Substance Use Disorder: A Model for Integration in Undergraduate Medical Education

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ABSTRACT: Substance Use Disorder (SUD) is a debilitating chronic illness with significant morbidity and mortality across the United States. The AAMC and LCME have supported the efforts for more effective medical education of SUD to address the existing stigma, knowledge, and treatment gaps. The Coronavirus 2019 (COVID-19) pandemic and associated social, economic, and behavioral impacts have added to this urgency. The University of South Carolina School of Medicine Greenville (USCSOMG), in collaboration with community organizations, has successfully implemented an integrated SUD education curriculum for medical students. Students learn about SUD in basic sciences, receive case-based education during clinical exercises, and are provided the opportunity to become a recovery coach and participate in the patient and family recovery meetings through this curriculum during preclinical years. During the clinical years, SUD education is enhanced with exposure to Medication for Addition Treatment (MAT). Students also partake in the care coordination of patients with SUD between the hospital and community recovery organizations. All students receive MAT waiver training in their final year and are prepared to prescribe treatment for SUD upon graduation. The experiences in this integrated curriculum integration can perhaps assist other organizations to implement similar components and empower the next generation of physicians to be competent and effective in treating patients with SUD.

KEYWORDS: substance use disorder, undergraduate medical education, medication for addiction treatment, addiction medicine

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Introduction

Substance Use Disorder (SUD) has a profound public health impact. An evidence-based curricular and educational reform is needed to address the treatment gap and stigma related to SUD.[1] Medical schools throughout the United States have embraced this challenge and have responded by integrating curricular elements on substance use education to prepare the next generation of health care professionals. Institutions are also working with their communities to create learning opportunities across the medical education continuum. The AAMC has supported these efforts by enhancing needs assessment, supporting collaborative sharing of successful educational practices, and offering curriculum innovation awards.[2] An analysis of telephone surveys of curriculum deans from LCME-accredited U.S. medical schools indicated the need to promote education on pain and SUD. There was a particular emphasis on interprofessional care and the role of social determinants of health in treatment planning for SUDs.[3] Ultimately, more active learning opportunities, measuring developmental progression, and performance assessment tools are needed to better prepare students as future physicians to manage and treat SUD effectively and compassionately.[3]

A scoping review of SUD education in medical schools emphasized the need to develop courses with goals of changing students' practice behaviors.[4] By gaining competence in screening, diagnosis, and culturally sensitive treatment of Opioid Use Disorders (OUD) within the context of a chronic disease model, students will be adequately prepared as the future health care workforce. Increasing education and training on harm reduction strategies, incorporating clinical exposure to patients engaged in treatment, and creating opportunities for interprofessional learning are recommended as invaluable course content.[4] However, a recent New York Times article highlighted that only 15 of 180 medical schools had a formal addiction teaching curriculum.[5] Medical schools across the nation need to be working vigorously to prepare their students for meeting this enormous public health crisis.[4]

As people across the U.S. and the rest of the world face COVID-19, there is a significant concern that gains made in the fight against the opioid epidemic could be lost.[6] More opioid-related overdoses and infections from injections are likely. Less frequent follow-ups and treatment availability due to social distancing might drive the opioid epidemic further.[6] Thus, COVID-19 adds to the emergent need of preparing the future workforce to address SUD.

Training at the University of South Carolina School of Medicine Greenville (USCSOMG) is unique and innovative due to the integration of SUD education and exposure (Figure 1). Medical students are introduced to a peer-based recovery support community program during their preclinical years (M1 and

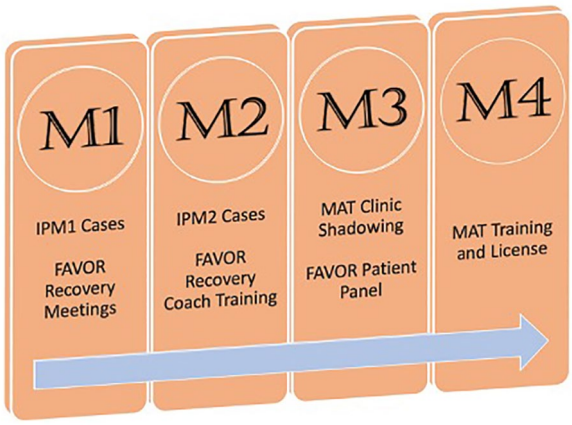

Figure 1. The curriculum for SUD education at USCSOMG is unique, innovative, and integrated through all 4 years of medical education.

