OUD curriculum in harm reduction was effective in increasing short-term confidence in OUD diagnosis and treatment and understanding the role of stigma and the importance of harm reduction for people who use drugs.

## Acknowledgments

We would like to thank the students of the University of Miami Miller School of Medicine for their active participation and enthusiasm for the curriculum. Most importantly, we would like to thank our patients at our local syringe services program, the IDEA Exchange, for their counsel on development and execution of this harm reduction curriculum.

## Author Contributions

HT, JS, HF, and ST obtained the grant to design and implement the curriculum. DS, HT, JT, JS and ST authored the case. DS, HT, and ST implemented and executed the curriculum. TS and DF analyzed the data. All authors contributed to the manuscript and have approved its content.

## Consent for Publication

N/A

## Data Availability

The data will not be made publicly available.

## Ethics Approval and Consent to Participate

This study was approved by the Institutional Review Board (IRB) of the University of Miami (IRB # 20200218). The Institutional Review Board waived informed consent. All methods were carried out in accordance with the relevant guidelines and regulations.

## ORCID iD

Hansel E Tookes  <https://orcid.org/0000-0002-2369-360X>

## Supplemental Material

Supplemental material for this article is available online.

## REFERENCES

- House W. Remarks of President Joe Biden – state of the union address as prepared for delivery. 2022. Accessed March 20, 2022. <https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/03/01/remarks-of-president-joe-biden-state-of-the-union-address-as-delivered/>.
- House W. READOUT: White House, HHS host national harm reduction summit. 2021. Accessed March 20, 2022. <https://www.whitehouse.gov/ondcp/briefing-room/2021/12/16/readout-white-house-hhs-host-national-harm-reduction-summit/>.
- CDC. 12 Month-ending provisional number of drug overdose deaths. 2021. Accessed October 22nd 2021. <https://www.cdc.gov/nchs/nvss/vsrri/drug-overdose-data.htm>.
- Hawk M, Coulter RW, Egan JE, et al. Harm reduction principles for healthcare settings. *Harm Reduct J*. 2017;14(1):1-9.
- Volkow N. Making addiction treatment more realistic and pragmatic: the perfect should not be the enemy of the good. *Health Affairs Forefront*. 2022.
- NIDA. HEAL initiative: harm reduction policies, practices, and modes of delivery for persons with substance use disorders (R01 clinical trial optional). 2022. Accessed February 12, 2022. <https://grants.nih.gov/grants/guide/rfa-files/RFA-DA-22-046.html>.
- SAMHSA. Harm reduction grant program. 2021. Accessed December 8, 2021. <https://www.samhsa.gov/grants/grant-announcements/sp-22-001>.
- Substance Abuse and Mental Health Services Administration. Key substance use and mental health indicators in the United States: results from the 2019 National Survey on drug use and health (HHS Publication No. PEP20-07-01-001, NSDUH Series H-55). Center for Behavioral Statistics and Quality, Substance Abuse and Mental Health Services Administration; 2020.
- Larochelle MR, Bernson D, Land T, et al. Medication for opioid use disorder after nonfatal opioid overdose and association with mortality: a cohort study. *Ann Intern Med*. 2018;169(3):137.
- Mattick RP, Breen C, Kimber J, Davoli M. Buprenorphine maintenance versus placebo or methadone maintenance for opioid dependence. *Cochrane Database Syst Rev*. 2014;2.
- Sordo L, Barrio G, Bravo MJ, et al. Mortality risk during and after opioid substitution treatment: systematic review and meta-analysis of cohort studies. *Br Med J*. 2017;357:j1550.
- Blanco C, Volkow ND. Management of opioid use disorder in the USA: present status and future directions. *Lancet*. 2019;393(10182):1760-1772.
- Haffajee RL, Bohnert ASB, Lagisetty PA. Policy pathways to address provider workforce barriers to buprenorphine treatment. *Am J Prev Med*. 2018;54(6 Suppl 3):S230-S242.
- Andrilla CHA, Moore TE, Patterson DG. Overcoming barriers to prescribing buprenorphine for the treatment of opioid use disorder: recommendations from rural physicians. *J Rural Health*. 2019;35(1):113-121.
- Sullivan LE, Tetrault J, Bangalore D, Fiellin DA. Training HIV physicians to prescribe buprenorphine for opioid dependence. *Subst Abuse*. 2006;27(3):13-18.
- Netherland J, Botsko M, Egan JE, et al. Factors affecting willingness to provide buprenorphine treatment. *J Subst Abuse Treat*. 2009;36(3):244-251.
- DeFlavio JR, Rolin SA, Nordstrom BR, Kazal LA Jr. Analysis of barriers to adoption of buprenorphine maintenance therapy by family physicians. *Rural Remote Health*. 2015;15:3019.
- Madras BK, Ahmad NJ, Wen J, Sharfstein J. Improving access to evidence-based medical treatment for opioid use disorder: strategies to address key barriers within the treatment system. *NAM Perspectives*. 2020.
- Wakeman SE, Pham-Kanter G, Donelan K. Attitudes, practices, and preparedness to care for patients with substance use disorder: results from a survey of general internists. *Subst Abuse*. 2016;37(4):635-641.
- Wakeman SE, Baggett MV, Pham-Kanter G, Campbell EG. Internal medicine residents' training in substance use disorders: a survey of the quality of instruction and residents' self-perceived preparedness to diagnose and treat addiction. *Subst Abuse*. 2013;34(4):363-370.
- Back DK, Tammaro E, Lim JK, Wakeman SE. Massachusetts medical students feel unprepared to treat patients with substance use disorder. *J Gen Intern Med*. 2018;33(3):249-250.
- Matassa D, Perrella B, Feurdean M. A novel team-based learning approach for an internal medicine residency: medication-assisted treatments for substance use disorders. *MedEdPORTAL*. 2021;17:11085.
- Monteiro K, Dumenco L, Collins S, et al. An interprofessional education workshop to develop health professional student opioid misuse knowledge, attitudes, and skills. *J Am Pharm Assoc (2003)*. 2017;57(2S):S113-S117.
- Tookes H, Bartholomew TS, St Onge JE, Ford H. The University of Miami Infectious Disease Elimination Act (IDEA) syringe services program: a blueprint for student advocacy, education, and innovation. *Acad Med*. 2020 ;96(2):213-217.
- Visconti AJ, Sell J, Greenblatt AD. Primary care for persons who inject drugs. *Am Fam Physician*. 2019;99(2):109-116.
- Pullen SD, Del Rio C, Brandon D, et al. An innovative physical therapy intervention for chronic pain management and opioid reduction among people living with HIV. *Biores Open Access*. 2020;9(1):279-285.
- Ashford RD, Brown AM, Curtis B. Substance use, recovery, and linguistics: the impact of word choice on explicit and implicit bias. *Drug Alcohol Depend*. 2018;189:131-138.
- Taldone S, Lemmon S, Bianco S, et al. Opioid use disorder curriculum: preclerkship pharmacology case-based learning session. *MedEdPORTAL*. 2022;18:11255.
- Tookes HE, Tomita-Barber J, Taldone S, et al. Opioid use disorder curriculum: medicine clerkship standardized patient case, small-group activity, and patient panel. *MedEdPORTAL*. 2022;18:11248.

