

REVIEW ARTICLE

Emergency Medical Services

Emergency medical services targeting opioid user disorder: An exploration of current out-of-hospital post-overdose interventions

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Funding and support: By *JACEP Open* policy, all authors are required to disclose any and all commercial, financial, and other relationships in any way related to the subject of this article as per ICMJE conflict of interest guidelines (see www.icmje.org). The authors have stated that no such relationships exist.

Abstract

Objective: The opioid epidemic continues to escalate, and out-of-hospital emergency medical services (EMS) play a vital role in acute overdose reversal, but could serve a broader role post-incident for follow-up, outreach, and referrals. Our objective is to identify the scope and

prevalence of community-based, post-opioid overdose EMS programs across the United States.

Methods: We used a narrative review of prior studies in PubMed and Scopus for the last 20 years (1999–2020) to identify relevant medical literature and a web search to identify gray literature of EMS interventions involving opioids.

Results: Out of nearly 22,000 EMS agencies across the United States, we found evidence of only 27 programs published in medical or gray literature involving post-overdose interventions. They were most commonly found in the north and eastern region of the country. Although most of these programs incorporate harm reduction and education, other more innovative aspects such as linkage to outpatient addiction treatment or peer support services, are much less common. The most comprehensive programs involved combinations of innovative outreach, specialized referrals, integration with police and criminal justice, peer support, and even treatment initiation.

Conclusions: Out-of-hospital emergency care has the potential to provide more comprehensive care after drug overdose, but many programs either do not currently have such an intervention in place, or are not disseminating their practices for other agencies to assimilate. EMS protocols and policies that encourage greater adoption of active community paramedicine practices for opioids should be encouraged.

KEYWORDS

emergency medical services, intervention studies, opioid, outreach, overdose, out-of-hospital emergency care, review

Supervising Editor: Karl A. Sporer, MD

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1 | BACKGROUND

Drug poisoning has now emerged as the top accidental cause of death in the United States, surpassing motor vehicle accidents, with over 67,000 drug-related overdose deaths in the most recent year.¹ Over 10 million Americans have experimented with illicit drugs or misused prescription opioids in the last year, and well over 2 million of these have been diagnosed with opioid use disorder.² In response, emergency department (ED)-based interventions that include initiating medications for opioid use disorder (MOUD) followed by referrals to outpatient treatment have been established, and initial results suggest that patients were nearly twice as likely to stay in treatment after 30 days once inducted in the ED.^{3,4} EDs are especially vital because critical time intervention theory posits that interventions occurring during critical times, such as an overdose, may particularly be useful for engaging vulnerable individuals into treatment.^{5,6} Because a previous non-fatal overdose is the greatest predictor of future fatality, the time after an overdose may present an integral opportunity to intervene, either out-of-hospital or in the ED.⁷ A significant amount of resources has been dedicated to addressing the opioid crisis in all 50 states; the Substance Abuse and Mental Health Services Administration (SAMHSA) has awarded over \$900 million in State Opioid Response Grants. Yet, treatment initiation rates remain low for those most at risk of dying by overdose.⁸

Out-of-hospital emergency medical services (EMS) could become a vital link in the treatment and survival chain, because many opioid overdoses are responded to by EMS and do not necessarily result in transport to an ED.⁹ Since 2012, the rate of overdoses because of opioids that necessitated naloxone resuscitation by first responders increased by 75.1%.¹⁰ Standard of out-of-hospital care for overdoses include airway management, oxygen, and administration of naloxone.¹¹ Data from the National Emergency Medical Services Information System (NEMSIS) show an increase in naloxone administration from 573.6 to 1000.4 per 100,000 EMS encounters involving acute opioid toxicity.¹² Wide-spread distribution of naloxone in vulnerable communities through the Naloxone Access Law and the Good Samaritan Law, which protects a 911 caller from facing drug charges, have demonstrated marginal success in saving lives; however, as many survivors refuse transport, they will not be engaged in interventions that occur exclusively in the ED and treatment initiation rates remain low.^{13,14}

Community paramedicine has emerged as a model in EMS where paramedics go beyond their traditional role of acute care to provide prevention and public health.¹⁵ Because EMS agencies are embedded in the communities they serve, they are often the first to arrive on the scene of an overdose emergency, are in a good position to fill existing gaps in prevention and outreach, and are critical to forming partnerships with emergency physicians to improve overdose survival outcomes. Yet, little is known about the role that EMS is playing in responding to the opioid epidemic, beyond the immediate life-saving treatment with airway management and naloxone administration. Our objective here is to identify the scope and prevalence of community-

based, post-overdose EMS program across the United States from the medical literature.