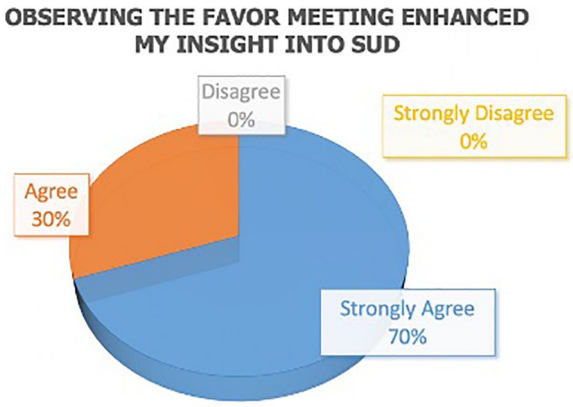

Figure 2. Survey results of M1 students.

M2 years), with exposure to MAT and SUD patient care in clinical years (M3 and M4 years). This specific intervention creates opportunities for interprofessional learning, exposes students to patients engaged in treatment, reduces stigma, and increases comfort in addressing SUD as students advance through their medical education. FAVOR (Faces and Voices of Recovery) Greenville is a local community recovery organization based on peer recovery support model of SUD treatment and has partnered with USCSOMG to train these future physicians in addressing SUD.[7]

Curriculum

M1 Year

Students learn about the pathophysiology of addiction in the neuroscience module. This learning is paired with required clinical reasoning cases which incorporate items such as chronic pain clinical presentation, screening for SUD, and treatment choices. Students are also taught the technique of Motivational Interviewing (MI) during their clinical skills sessions and role play to practice MI skills to practice these skills. The community experience is initiated as part of the required Emergency Medicine Technician (EMT) training students undergo at the start of medical school. Students experience first-hand the impact of social determinants of health on SUD while working in Emergency Medical Services (EMS) as required as part of the medical school curriculum for their first two years. This opportunity then connects with a peer recovery-based support community program named FAVOR Greenville. Through FAVOR, students begin to gain an understanding of the spectrum of support options for SUD, including group meetings, individual recovery coaching, specialized group meetings for unique populations, and family coaching and support meetings. M1 students are required to attend recovery meetings, where they listen to families and individuals discuss their thoughts and struggles with SUD, and gain experience and understanding of how a patient with SUD can transition from the hospital to the recovery program. This experience enhances students' knowledge of the impact of SUD on a wide spectrum of the community and creates empathy that is crucial for the destigmatization of SUD. All M1 students (N = 104) for the year 2019 to 2020 were required to complete a debriefing survey after their meetings. Of the 104 (100%) students who completed the survey, all agreed that observing the FAVOR meeting enhanced their insight into SUD (Figure 2). These data were collected as a normal educational assignment.

Qualitative comments from M1s after attending a recovery meeting:

> *"A few weeks ago, during my EMT shift, I had my first encounter with a patient seeking opioids. During the ambulance ride, the patient was very sweet and scared that he was having a stroke, but when we dropped him off at the hospital, the charge nurse told us that that patient had been going to multiple different hospitals the past week demanding opioids. Immediately, my opinion of the patient changed, thinking that he was lying and trying to manipulate doctors. However, after the FAVOR meeting, I learned that I may be too quick to judge someone with this disorder and may need to spend a little more time and effort acknowledging that he is someone with a disease and not just a manipulative individual."*

> "I learned some of my own hidden biases and realized that I went into the meeting with the idea that I was somehow separate from everyone else attending the meeting. As embarrassing as it is to admit, I think that in some respects, it was almost a sense of superiority because I don't suffer from a similar affliction. My perspective [after the meeting was] reversed, because it certainly takes superior courage for the meeting attendees to share their hardships with such vulnerability and truth."

M2 Year

During the M2 year, SUD educational content is integrated into clinical reasoning cases, with case presentations such as cirrhosis, COPD, hepatitis C, infective endocarditis, and SUD-related trauma. While students learn the pathophysiology of these diseases, education regarding social determinants of health is also emphasized and is taken into consideration in formulating a treatment plan. The importance of obtaining social history and addressing the underlying SUD to provide comprehensive care for the patient is reinforced. The parallel

behavioral, social, and population health curriculum includes patient panels and case studies to further develop an understanding of treatment modalities and SUD education in a patient-centered and culturally sensitive care model. All of the above-mentioned content was integrated into the existing mandatory clinical skills course M2 students are required to attend throughout the year.

