

Utilization of Peer-Based Substance Use Disorder and Recovery Interventions in Rural Emergency Departments: Patient Characteristics and Exploratory Analysis

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The current opioid crisis has necessitated timely, grassroots social entrepreneurship from stakeholders involved in the substance-use disorder and recovery fields. One such innovation involves the use of peer-recovery-support services in acute settings in which points of contact are made with high-risk substance-using populations. These programs have emerged organically in emergency departments (EDs) across the country. The Georgia Council on Substance Abuse, Northeast Georgia Community Connections Program is a peer-recovery-support service (PRSS) that uses certified addiction-recovery empowerment specialists (CARES) in rural EDs in Georgia, a Medicaid nonexpansion state. In this study, we reviewed initial data from the Community Connections Program captured at rural EDs. Patients ($N = 205$) met the American Psychiatric Association's (2013) *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*) criteria for substance-use disorder. This study demonstrated that peer interventions can be beneficial for all types of drug use, not just for individuals who experience accidental opioid drug poisoning (i.e., overdose). In addition, results suggest that both clinical and community-based supports can be used for referrals to appropriate levels of care. These findings also highlight the utility of innovative and adaptive peer-recovery-support programs in rural EDs across the United States.

Keywords: peer recovery supports, peer specialists, emergency department, substance use disorder, recovery

The opioid crisis in the United States has been a driving force behind grassroots innovations in the substance-use disorder (SUD) and recovery field (Christie et al., 2017). This crisis has fueled an increase in awareness and political willpower as the rates of death from drug poisonings have increased over the last decade

(Christie et al., 2017). According to the United States surgeon general's most recent report on alcohol and other drugs, the impact of SUD has a staggering cost in terms of both lives and in dollars (U.S. Office of the Surgeon General, 2016). In addition, a resurgence in methamphetamine usage, prescription drug misuse, and the

This article was published Online First November 29, 2018.

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We thank the Georgia Council for their partnership on this study, as well as Morgan for the thoughtful insight and editing.

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ongoing associated problems with alcohol use compound the ongoing public health issue of substance use (Grant et al., 2015, 2016; U.S. Drug Enforcement Agency, 2017).

Classic intervention and support mechanisms, such as mutual aid groups and SUD treatment programs (e.g., residential, partial hospitalization, and outpatient programs) have been shown to be effective in addressing substance-use problems (Miller, & Moyers, 2015; National Institute of Drug Abuse, 2016; Zemore, Lui, Mericle, Hemberg, & Kaskutas, 2018). However, the prevalence of SUD in the United States continues to be a prominent public health issue (Grant et al., 2015, 2016). Prevalence of the disorder notwithstanding, substance use also contributes to societal harms, such as an increase in disability-adjusted life years lost (Whiteford et al., 2013) and decreases in workforce productivity (Bouchery, Harwood, Sacks, Simon, & Brewer, 2011). Access to professional treatment, medical care, and other fee-for-service interventions remain out of reach for many individuals struggling with SUD for several reasons, such as lack of health insurance, underinsurance, socioeconomic challenges, and/or geographic isolation (Raven et al., 2010; Sexton, Carlson, Leukefeld, & Booth, 2008). Residents of rural areas often access care through hospital emergency departments (EDs) when they are in crisis (Duber et al., 2018; Greenwood-Ericksen, Tipirneni, & Abir, 2017).

The sheer magnitude and deadliness of the current opioid crisis over the last decade, coupled with the over 42,000 deaths attributable to licit and illicit opioid use in 2016 alone (Hedegaard, Warner, & Miniño, 2016; Rudd, Seth, David, & Scholl, 2016), have resulted in an increase in public outcry (Witkiewitz & Vowles, 2018). Although there have been recent increases in government funding (Furlow, 2017; Kennedy-Stewart, 2016) and policy advancements, such as prescription drug-monitoring programs and opioid-prescribing education (Haegerich, Paulozzi, Manns, & Jones, 2014), there also have been system-based solutions involving service-delivery methods and means (Haberle et al., 2014; Samet, Friedmann, & Saitz, 2001; Solomon, 2004).

