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BRIEF MOTIVATIONAL INTERVIEWING FOR SUBSTANCE USE BY MEDICAL STUDENTS IS EFFECTIVE IN THE EMERGENCY DEPARTMENT

Alanna M. Balbi, BS,* Anthony E. Gak, MS,* Esther S. Kim, BA,* Tennessee D. Park, BA,* Joann F. Quinn, PHD, MBA,† Manuel F. Colon, BS,* Marna Rayl Greenberg, DO, MPH,* Paige Roth, MSW, LSW, CRS,* Kevin R. Weaver, DO,* David M. Richardson, MD,* David B. Burmeister, DO,* Stephen W. Dusza, DRPH,* and Robert D. Cannon, DO*

*Department of Emergency and Hospital Medicine, Lehigh Valley Hospital, USF Morsani College of Medicine, Allentown, Pennsylvania and †Department of Educational Affairs, USF Morsani College of Medicine, Tampa, Florida

Reprint Address: Marna Rayl Greenberg, DO, MPH, Department of Emergency and Hospital Medicine, Lehigh Valley Hospital, 1909 Earls Court, Allentown, PA 18103

☐ **Abstract—Background: Efficacy of medical student substance use interventions in the emergency department (ED) setting remains unstudied. Objective: In this pilot study, we set out to determine whether medical students could perform a brief motivational interview for substance use in the ED. Methods: At two hospitals, medical students utilized motivational interviewing skills taught by their medical school curriculum and administered a substance use intervention to ED patients who met the study definition of unhealthy substance use. Results: In 6 weeks, medical students gave a brief intervention to 102 subjects. The mean age of the subjects was 46.9 (standard deviation 15.6) years. The majority, 86 (86.3%) identified as white. Fifty-four (52.9%) identified as male. Eighty of 102 (78.4%) participants completed a phone follow-up assessment. Of the 69 smokers, 11 (15.9%) reported attempting to quit or quitting completely. Of the 33 with high-risk alcohol use, 11 (33.3%) were abstaining completely from alcohol use and an additional 12 (36.4%) reported a decrease in alcohol daily consumption (measured in drinks per day). Warm hand-off success for street drugs or at-risk alcohol use was 13.6% for those who received an intervention. Conclusions: It is feasible for medical students to perform a substance use intervention in the ED setting. Medical student contributions as a part of the team response to this public health crisis provide an opportunity for further discussion and research.**

☐ **Keywords—motivational interviewing; medical student; emergency**

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INTRODUCTION

Interventions based on motivational interviewing in the emergency department (ED) setting can be effective in helping to treat substance use disorders (1–7). In their Project ASSERT (Alcohol and Substance abuse Services, Education and Referral to Treatment) study, D'Onofrio et al. successfully utilized "health promotion advocates" who were specifically trained to carry out such interventions (Screening, Brief Intervention, and Referral to Treatment) in the ED (1). In another study, the interventions were carried out by the emergency physician (2). Still other studies describe therapist-led interventions, even one including interventions guided by a

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computer (3,4). However, a review of the literature shows an absence of studies involving substance use interventions that were primarily carried out by medical students. While medical students' curriculum may include motivational interviewing and other patient counseling techniques, the effectiveness of the students and their training has not been evaluated in the ED setting. In this pilot study, we set out to determine whether medical students could screen patients for substance use and complete a brief motivational intervention in the ED.

METHODS

After Institutional Review Board review and exemption from oversight, four medical students utilized motivational interviewing skills taught by their medical school curriculum and administered a previously validated and structured intervention over a 6-week summer immersion experience in 2017 to assess demographics and substance use patterns of patients at two hospitals in Pennsylvania (1). One hospital was a Level I trauma center with an annual census of 70,000 visits/year and the other was a community hospital with 60,000 visits/year. During assigned shifts (which were rotated systematically by site and time of day), students evaluated every patient in their assigned section (pod) for eligibility. To be eligible to participate, subjects had to be ≥ 18 years old, have capacity to answer survey questions and participate in the program interventions, not be critically ill, and meet study criteria for unhealthy substance use. These included tobacco products, alcoholic beverages, street drugs, or addictive prescription drugs (e.g., benzodiazepines, opioids), for which the patient reported they needed help waking up after using the prescription medication. We defined at-risk alcohol use, per the National Institute on Alcohol Abuse and Alcoholism, as 4 drinks per occasion or 14 drinks per week for men and 3 drinks per occasion or 7 drinks per week for women and patients aged 65 years and older (8). Available resources were provided based on the type of substance(s) patients used. Patients at risk for opiate overdose were offered a naloxone kit, and standardized online training (www.getnaloxonenow.org) was provided to their accompanying family member or friend. The students delivered a brief intervention that included elements of screening (e.g., how much, how often was a substance used), advice to quit or moderate (depending on substance risk definition), assessment of readiness to change, and assistance in planning the recommended behavior change (1–10). After the brief counseling, and as a final element in the intervention, students provided patients with referral to appropriate treatment for identified subjects. Subject outcomes were assessed through a phone follow-up survey.

