

Title: An interprofessional course on substance use disorders for health professions students completing a one-month psychiatry clerkship

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Focused question: Can an interprofessional course on substance use disorders (SUDs) improve future healthcare providers' attitudes toward patients with substance use disorders?

Background: Substance Use Disorders (SUDs) are a major public health problem in the United States affecting millions of Americans, causing significant morbidity and mortality, and costing the healthcare system billions annually.^{1,2} Despite the enormity of the current SUDs epidemic, a vast discrepancy exists between the number of individuals suffering from addiction and the health care resources currently allocated.¹ One major reason for this resource inadequacy results from a lack of healthcare professionals exposed to addiction medicine during their education and training. For example, the Liaison Committee on Medical Education (LCME) and the Medical School Objectives Projects (MSOP), which are two branches of the American Association of Medical Colleges of Education (AAMC), do not specifically require curricular time or clerkship training to be dedicated to SUDs for accreditation.¹ Medical schools have therefore been slow to increase lecture hours or establish clinical competencies in addiction. Furthermore, only a very small percentage of psychiatry didactics and/or clerkship clinical experiences are dedicated to SUDs, providing very little opportunity for medical students to learn about the complexities of addiction from scientific (neurobiology, genetics, assessment and pharmacology) to behavioral (motivational interviewing, cultural competency and provider bias) components.^{1,3-5} Not surprisingly, the medical literature is replete with articles describing medical students, residents, and physicians possessing negative and pessimistic attitudes toward patients with SUDs, feeling no reward in treating these patients and lacking competency to identify, assess, and manage SUDs.⁶⁻⁹ Reports from other health professions programs (pharmacy, physician assistant, nursing) also indicate similar deficiencies in the education and training of their respective students.¹⁰⁻¹³ Given the shift of drugs of abuse in our society (i.e., pain medication opiate abuse), as well as legalization of substances with addictive properties (i.e., marijuana), it is timely to improve provider education on SUDs early in their training.

In order to meet the treatment needs of an increasing patient population, several review articles have outlined changes desired in health professions curricula to improve student preparedness.^{1,3,5,10} These papers posit that in order to improve SUDs education, health professions programs must not only focus on teaching students the science of addiction (neurobiology and pharmacology) but also increase their exposure to both the struggles and successes of those with addiction through direct patient contact and case-based learning. This layered bio-psycho-social educational approach is positioned to achieve several goals for students: 1) increase foundational knowledge 2) improve awareness 3) develop an understanding of SUDs as a treatable medical disease 4) address and rectify past biases and enhance cultural competency and 5) create lifelong advocates. Successful programs have implemented SUDs training into their curricula in a variety of ways; from several days to several weeks and from online to experiential. These programs have reported significant changes in students' knowledge, attitudes, and practice behaviors immediately following course completion and up to several years later.^{2,6-9,14-16}

Currently at Duke, SUDs education is part of the basic science curriculum in the pharmacology of addictive drugs and the neuroscience of the dopamine system and reward pathways. The hours devoted to

this curriculum were reduced for the 2015-2016 academic year. Near the end of their first year, students are taught the Screening, Brief Intervention, and Referral to Treatment (SBIRT) method for screening patients for alcohol misuse in their Practice Course. Over academic years one and two, students are exposed to four clinical cases related to SUD, through case-based learning exercises, online simulations, and standardized patients. These sessions occur during their Practice Course, Clinical Skills Course, and Internal Medicine clerkship. During their four-week psychiatry clerkship, they have only one lecture on SUDs, ambitiously covering the epidemiology, common medical complications, diagnosis and treatment of SUDs, along with the recognition and treatment of acute intoxication and withdrawal. Students are required to attend an Alcoholics Anonymous or Narcotics Anonymous Meeting and write a reflection on their experience that is submitted to the clerkship director, Shelley Holmer (PI). Students do not rotate in settings where patients have SUDs as their primary problem, such as detoxification or rehabilitation units, though there are patients with SUDs as secondary diagnoses at all clinical sites on the psychiatry clerkship. Although students from other health professions programs (pharmacy, physician assistant, nursing, or social work students) will work with SUDs patients on their clerkship, there is no formalized SUDs training for them. The goal of this project is to fill this gap.