Those innovating through service delivery in response to the opioid epidemic have focused on mobilizing traditional community-based supports, such as peer-recovery coaching within the crisis-management system (White & Evans, 2013; White, Kelly, & Roth, 2012). Individuals

with SUD often come into contact with frontline services such as emergency-care providers and crisis stabilization (Smith, Stocks, & Santora, 2015). As such, strategic placement of peer-based community support embedded within frontline services offers a timely opportunity for intervention. Peer-delivered support services within critical public systems, such as an ED or psychiatric hospital, have shown promising preliminary results in other studies and should be further explored (Bassuk, Hanson, Greene, Richard, & Laudet, 2016; Myrick & del Vecchio, 2016).

Many states in the South have failed to expand Medicaid services after the passing of the Affordable Care Act (ACA; Kilgour, 2015). According to the Substance Abuse Research Alliance (SARA, 2017), as of 2014, 55 of Georgia's 159 counties had a drug-poisoning, or overdose, death rate that was higher than the United States average. Of those counties with higher than average rates, most of them (60%) are in rural areas. Almost 77% of all rural counties in Georgia have little or no access to SUD treatment for opioid-use disorder, including pharmacotherapy. Georgia's decision not to expand Medicaid has created barriers to accessing SUD treatment (SARA, 2017). A recent study found that, in the rural South, two common barriers to treatment initiation and recovery were the limited availability of services and the cost of care (Browne et al., 2016). This places rural Georgians at a distinct disadvantage for initiating or maintaining SUD recovery. Given that the demographic and socioeconomic nature of individuals in rural settings places them at a disadvantage in accessing appropriate SUD services, the introduction of peer-delivered services within rural health-care systems is one innovative approach that may prove to have lasting positive impacts on SUD outcomes.

In SUD recovery, peer-recovery-support services (PRSS) date back to the emergence of mutual aid societies in the 1800's (White, 2006). The underlying belief is that individuals, who themselves are in recovery from behavioral or physical health disorders, are uniquely qualified through their own experiential learning to assist others in similar situations (White, 2009). The deliberate incorporation of PRSS in SUD intervention and treatment is a relatively recent trend that capitalizes on the benefits of peer-based support within more clinical environments (Myrick & del Vecchio, 2016). Treat-

ment models are beginning to shift from crisis stabilization only toward ongoing recovery management. As an outgrowth of the disability-rights movement, PRSS are part of a larger social justice paradigm that upholds the values of self-directed care management and help seeking as a source of parallel empowerment and inclusivity for those affected with disorders and incapacities (Poll, Duffy, Hatton, Sanderson, & Routledge, 2006). For underserved, marginalized, or otherwise stigmatized populations, peer-based support within the larger clinical and treatment frameworks can help facilitate advocacy, and peers can individually serve as an envoy into external recovery communities (Gagne, Finch, Myrick, & Davis, 2018).

The placement of PRSS coaches within an EDs has occurred in several areas of the United States (Luthra, 2016), which is usually facilitated through community nonprofits or recovery-community organizations (RCOs), rather than through EDs or hospital systems (Myrick, & del Vecchio, 2016). RCOs have traditionally served as brick-and-mortar centers for those in recovery or seeking recovery while providing meeting spaces, resources, and connections to other recovery-related services (Haberle et al., 2014). In Rhode Island, for example, AnchorED was one of the first RCOs to employ certified recovery coaches to engage with ED patients who survive opiate overdose (Knopf, 2017b; Samuels, 2014). As an RCO, AnchorED strives to educate patients and family members about the recovery process and provide assertive links for patients to connect with external recovery resources while offering ongoing postdischarge support (Joyce & Bailey, 2015). AnchorED recovery coaches undergo mandatory supervision at least twice a month and must check in with the ED charge nurse on arrival and departure (Joyce & Bailey, 2015). From July 2014 to June 2015, recovery coaches visited 230 patients through the AnchorED program. Many of these patients (83%) used recovery supports after discharge, and a majority of then engaged a local RCO. Only 5% of those patients were readmitted to the ED many times (Joyce & Bailey, 2015).