RESULTS

There were 1,443 patients (1,132 at the trauma center and 311 at the community hospital) screened. There were 1,310 excluded, most commonly because they did not meet the criteria of high-risk substance use defined by the study (n = 1,063), were too ill to participate (n = 81), or "other" (n = 126). Twenty-nine patients who met inclusion criteria refused, or started and did not complete, an intervention, and 11 did not participate because the resident or attending caring for the patient asked the student not to do the intervention. Thus, 102 (7.1%) met inclusion criteria and were given an intervention. The mean age of interviewed subjects was 46.9 (standard deviation 15.6) years. The majority (n = 86 [84.3%]) identified as white. The sex distribution of subjects was nearly equal: 54 male and 48 female. At baseline, 87 subjects acknowledged that they were currently using tobacco products. The median number of cigarettes smoked/day per participant was 10. Fifty (49.0%) participants were deemed at-risk drinkers, reporting a median of 4 drinks/day at baseline. Twenty-two (21.6%) participants reported use of street drugs or narcotics without prescription in the past 30 days. Of the 102 patients, 55 (53.9%) reported using one of three substance classes, 37 (36.3%) reported using two substance classes, and 10 (9.8%) reported regular use of all three classes of substances within the past 30 days.

At the end of the baseline intervention, 34 (33.3%) patients refused referral for smoking, drinking, or drug use. However, participants were generally very willing to accept that they needed to change their negative health behaviors. On a scale of 0 to 10, with 10 indicating high motivation to change, smokers reported a median of 6, drinkers reported a median of 7, and users of street drugs or non-prescribed narcotics reported a median of 10. A total of 69 of 87 (79.3%) subjects who reported smoking at baseline were successfully contacted for follow-up. Of these, 11 (15.9%) reported not smoking in the past 7 days. Only 5 of 22 (22.7%) patients who reported use of street drugs or narcotics could be reached for follow-up. However, 3 of 5 (60%) report attempting to quit by either attending an inpatient facility (n = 1) or meeting with a drug counselor after the baseline visit (n = 2). Of the 50 patients at baseline who were deemed at risk drinkers, 26 (52.0%) completed follow-up evaluation. Of these patients, 14 (53.8%) reported fewer drinks per day than at the baseline assessment.

DISCUSSION

While only a pilot study, our findings indicate that medical students can be successfully utilized in the ED

setting to assist patients with substance use disorder. Brief interventions utilizing motivational interviewing can be incorporated into a patient's visit without any harm, such as a negative impact on their care or disruption to hospital staff workflow. While it is important to recognize that students are first and foremost learners, substance use disorder is a public health crisis and all possible avenues for addressing this situation must be explored. According to the Centers for Disease Control and Prevention, Pennsylvania had the fifth highest rate of drug overdose deaths in 2016, at a rate of 37.9 drug overdoses per 100,000 people (9). Additionally, Pennsylvania had a statistically significant increase in drug overdose deaths between 2015 and 2016 (10). Continued research will be necessary to demonstrate whether brief interventions performed by medical students has a measurable impact on the outcomes of patients with a substance use disorder.

Limitations

In addition to small sample size, one potential limitation of our study is the homogeneity of the population studied. We screened patients in both an urban and suburban setting in northeastern Pennsylvania, but there was limited racial or ethnic diversity, as the majority of subjects identified as white. Another potential source of bias is that we were limited to English-speaking patients, due to the fact that we did not have the resources to conduct a phone follow-up survey with a translator. Additionally, there were patients who were at risk and did not receive an intervention at the request of the resident/attending caring for them—the impact on the study outcomes for this potential bias is not known. Other possible limitations include the fact that this was a convenience sample of subjects; the time to complete the intervention, while brief, may have varied and the length of time was not recorded; medical student shifts did not run 24/7 in the ED; and we did not assess or account for inter-rater reliability between the medical students, as they had all received the same training in motivational interviewing.

CONCLUSIONS

This pilot study demonstrates it is feasible for medical students to perform a substance use intervention in the ED setting. These results suggest that medical student contributions, as a part of the team response to this public health crisis, provide an opportunity for further discussion and research.

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ARTICLE SUMMARY

1. Why is this topic important?

Avenues in the emergency department (ED) setting that show promise in mitigating the public health crisis of substance use disorder should be explored.

2. What does this study attempt to show?

We set out to determine whether medical students could perform a brief motivational interview for substance use in the ED.

3. What are the key findings?

It is feasible for medical students to perform a substance use intervention in the ED setting.

4. How is patient care impacted?

Smokers, those with high-risk alcohol use, or those with street drug use can have decreased substance utilization and warm hand-off referral after a medical student brief ED intervention.