2 | METHODS

2.1 | Study design

The study design is a narrative review, and we used the evidenced-based framework from Arksey and O'Malley (2007) for exploring the literature and establishing the a priori screening criteria.¹⁶ The authors worked with an academic librarian to develop the search strategy, including the appropriate medical subject heading (MeSH) terms and data sources and protocol. The reviewers extracted the following information from the selected literature: (1) manuscript details including authors, journal, and year of publication; (2) the name of the program or intervention; (3) program purpose; (4) any program partners or collaborators; (5) geographic location; (6) methods; (7) related outcome measures; and (8) significant program characteristics. The quality of the intervention and outcomes were not assessed.

2.2 | Data sources

An electronic search of PubMed and Scopus databases was conducted in December 2019. Scopus includes all journals indexed for both Medline and EMBASE and >8,000,000 health science conference papers. MeSH terms were adjusted to equivalent search terms for respective database queries. Secondly, a broader search was conducted from January 2020 to April 2020 for any programs that had not yet been described in commercially published, peer-reviewed literature on government and public websites (ie, gray literature), including programs funded by the SAMHSA or various state opioid response grants.

2.3 | Search strategy and inclusion criteria

We used multiple variations of search terms to describe the following concepts: first responder; opioid use; intervention; program; outreach; and opioid. Appendix 1 includes the complete list of search terms and derivatives. As the opioid crisis began in the 1990s and continued to escalate through the end of the decade, the initial search was limited to peer-reviewed manuscripts published between 1999–2020. The search strategy included qualitative and descriptive studies, as well as randomized trials. Articles were limited to those published in English and programs implemented within the United States. Opinion articles, commentaries, and letters to the editor were excluded. Programs that existed for naloxone-distribution only that were not part of EMS were excluded, unless they also described other significant program characteristics. The original search excluded gray literature; however, because of the limited results in peer-reviewed sources, an overview of the gray literature was extended to cover web searches through April 2020.