We embarked on the current study as an exploratory evaluation of a PRSS intervention program within rural EDs in Georgia. The Georgia Council on Substance Abuse (GCSA) piloted the Northeast Georgia Community Connections Project (NEGCC), which uses certified PRSS specialists in three rural EDs. The goal of

this study was to analyze archival data collected during the first year of the pilot program to characterize and describe (a) the utility of PRSS, (b) the engaged patient population, and (c) relationships between services provided and patient characteristics.

Method

Community Connections Program

The Georgia Certified Addiction Recovery Empowerment Specialist (CARES) program is a curriculum that certifies that each peer has been trained in accordance with the standards of the Partners for Change Outcome Management System (PCOMS; Duncan & Reese, 2015), recovery-management check-ups, motivational interviewing, advocacy strategy, and linguistic empowerment, all of which are listed in the United States Substance Abuse and Mental Health Services Administration catalog of evidence-based strategies (SAMHSA, 2018), and all of which are in accordance with recovery-oriented systems of care (ROSC) (DiClemente et al., 2016).

The Northeast Community Connections Program (NECCP) pilot is facilitated by the GCSA in partnership with the Northeast Georgia Medical Center (NGMC) and Georgia's Department of Behavioral Health and Developmental Disabilities (DBHDD). The program provides peer support to individuals having experienced an opioid overdose or who receive a substance-use disorder diagnosis in NGMC's three campus EDs: Gainesville, Braselton, and Winder.

Participants

Participants ($N = 205$) had a mean age of 39.94 years ($SD = 13.57$), with the majority being men (65.9%), White/Caucasian (92.7%), single (61.9%), and having household-income levels of \$0–24,999 (78.5%). Most participants had no religious affiliation (59.5%), did not use tobacco (56.6%), and were not veterans (95.7%). More than half of the participants (58.5%) were uninsured and averaged 1.45 ($SD = 1.87$) ED visits in the previous 12 months. Participants lived primarily in northern Georgia. Full participant demographics are available in Table 1.

Table 1
Participant Demographic Characteristics

Variable	(N = 205)	
	n	(%)
Age (years): $M = 39.94$, $SD = 13.57$		
Gender		
Male	135	(65.9)
Female	70	(34.1)
Race		
White	190	(92.7)
Other	15	(7.3)
Ethnicity		
Hispanic/Latino	13	(6.3)
Marital status		
Single	127	(61.9)
Married/domestic partnership	49	(23.9)
Divorced/separated	29	(14.2)
Income level		
\$0–24,999	161	(78.5)
\$25–49,999	28	(13.7)
\$50–74,999	14	(6.8)
Over \$75,000	2	(1.0)
Housing status at first engagement		
No stable housing	30	(14.6)
Pregnancy status		
Pregnant	1	(.5)
Religious affiliation		
Christian	83	(40.5)
None	122	(59.5)
Veteran status		
Veteran	8	(4.3)
Tobacco use		
Yes	89	(43.4)
Insurance coverage		
Uninsured	120	(58.5)
Medicaid	38	(18.5)
Private insurance	47	(23.0)

Note. Number of past-year emergency room visits = 85, $M = 1.45$, $SD = 1.87$.

Recruitment

Participants recruited for the study were patients seen at one of the three rural Georgia EDs (mentioned above) participating in the NECCP. Participants were considered eligible for inclusion in the program if they received an SUD diagnosis, according to the 5th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM–5; American Psychiatric Association, 2013)* criteria, by the attending qualified mental health professional. A screening professional, qualified to make *DSM–5* diagnoses for SUD, was dispatched from the Laurelwood psychiatric unit located within the NGMC

in Gainesville to complete patient screenings. Upon a positive SUD screening, the SUD diagnosis was entered into the electronic health record (EHR) and a PRSS specialist was notified to begin engagement with the patient.