30. Beverly EA, Guseman EH, Jensen LL, Fredricks TR. Reducing the stigma of diabetes in medical education: a contact-based educational approach. *Clin Diabetes*. 2019;37(2):108-115.
31. Dumenco L, Monteiro K, Collins S, et al. A qualitative analysis of interprofessional students' perceptions toward patients with opioid use disorder after a patient panel experience. *Subst Abus*. 2019;40(2):125-131.
32. Meltzer EC, Suppes A, Burns S, et al. Stigmatization of substance use disorders among internal medicine residents. *Subst Abus*. 2013;34(4):356-362.
33. Lang K, Neil J, Wright J, Dell CA, Berenbaum S, El-Aneed A. Qualitative investigation of barriers to accessing care by people who inject drugs in Saskatoon, Canada: perspectives of service providers. *Subst Abuse Treat Prev Policy*. 2013;8(1):1-11.
34. Biancarelli DL, Biello KB, Childs E, et al. Strategies used by people who inject drugs to avoid stigma in healthcare settings. *Drug Alcohol Depend*. 2019;198:80-86.
35. e Cruz CC, Salom CL, Dietze P, Burns L, Alati R. The association between experiencing discrimination and physical and mental health among people who inject drugs. *Int J Drug Policy*. 2019;65:24-30.
36. Gilbert AR, Hellman JL, Wilkes MS, Rees VW, Summers PJ. Self-care habits among people who inject drugs with skin and soft tissue infections: a qualitative analysis. *Harm Reduct J*. 2019;16(1):1-11.
37. Goodnough A. Helping drug users survive, not abstain: 'harm reduction' gains federal support. *The New York Times*. June 27, 2021, 2021.
38. Moses TE, Moreno JL, Greenwald MK, Waineo E. Developing and validating an opioid overdose prevention and response curriculum for undergraduate medical education. *Subst Abus*. 2021;43(1):309-318.
39. Burgess A, van Diggele C, Roberts C, Mellis C. Team-based learning: design, facilitation and participation. *BMC Med Educ*. 2020;20(Suppl 2):461.