Specific aims: Recognizing the need to improve the education and training, and building upon recent supportive educational research, we will develop an interprofessional course on SUDs for health professions students completing a required psychiatry clerkship as part of their training. Our proposal seeks to take advantage of an existing four-week clerkship for students in the medical (MD), pharmacy (PharmD), and physician assistant (PA) programs. Additionally, social work students starting their nine-month internships at Duke Psychiatry clinical sites will also participate in the course. During this period, we will implement case-based interprofessional discussions, patient interviews, and reflection exercises to help our future health care providers recognize and intervene in a knowledgeable and compassionate manner in patients suffering from SUDs. Key goals of our course are to 1) to establish addiction as a treatable medical illness, 2) to improve students' ability to recognize and screen patients for SUDs, 3) build on students' foundational knowledge of addiction treatment, 4) enhance students' cultural competency toward patients with SUDs, and 5) create life-long advocates.

Methods: Health professions students assigned to a psychiatry clerkship will be required to complete our SUDs training starting in November 2015. Psychiatry clerkship directors for each of the respective health professions degree programs agreed to make SUDs training a mandatory component of this clerkship. Clerkships will be completed at Duke University Health System (DUHS) or at approved clinical training sites. Our training course will occur monthly during the study period, repeating with each new group of health professions students. We anticipate 10-14 students per month, with 140 students over the study.

On the first day of their clerkship, students will assess: 1) their own attitudes toward individuals with SUDs as measured by the Substance Abuse Attitude Scale (SAAS), 2) their attitudes toward interprofessional collaboration as measured by Interprofessional Attitudes Scale (IPAS), 3) their individual learning styles as measured by the Health Professions Inventory of Learning Styles (H-PILS).

Throughout their clinical rotation, students will come together for three one-hour class sessions led by faculty from the Department of Psychiatry and Behavioral Sciences and the Duke Institute for Brain Sciences. Class session topics will focus on four core areas in SUDs: 1) neurobiology/genetics, 2) screening/diagnosis, 2) treatment (pharmacotherapy and psychotherapeutic interventions), and 4) bias and cultural competency. Class sessions will utilize didactics, case-based learning, and faculty member facilitation of students' discussions. Outside of clerkship time, students will be provided online lectures and clinical simulations as well as read short general topic review articles prior to respective class session. In order to ensure consistency, the lectures, cases, and articles will be the same throughout the duration of this research project and developed by three faculty members (section champions) with expertise in each of the respective core content areas. All study project collaborators will facilitate class sessions based on their availability.

We will host class sessions on the Duke University Hospital campus. Use of a virtual classroom by way of Skype or Google Hangouts will allow students to join these class sessions if they are unable to attend. We will record class sessions and archive them online.

During their clinical rotation, students will complete one (< 30 minutes) patient counseling session (patients will provide prior approval). During this counseling session, students will have an opportunity to practice screening, motivational interviewing and/or medication counseling. A psychiatry resident and/or an attending psychiatrist at the students' clerkship site will directly observe the counseling session. The observers will assess students' counseling and communication skills as measured by the Liverpool Communication Skills Assessment Scale (LCSAS). Observers' assessments on the LCSAS will allow evaluators to provide structured feedback to students. All students will attend a twelve-step recovery meeting such as Alcoholics Anonymous or Narcotics Anonymous. Students will write a narrative of their experience of the course, which may reflect on reactions to the twelve-step meeting, their patient counseling sessions, or their overall thoughts and feelings about this course.

On the last day of the clerkship, students will reassess their attitudes toward SUDs as measured by the SAAS and interprofessional collaboration as measured by the IPAS. Lastly, all lectures, cases, articles, and video recordings will be stored on Duke's box.com and to the Duke Psychiatry Residency program's Dropbox.com account. Doing so will ensure all participating students have access to these materials.