All data analyzed for this study were collected and entered by the peer specialists from the initial contact, along with any follow-up engagements. Archival data provided for this exploratory evaluation did not include specific SUD-diagnoses (e.g., opioid-use disorder, alcohol-use disorder [AUD]), as the only EHR information provided was a proxy, binary variable of *yes/no* for “received a SUD DX during ED visit.” As such, all data used for this study were collected via self-report measures and interviews with the peer specialists during initial and follow-up engagements. Patients provided consent that data collected from the engagement or EHR could be used for future program evaluation. The study was identified as exempt by the Kennesaw State University Institutional Review Board, as it made use of de-identified archival data that were collected for clinical purposes.

Measures

During initial and follow-up engagements, peer specialists collected data from participants via semistructured interviews and self-report questions. GSCA program staff created the self-report questions. Engagements were defined as any contact through any channel (e.g., in person, phone call, text message) between participant and peer.

We used the following variables in this exploratory study: (a) self-reported regular substance use (note: “regular” substance use was participant-defined), (b) accidental drug poisoning (i.e., overdose) prior to ED admission, (c) peer engagement (binary variable), (d) clinical referrals given (labeled referral Type I), (e) community-services referrals given (labeled referral Type II), (f) peer-engagement completion platform, (g) self-reported insurance-coverage status, (h) self-reported ED visits in the past 12 months, and (j) initial participant response to peer engagement.

Data Analysis

All data were analyzed with SPSS Version 24.0. Descriptive statistics (e.g., mean, standard deviations, percentages) were analyzed for all

participants. Following the initial descriptive analysis, it was determined that ad hoc testing of demographic and other variables would be beneficial to identify any significant relationships that might warrant future study. Significance for these tests was determined a priori at .05, and only significant relationships are presented.

Pearson χ^2 tests were used for all tests in which variables of interest met the required assumptions (e.g., a comparison table for the χ^2 tests had less than one cell in five with the expected five-response count; Cochran, 1954). In scenarios in which this assumption was violated, the Monte Carlo χ^2 method (Mehta & Patel, 2012; Siegmund, 1976) was used. The Monte Carlo method provides an unbiased estimate of the exact p value using repeated sampling techniques (Mehta & Patel, 2012). All tests using the Monte Carlo method were performed using 500,000 repeated samples, random starting seed, and a 99% confidence interval (CI). Results from each Monte Carlo test are reported using the χ^2 likelihood-ratio (LR) statistic, degrees of freedom (df), simulated exact p value, the 99% CI, $\chi^2(df, N) = LR$ value, and p value with 99% CI.

Data Exclusion

Participants recruited from Program Sites 2 and 3 were excluded from the final analysis in the current study. Pearson and Monte Carlo χ^2 tests found no statistically significant relationships among participant demographic characteristics and most outcome variables (only the relationship between alcohol use and program site was statistically significant, $\chi^2(2, 236) = 10.1158, p = .005, 99\% \text{ CI } [.005, .006]$). However, the number of participants from Sites 2 ($n = 23$) and 3 ($n = 8$) was much lower than from Site 1 ($n = 205$). Given the variance in participant recruitment and the lack of statistical significance as noted above, participants from Sites 2 and 3 were excluded. Potential issues associated with the differences among sites are included in the Discussion.

Results

Substance Use, Drug Poisoning, and Peer Engagement

Participants engaged by CARES peer specialists self-reported using a variety of sub-

stances regularly, with the most common being alcohol (57.1%), followed by methamphetamine (26.3%), and prescription opioids (16.6%); the least common substance regularly used was cocaine (9.8%). In addition, a minority of participants (6.8%) had experienced an accidental drug poisoning prior to admission in the ED; of these participants, only 57.1% had been administered naloxone. Only a small number of participants (3.9%) had a loved one present in the ED at the time of admission.

Most participants (67.8%) were interested in the initial peer engagement and requested a follow-up engagement. Only 7.3% of participants were not interested in any engagement with a peer specialist. Although 24.9% of participants had only an initial interest in a single peer engagement, 77.1% of all participants had multiple engagements with a peer specialist. Full descriptive outcomes are listed in Table 2.