A unique part of our second-year curriculum includes the optional opportunity to become a trained recovery coach. A comprehensive, 3-day course is taught by an MI trained team from FAVOR Greenville. The content includes MI principles, neurophysiology of addiction, and community resources information. Students also hear from patients with SUD and law enforcement professionals. Upon completion of this course, students are paired with experienced recovery coaches for mentorship and guidance as students begin their journey as recovery coaches. Through texting, phone calls, individual meetings, and presence at recovery meetings, students become an integral part of the recovery team. These students coordinate the care of patients with SUD after discharge and meet with FAVOR professionals periodically to debrief. Many M2s opt to continue to attend recovery meetings throughout their medical education.

M3 Year

During their clinical clerkships in their third year, students care for patients with SUD in several settings. Equipped with applicable knowledge about SUD, community resources, and motivational interviewing from their preclinical years, students are prepared to begin the conversation about recovery with patients suffering from SUD at every level of care. They are also uniquely positioned to disseminate this knowledge to resident physicians and health care teams. A unique aspect of our curriculum is clinical experience with a Medication for Addiction Treatment (MAT) provider, required during the Internal Medicine Clerkship. This experience introduces our students to the practice of harm reduction and pharmacotherapy for SUD in a primary care setting. Of the 90 third-year medical students, 92% (N = 83) completed a debriefing survey regarding their shadowing experience, in which 98% of the third-year students surveyed felt that MAT shadowing was a meaningful experience and that they would recommend a similar experience to students at other schools (Figures 3 and 4).

Qualitative comments from M3 reflecting on shadowing a MAT provider:

> *"This experience has proven to me. . .that patients come from all walks of life and [that] it does not matter how they got to where they are today, but instead how we can help them moving forward. I think realizing that patients come to us in their most vulnerable times and having the privilege to be a part of that is something we should never take for granted."*

> *"Having the opportunity to witness the dynamic between the MAT provider and the patients was truly inspiring, as the provider was able to connect with each patient. The provider met with the patients on their level and I realized that was one of the best things I could do as a provider. I learned that opioid use disorder affects people of all ages, races, and social classes and that addiction should be viewed as a clinical disease that warrants treatment, behavioral therapy, and follow up like any medical condition."*

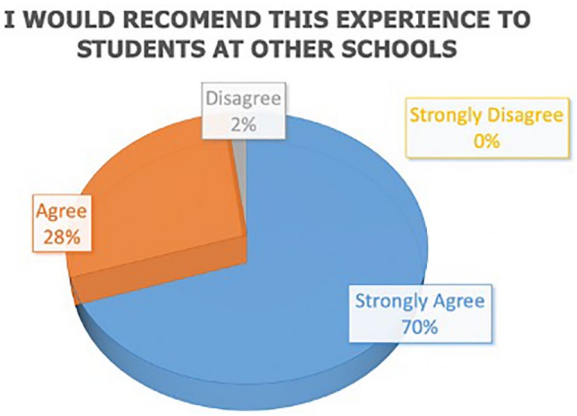

Figure 3. Survey results of M3 students.

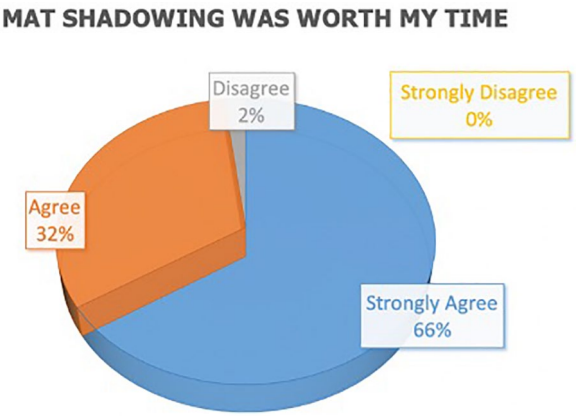

Figure 4. Survey results of M3 students, continued.