Outcomes measurement:

Primary endpoint

- Students' scores on the SAAS

Primary outcome

- Comparison of students' scores on the SAAS pre- and post-course completion

Secondary endpoints

- Students' scores on the IPAS
- Students' scores on the H-PILS
- Second year Duke medical students' grades on the SUDs patient case portion of the Clinical Performance Examination for time periods 2015 and 2016
- Mean total GPA for Duke medical students' grade point average (GPA) entering their second-year of medical school for time periods 2014 and 2015

Secondary outcomes

- Comparison of students' scores on the IPAS pre- and post-course
- Description of students' scores on the H-PILS
- Comparison of second year Duke medical students' grades on the SUDs patient case portion of the Clinical Performance Examination for time periods 2015 and 2016
- Comparison of the mean total GPA for Duke medical students entering their second-year of medical school for time periods 2014 and 2015

Assessments

We will implement three assessment surveys in this course. The SAAS contains 25 questions with five level Likert-type responses ranging from "strongly disagree" to "strongly agree".¹⁷ The IPAS contains 27 questions with five level Likert-type responses ranging from "strongly disagree" to "strongly agree".¹⁸ The H-PILS contains 17 questions with four level responses including "usually", "sometimes", "rarely", and "hardly".¹⁹ Health professionals' learning styles are categorized as "accommodator", "assimilator", "converger", and "diverger". Students will also be able to view their results on the H-PILS in order to incorporate these findings into course discussions. Results from the H-PILS will help the study collaborators improve upon the design in future iterations of this course. The Students' participation on these surveys will be voluntary. Duke medical students are required by Duke SOM to complete a Clinical Performance Examination at the end of their second year of medical school training. We will collect students' grades on the SUDs patient case portion of this examination for the time-periods 2015 and 2016. We will compare students' scores from these two time-periods to determine the effect of our course

(2016) compared to the previous year (2015) where no formalized SUDs training existed. We will collect the mean total GPA for Duke medical students entering into their second year of medical school for years 2014 and 2015 to control for confounding to students' scores on the Clinical Performance Examination. LCSAS contains 12 items rated on a four-point scale from "unacceptable" to "good".²⁰ We will not collect observers' assessments on the LCSAS nor will collect any patient information. All assessment tools are validated for their respective assessment areas.

All assessment tools used are in the public domain or we have received permission for their use. Andrew Muzyk (PI) will use his Qualtrics account to build the surveys and to collect students' survey data. Qualtrics will generate one link specific for each survey then email it to participating students. For the SAAS and IPAS assessments, students' will provide their full name in order to perform pre- and post-clerkship comparisons. Importantly, we will code and then delete any identifying information to protect participating students. We will not collect any identifying information for the primary endpoint or for any of the other secondary endpoints.

All data will be stored on the personal desktop computer of Andrew Muzyk (PI), which is in a locked office suite, in a locked office, and is password protected. Dr. Muzyk will be responsible for collecting and coding all data. Dr. Muzyk will retain the master list of coded data and store it in a locked drawer in his office. No other study faculty or learners will be able to view students' personal information. Any data files sent to the study faculty will contain coded data only. We will alert participating students' of this study protocol.

We will seek statistical support from the Duke Department of Biostatistics and Bioinformatics. We submitted our project to the Duke IRB for approval as an exempt educational research project.

Challenges: We feel we have identified many of the challenges likely to be faced in completing this project and have already planned to avoid and/or mitigate them. Our interprofessional project team has extensive educational and research experience which will be instrumental in overcoming unforeseen obstacles and for the successful completion of this project. We anticipate that faculty development live lectures may be at times difficult to coordinate with schedules. We are committed to piloting the use of online lectures with help from the Duke Center for Instructional Technology (CIT).

Sustainability: Upon completion of this project we will use our findings to: 1) improve the curriculum of our professional students, 2) promote resident education in SUDs through discussions with Duke SOM and GME leadership, 3) seek a Duke Innovations Grant to develop a longitudinal SUDs course for primary care residents at DUHS, 4) seek additional grant support from other organizations, such as SAMSHA, the Macy, Ittleson, and Trent Foundations, for continued support of this course and for expansion of it into resident training, 5) seek an unrestricted medical education award from SGEA to support conference registration/travel in order to promote our course.

Opportunities for subsequent scholarship: We will seek out opportunities to present our findings at Duke AHEAD and organizational conferences involved with health professions education, psychiatry, and addiction. We will submit our project for presentation at the conference for medical student educators in psychiatry, ADMSEP, and for presentation at the Society for Neuroscience conference. Our resident champion on this project, who was accepted into the Residents as Teachers GME Concentration, will also have an opportunity to present her unique contributions to the project at her respective educational conferences. We will submit our findings for publication in journals involved with health professions education or addiction (such as Academic Medicine or Academic Psychiatry).