Outgoing Participant Referrals

Participants were provided two distinct types of referrals during peer engagements. The first type (Type I) contained referrals to a distinct level of care (e.g., withdrawal management, recovery residence); the second type (Type II) contained community-based referrals (e.g., mutual-aid support groups). Peer engagements were completed through multiple channels, most often over the telephone (60.0%), in person (22.4%), or through text messaging (14.6%).

Only a small percentage of participants declined Type-I referrals (5.4%) or Type-II referrals (9.3%). The majority of Type-I referrals led to withdrawal management (17.1%), inpatient residential rehabilitation (11.7%), or the participant's home (13.2%). Many participants (45.9%) were categorized as having an "other" Type-I referral, which included any Type-I referral not categorized as declined referral, recovery residence, withdrawal management, inpatient facility, outpatient facility, medical floor/ICU, or home. The majority of Type-II referrals were to the Recovery WARM line (a telephonic peer-support line; 27.3%) and 12-step mutual aid groups (22.4%). In addition, a large percentage of participants (34.1%) were not provided any Type-II referral. All Type-I and -II referrals are listed in Table 3.

Table 2
Admissions, Substances Used, and Engagement Levels of Patients

Variable	(N = 236)	
	n	(%)
OD at admission		
Yes	14	(6.8)
Received OD education		
Yes	3	(1.5)
Naloxone administered		
Yes	8	(3.9)
Loved one present at admission		
Yes	8	(3.9)
Substances regularly used*		
Alcohol	117	(57.1)
Cocaine	20	(9.8)
Heroin	26	(12.7)
Prescription opioids	34	(16.6)
Benzodiazepines	28	(13.7)
Methamphetamine	54	(26.3)
Marijuana	25	(12.2)
Patient initial response to peer engagement		
Not interested	15	(7.3)
Requested follow-up	139	(67.8)
Initial engagement only	51	(24.9)
Actual engagements with peer specialist		
Multiple engagements	158	(77.1)
Single engagement	47	(22.9)
Patient engagement disposition		
Completed	115	(56.1)
Follow-up ongoing	90	(43.9)
Incoming referral source		
Area 1 (Gainesville)	205	(100.0)

Note. OD = overdose.

* Totals are greater than 100% because of multiple responses.

Exploratory Relationships

Insurance status and Type-I referral. Results from the Monte Carlo χ^2 test suggested that the relationship between the Type-I referral provided to participant and participant insurance status was significant, $\chi^2(14, N = 205) = 26.769, p = .020$ (99% CI, [.019, .021]). Those individuals with Medicaid coverage were more likely to be referred to withdrawal management services and those with private insurance were more likely to be referred to inpatient rehabilitation services.

ED visits and substances regularly used. Results for the regular alcohol-use Monte Carlo tests suggested that the relationship between the number of ED visits in the previous 12 months

and regular alcohol use was significant, $\chi^2(3, N = 53) = 8.304, p = .013$ (99% CI, [.012, .014]). Participants reporting regular alcohol use were more likely to have 4–6 ED visits in the past year, whereas those reporting no regular alcohol use were more likely to have 1–3 ED visits in the past year.

Multiple engagements and substances regularly used. Results from the Pearson chi-square test suggested that the relationship between having multiple peer specialist engagements and regular alcohol use was significant ($\chi^2(1, N = 205) = 6.898, p = .009$). Participants reporting regular alcohol use were more likely to have multiple engagements with the peer specialist than those participants who did not report regular alcohol use.