Students gain further exposure by attending an Alcoholics Anonymous meeting and submitting a paper reflecting on the experience, required during their Neurology and Psychiatry clerkship. Students are again exposed to a panel of patients from FAVOR during the M3 year, thus reinforcing such experience longitudinally, both during preclinical (M1) and clinical (M3) years. Exposure to patient panels with SUD has been shown to help decrease stigma and bias amongst future healthcare professionals, especially in interprofessional settings.[8]

M4 Year

Our medical education curriculum requires all M4 students to complete the 8-hour MAT DATA waiver training prior to graduation—training that includes buprenorphine and methadone. Nurse practitioner students complete the 24-hour requirement on their own, then meet with medical students in small groups to review cases. Each small group is assigned an MAT provider and peer recovery coach to work with, and students

practice applying what they have learned about treating patients with opioid use disorder. Thus, our graduating class is prepared for handling the SUD crisis as they may encounter in all of their specialties.

Facilitators and Barriers to Curriculum Changes

As described above, the highlights of our curriculum are an experience and partnership with the peer recovery support community program, the MAT experience, and the buprenorphine waiver training. Medical school leadership, faculty support, as well as student leaders' interest were important facilitators in our curricular change to include SUD education. Although the vast educational content and curriculum in the medical school can always limit additional opportunities, SUD education and experience is indispensable, and we are fortunate to be able to add a comprehensive SUD education curriculum.

Discussion

Participation in a peer recovery support community program, widespread curricular integration, and MAT clinical exposure and training are the highlights of our medical school's SUD education integrated curriculum. Students' feedback regarding this curriculum has been overwhelmingly positive. The community program's team and patients have been equally appreciative of this collaboration between our academic health center and the community to address and tackle the SUD crisis together. We hope that similar curricular integration can be replicated at other schools to enhance the collaboration between community recovery organizations, medical schools and health care systems. Such collaborative work is fundamental to the success of a SUD treatment program. Pilot programs in our health care system have yielded promising results from such a collaboration.[9,10] Moreover, recovery and health coaches are being recognized as important connections between the health care system, community, and the patients and are vital to maintaining patients' health outside of the walls of a hospital.[11] An exposure to peer recovery support program early in their medical education and the opportunity for recovery coaching training position our students in a unique way to become the champions and leaders in promoting healthy behaviors. Our curriculum also addresses the urgency to increase health care workforce capable of and comfortable in prescribing MAT.[12,13]

The COVID-19 pandemic has created unforeseen challenges in SUD care and treatment. Unprecedented stress during this time and social distancing have led to unintended consequences of increases in substance use and the perception and reality of decreased treatment availability further threatens to drive the OUD and SUD epidemic further.[6] Thus, it is of paramount importance that health care teams are vigilant and proactive in screening for substance use, feel comfortable in communicating with patients with SUD, and are versed with the knowledge of virtual resources available for support and treatment.

Conclusion and Future Direction

Our integrated SUD education curriculum integrates exposure to SUD patients and peer recovery support-based community programs during preclinical years, provides medical students exposure to and certification to prescribe MAT as a future physician, and importantly prepares students to work with SUD patients in a patient-centered manner. We plan to formally assess the impact of this curriculum, as well as incorporate role-playing, case-based learning during MAT training, and faculty or peer feedback throughout the curriculum delivery. During the ongoing COVID-19 pandemic, we will integrate exposure to telehealth-based delivery of MAT, behavioral support, and follow-up of patients with SUD to enhance our current curriculum, and address the threat of worsening substance use crisis during the pandemic. In the future, we are also interested in assessing perceptions and stigma related to SUD among students, and the impact of this curriculum on these perceptions. This curricular integration may also be adapted to education for other health care professions, given that addressing SUD is an interprofessional process. We feel this innovative curriculum will not only allow USCSOMG-trained physicians to become frontline leaders in managing and ending the SUD epidemic while providing patient-centric care to SUD patients, but will also provide an example for other institutions to create their own curricula to train their students to be able to address SUD.

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Author Contributions

Haritha Pavuluri: Conception and design, analysis of data, drafting of manuscript and critical revision for important intellectual content, final approval of manuscript for submission.
Nicolas Poupore: Design, drafting of manuscript and critical revision for important intellectual content, final approval of manuscript for submission.
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Lauren Demosthenes: Critical revision for important intellectual content, final approval of manuscript for submission.

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