Broader Impacts: Our plan for this course is for students to achieve not only vertical integration of learning (from classroom to clerkship) but also horizontal integration (from clerkship to clerkship) and lifelong integration (clerkship to career). As students' progress through our course they will have numerous opportunities through didactics, case-based learning and facilitated class discussions, and

patient counseling sessions to establish competencies listed in Miller’s Pyramid of Assessment.²¹ They will move up from knowledge and competence to performance and action enabling cognitive and behavioral change. Although student outcomes are the focus of this project, there will also be opportunities for psychiatry resident and Duke University faculty and DUHS staff development.

Duke Psychiatry Residents We will invite psychiatry residents working with students on the psychiatry clerkship at DUHS to participate as observers in the student patient counseling sessions and feedback discussions. Residents can attend the three class sessions. From these experiences, residents will improve their knowledge of SUDs and cultural competency, but they will also develop their communication skills in providing student feedback. In the fall of 2015, Allie Thomas-Fannin, the resident champion for our project and a fourth-year Duke Psychiatry resident, along with Shelley Holmer (PI) will lead two separate one-hour class sessions for all Duke Psychiatry residents on providing student feedback. These class sessions will utilize an active learning approach, using videos of patient interviews and resident/medical student feedback sessions and role-play. Dr. Thomas-Fannin will continue to work with the residents throughout the year on the project of direct observation and feedback of students’ counseling sessions. In that role, she will ensure their core competency in screening, motivational interviewing and medication counseling. She will guide the residents in how to discuss issues of bias and cultural differences with the students. Additionally, all residents receive SUDs education (4-8 class sessions) each year coordinated by Drs. Muzyk and Szabo (PI and co-PI). All resident education occurs during their longitudinal academic half-day course.

Duke University faculty and DUHS staff Three one-hour presentations will be provided throughout the project grant year to interested individuals from Duke University and DUHS. The purpose of these presentations is to enhance participants’ knowledge, competency, and sensitivity toward SUDs. Topics for these presentations may include developing motivational interviewing skills, SBIRT training, pharmacotherapeutic treatments of SUDs, and advocating for individuals diagnosed with SUDs. Presenters may include Duke faculty in the Addictions Division (such as Ashwin Patkar, Division of Addictions, Department of Psychiatry and Behavioral Sciences) and from the North Carolina addictions advocates community (such as Fred Brason of Project Lazarus, members of TROSA and patient advocates from NAMI). We will film these presentations and archive them at the Health Professions Educator Website, of the Duke Medical Center library. Adhering to Kirkpatrick’s four levels of learning evaluation, we will ask presenters to create a short pre- and post- quiz to gauge attendees’ learning with each session (*Learning*).²² Attendees will share their responses with the audience to generate discussion and correct misunderstandings. We will also create a short assessment form for attendees to evaluate each session (*Reaction*). Finally, attendees to any of these sessions will receive an assessment form asking them whether the session(s) led to a change in practice behavior (*Application and Results*). We will build assessments in Qualtrics.

Project timeline:

8/15 – submit to IRB	9/15 – meet with Duke statistician. Create Qualtrics surveys.	10/15 – 1 st study collaborator meeting. Establish draft of project layout	11/15 – start project	7/16 – 2 nd study collaborator meeting
8/16 – complete project. Prepare manuscript	8/16-11/16 – prepare and submit manuscript. Seek out presentation and future grants	9/16 - Present findings at Duke AHEAD meeting	11/16 – close out project w/Duke AHEAD	

Resource needs and budget:

PI Effort	15% effort	\$1500.00
Consultant Costs	\$75 per lecture/per lecturer X 2 lectures/month X 10 months	\$1500.00
Consultant Costs	Statistician support \$50/hour X 20 hours	\$1000.00
Computer	Hardware (\$1500/laptop)	\$1500.00
	Software	\$0.00
Honoraria	3 speakers X 3 faculty development programs. \$500/speaker	\$1500.00
Travel	(1,000/trip)	\$1000.00
Other Expenses	Materials/supplies/food for faculty development programs X 3 programs and X 2 study collaborator meetings	\$2000.00
Total Costs for Proposed Project		\$10,000

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