Response to initial peer engagement and substances regularly used. Results for the regular benzodiazepine -use Monte Carlo tests suggested that the relationship between the participant response to the initial peer engagement and regular benzodiazepine use was significant, $\chi^2(1, 205) = 6.911, p = .33$ (99% CI, [.033, .034]). Participants reporting regular benzodiaz-

Table 3
Outgoing Referrals and Platform Used for Engagement of Patients

Variable	(N = 236)	
	n	(%)
Outgoing referral: Level of care		
Declined	11	(5.4)
Recovery residence	5	(2.4)
Withdrawal management	35	(17.1)
Inpatient facility	24	(11.7)
Outpatient facility	6	(2.9)
Medical floor/ICU	3	(1.5)
Home	27	(13.2)
Other	94	(45.9)
Outgoing referral: Social supports		
Declined	19	(9.3)
12-step mutual aid	46	(22.4)
Faith-based mutual aid	14	(6.8)
WARM line	56	(27.3)
None	70	(34.1)
Platform used for peer engagement		
Phone call	123	(60.0)
Text message	30	(14.6)
In person	46	(22.4)
Social media	6	(3.0)

Note. ICU = Intensive Care Unit; WARM line = peer-facilitated telephonic engagement.

epine use were more likely not to be interested in peer services, or they would be interested without requesting a follow-up than those individuals who did not report regular benzodiazepine use.

Discussion

SUD patients historically have been stigmatized in medical settings, including in EDs (van Boekel, Brouwers, van Weeghel, & Garretsen, 2013). In addition, ED staff often work under considerable stress, given the environment and nature of emergency work (Adriaenssens, De Gucht, & Maes, 2015). These two factors in combination can contribute to lost opportunities to help initiate the recovery process. Often, SUD patients are processed by hospital staff and released without meaningful engagement, only to return in the near future (Frazier et al., 2017). The opportunity to initiate support for SUD is typically time-limited and may be as short as a few hours. Motivation for change is a dynamic process and individuals who use substances may vacillate between stages of readiness even after an acute crisis (Pollini, O'Toole, Ford, & Bigelow, 2006). However, EDs can use the acute-crisis contact as an opportunity to complete assessment, intervention, and service linkage (Blow et al., 2010).

Various studies on formalized motivational interviewing and brief interventions in EDs have shown inconclusive results (Kim et al., 2017; Merz, Baptista, & Haller, 2015; Saitz et al., 2014). However, failure to meaningfully engage SUD patients at the point of crisis in EDs can result in the loss of a potential window for effective intervention and may even place the patient at increased risk for rehospitalization (Nordeck et al., 2018). Ideally, patients would perceive contacts as helpful and salient. Interventions employing motivational interviewing (MI) techniques may have increased utility when enacted through the use of peer specialists. MI is highly dependent on the credibility and style of the interviewer (Hagger & Hardcastle, 2014); therefore, those with lived experiences in substance use and recovery may be more likely to be perceived as insiders with pertinent knowledge. Findings suggest that peers in the current study leveraged their lived experiences successfully, with over 77% of participants having multiple contacts, which indi-

cates not only a high level of overall engagement, but that 7.9% of an initially resistant population (four of 51 participants) elected to request a follow-up.

Despite focus on the current opioid crisis, the majority of the population with SUD still struggles with alcohol, methamphetamines, benzodiazepines, and/or polysubstance issues; this can be seen nationally (SAMHSA, 2017), as well as within the sample of this study. Programs that initiate contact within the crisis setting of an ED should be able to engage patients who have any type of SUD or poly-SUD. Although peer-based ED programs seem to have grown in proportion to the opioid crisis (Knopf, 2017a), the advantage of such programs would appear to be their potential impact and high engagement with patients, regardless of primary substance of use.

Peer-based interventions strive to identify systemic barriers and ecological deficiencies while assessing interest in seeking help. Ideally, interested clients would be given both formal and informal options for dealing with their SUDs, as well as referrals for non-SUD-specific issues such as mental health, stable housing, and related issues. Findings from the current study suggest that the use of clinical and nonclinical support structures is well-integrated into the program's framework which is evidenced by the high rate of multiple participant engagements (over 77%). The use of peers to assist in the assessment and planning of other patient needs (e.g., recovery coaching) is likely to be beneficial as the program expands.

The strength of the NECCP stems from the successful engagement rate of peers to patients, the capacity to address both opioid-specific and other SUDs, and the bridging of gaps between social support and formal clinical support. As a grassroots model developed within a rural health-care system, the program is sensitive to the myriad demographic variables specific to the setting and fills a needed gap in service delivery within EDs. Identification of population-specific needs, coupled with a responsiveness to such needs, is critically important for any localized peer-based mechanism of support. The findings suggest that the demand for PRSS is high, with many of the participants having had multiple peer engagements. Appropriate implementation is a common concern of the integration of SUD services into health-care systems (Davidson, Bellamy, Guy, & Miller,

2012; Mancini, 2018; Vandewalle et al., 2016) and our results suggest that PRSS can be integrated into larger clinical frameworks, such as EDs.

The discussion and criticism of appropriate responses to SUD in United States society is becoming less distinct from the overall criticisms of the system in the United States centering on health-care access and affordability (Osborn, Squires, Doty, Sarnak, & Schneider, 2016). The failure to engage a significant portion of the population with SUDs through meaningful treatment interventions is of great concern. In fact, only 10% of those meeting criteria for SUD in the United States receive treatment each year (Center for Behavioral Health Statistics & Quality, 2017). Although many of these individuals do not believe they need treatment, the existing SUD-treatment infrastructure is insufficient and unable to adequately adapt to actual capacity needs (McLellan, Carise, & Kleber, 2003). Peer-based programs, such as the NECCP, may be a valuable addition to the current SUD-treatment infrastructure.

Treatment-capacity gaps pose risks to particularly vulnerable Medicaid patients and the uninsured (Wen, Druss, & Cummings, 2015). For those with Medicaid, referral to SUD treatment does occur; however, referral to services such as withdrawal management in lieu of comprehensive or long-term care reflects serious gaps in service provision and coverage. This is a particularly dangerous phenomenon for those with OUD or in danger of accidental overdose following acute care (Strang, 2015). In the current study, participants with private insurance coverage were more likely to be referred to more comprehensive levels of clinical care, whereas those with Medicaid (or with no insurance) were more likely to be referred to withdrawal-management services. Peer-based intervention programs should carefully evaluate the risk and benefits of each referral and balance community-based support referrals to mitigate gaps in clinical care because of insurance or underinsurance.

Alcohol use was one of the chief associations with multiple hospital visits in the preceding 12 months for participants engaged in the program. As such, peer-based interventionists may want to increase focus on this specific factor, both in the NECCP model and in other ED peer-based

programs. AUD is frequently present in combination with other SUDs (Stinson et al., 2005), and peers with polysubstance use experience have much to offer. Use of peers with this history may help to bridge the gap between austere clinical recommendations and personal knowledge of entering into the local recovery communities and services. By telling their own stories, peers may help by informing patients about what to expect in clinical referrals and which community-based support services may be the most appealing. Of primary importance, patient-to-peer contact should be relatable to the patient's current issues to meaningfully connect and engage patients. Therefore, it is likely critical that a peer-support specialist with diverse lived experiences be employed.

Participants who reported regular benzodiazepine use were the most disinterested in peer support. This population can provide an opportunity to develop tailored engagement initiatives, which may include the implementation of contingency-management practices, such as financial incentives (Giles, Robalino, McColl, Sniehotta, & Adams, 2014), or a peer-to-patient matching protocol based on lived experience. Considering the inherent dangers of concurrent benzodiazepine and alcohol use (Linnoila, 1990) and the potential that benzodiazepines may be used with opioids (Webster, 2010), brief education about drug action and interaction, toxicity, and accidental drug poisoning can be incorporated into brief interventions in EDs. Although a full-scale peer engagement may not be possible because of a lack of interest, the transmission of valuable harm-reduction information can be a primary goal.

Limitations

The current study findings must be viewed in light of several limitations. First, the study is exploratory in nature and results should be interpreted as preliminary and descriptive. All data analyzed were administrative (i.e., collected by the program and then later provided to us for evaluation) and variables included in data collection were chosen on the basis of programmatic needs, rather than with evaluation in mind. As such, many variables of interest were not collected or available for this exploratory evaluation. In addition, data were collected via participant self-reported measures, which are

not as robust as clinically collected data (e.g., urinalysis lab testing). Future evaluators of the NECCP and other such community programs may take this into consideration and work with an evaluation team to design more rigorous data-collection procedures.

Although referrals to local resources were given to patients, the lack of information related to whether participants followed up on these referrals brings into question the efficacy of the peer-based program in truly connecting individuals to resources. It is also common in prevention and intervention programs to provide the characteristics of the staff delivering the program; in the current study, these data were unavailable, and as such, any impact that the characteristics of peer staff had on outcomes evaluated is unknown.

In the original data set, most participants (86.9%) originated in the Area 1 ED program site (Gainesville, GA). Given the variance in participants from Areas 2 and 3, compared with Area 1, it appears as if some unknown confound (e.g., implementation problems of the pilot program, patient-screening errors) occurred in two of the EDs. Because we could not determine the causes of the variance from the administrative data, we elected to focus on Area 1, which had a large enough sample to allow for statistical analyses. Future research that includes multiple sites should evaluate the implementation efficacy across locations (e.g., comparing Site 1 with Site 2), as well as verify the total number of ED-patient diagnoses of SUD and comparing this number with those who received peer referrals.

Finally, lacking clinical needs assessments of each participant calls into question the validity of the outgoing referrals the peers made. These referrals ideally would have matched clinical need when possible, but without assessment data, it was not possible to assess whether actual referrals made were appropriate, given the clinical necessity.

Future Directions

Findings from the current study suggest that peer-based interventions are successful in engaging patients with SUD across a spectrum of primary substances used. Future research should be designed to first explore the long-term outcomes of similar patient populations, including the long-

term engagement with referrals, follow-up rates using peer specialists, and recovery-related outcomes and functional life improvements. In addition, peer-based programs would benefit from a quasi-experimental trial, comparing the outcomes of patients assigned a peer-support specialist, those assigned a more professional staff (such as clinical social workers), and those assigned only to a medical practitioner. Short-term engagement rates and the number of outgoing referrals made to treatment and community-based support services should be a focal point of interest. Additional intake-assessment data captured through well-validated metrics would also be useful in determining the clinical severity of SUD and related pathology, and to determine whether appropriate referral to care follows suit. Future researchers can seek to answer questions related to the potential cost effectiveness of using peer-support specialists in EDs, as well as cost savings realized from the integration of these programs in reducing future ED visits. Finally, the exploration of peer-based interventions designed in partnership with an external organization—as was the case in the current study—versus those that are integrated fully into existing health-care systems (in which peers are employees of the hospital system, e.g.) should be undertaken.

Conclusion

The value of peer-based programs appears to be in the high engagement rates of a patient population that has been underserved within traditional health-care settings. Strengths of the ED PRSS model include the ability to engage patients, regardless of insurance status or substances regularly used. As SUD-related systems of care slowly evolve alongside related medical systems, both face challenges in providing quality and cost-effective care. Elastic and durable models of peer-based support may prove crucial for inserting meaningful SUD intervention into EDs and other physical health-care settings.

The use of peers in acute settings is potentially beneficial for all types of SUD, not merely for patients with OUD, or those who experience accidental drug poisoning. However, several factors influence such interventions. Referrals to additional clinical care are related to insurance status, and although not surprising, this presents a risk to patients with clinical need but without the means or coverage to pay for it. Of

note, however, is that insurance status was not related to whether patients had multiple peer engagements, suggesting a high level of equity among different typologies of patient insurance coverage. That insurance coverage did not dictate multiple engagements is a critical aspect of peer-based models because such models are specifically designed to bridge gaps and address the equity issues that arise in health care. The fusion of support referrals drawn from both community-based and clinical systems may offer a model for determining best practices that can mitigate insurance-status disparities within the current system. This model may be especially salient to states that have not expanded Medicaid. Overall, the high engagement rates of a patient population that historically has been characterized as difficult to treat in medical settings, is promising. In the midst of the current crisis, the United States can benefit from new and innovative solutions such as peer-based ED programs.

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Received May 12, 2018

Revision received October 16, 2018

Accepted October 16, 2018 ■