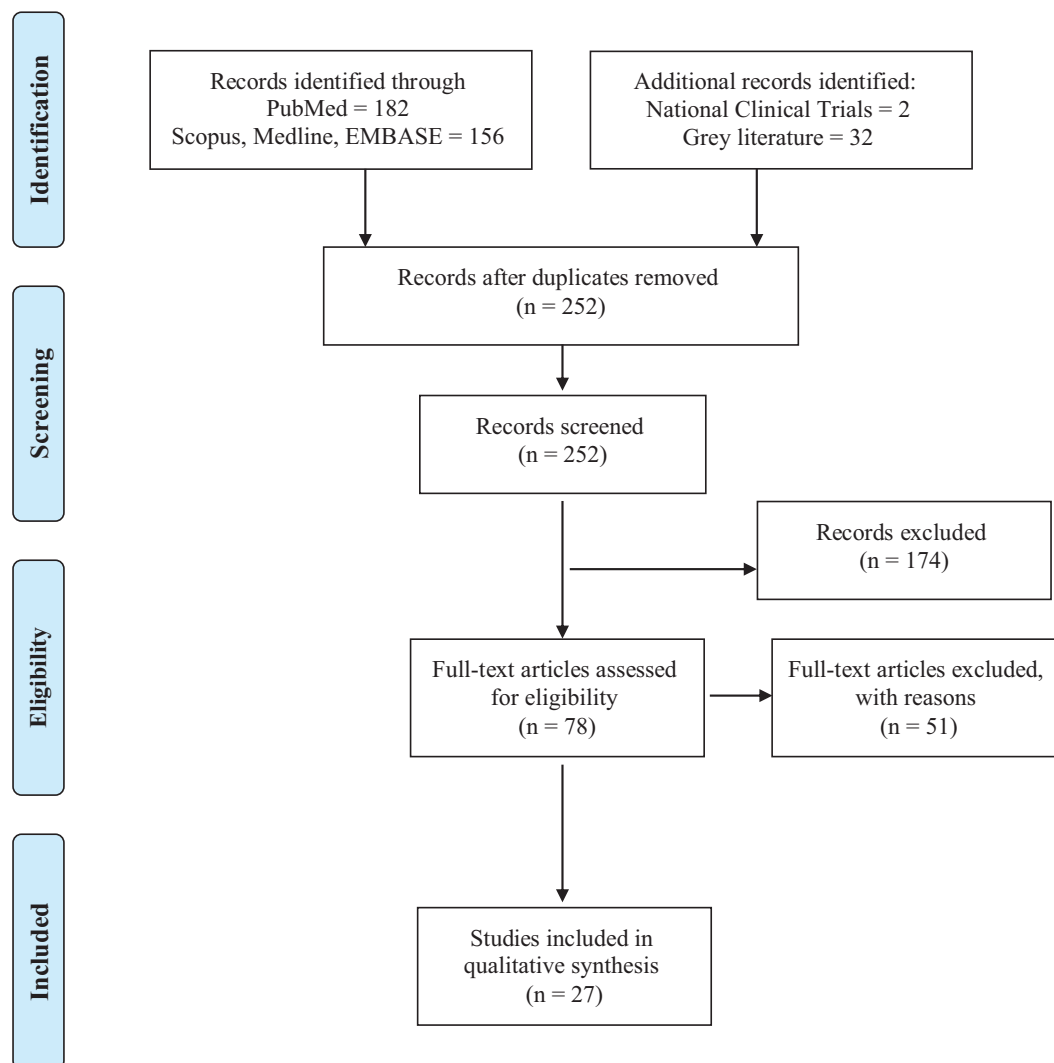


FIGURE 1 Systematic search and retrieval process

2.4 | Study selection

Articles were independently reviewed using title, abstract, and the full article, by 2 independent reviewers. A third reviewer resolved any inclusion disputes. Programs or interventions that were discovered in the grey literature were specifically searched in academic databases and when available program coordinators were contacted and pending articles were discussed. Last, articles that described the same intervention or program were combined into 1 result.

3 | RESULTS

The search strategy yielded 372 articles that were indexed in an open access web tool that was used for deduplication, review, and abstraction.¹⁷ After removing duplicates, 252 were screened for a full abstract review. After screening for inclusion and exclusion criteria; 27 studies were selected for final qualitative synthesis. Figure 1 summarizes the narrative review.

Of the 27 articles, 18 were found in peer-reviewed literature, and 9 programs were described on non-academic platforms, such as web-based community newspapers and local city or county government websites. Table 1 presents a detailed snapshot of critical characteristics discovered in the articles included in this review, although because most programs are relatively new, characteristics could rapidly change.

Nearly all of the programs we identified (26 of 27, 96.3%) also described providing community-based education on and post-overdose follow-up. The majority of programs (24, 88.9%) described providing some type of harm reduction program, most commonly the distribution of naloxone to individuals or areas of high risk. Many of the programs also offered referrals to community specialists for survivors of overdose (88.9%). There were fewer programs, however, that provided the services of a peer recovery coach (55.6%) and even fewer programs included linkage to ED induction to medications to initiate treatment for opioid use disorder, such as buprenorphine (48.1%). The following summarizes the more interesting key themes emerging from the review.

TABLE 1 Emergency medical services (EMS) programs included in narrative review

Manuscript authors/year	Program/intervention	Location	Purpose	Significant features
Medical/academic literature				
Albert et al, 2011 ²⁵	Project Lazarus	Moravian Falls, NC	Community coalition building to reduce deaths from opioid overdose.	Community education, collaborative partnerships among non-profit and governmental agencies.
Amato, 2019 ³¹	Palm Beach County Fire Rescue	Palm Beach County, FL	Provide evidence-based detox services.	Comprehensive program providing harm reduction, education, linkages to treatment, and involvement of peer coaches.
Botieri et al, 2016 ³⁵	Project Outreach	Plymouth, MA	Increase treatment initiation among overdose survivors.	Program specializes in referrals and linkages to care.
Collins et al, 2015 ²⁶	LEAD (enforcement-assisted diversion)	Seattle, WA	Establish linkage to treatment, increase induction into treatment.	Comprehensive program which positively leverages law enforcement.
Florida et al, 2016 ⁴¹	Behavioral Health Response Team (BHRT)	Rockland County, NY	Reduce psychiatric hospitalizations and ED visits.	Engages individuals with immediate psychosocial support.
Keseg et al, 2019 ³⁰	Rapid Response Emergency Addiction & Crisis Team Initiative (RREACT)	Columbus, OH	Decrease ED transports, reduce compassion fatigue.	Comprehensive program providing harm reduction, education, linkages to treatment, and involvement of peer coaches.
Kinsman et al, 2016 ²⁰	New Orleans EMS (NOEMS)	New Orleans, LA	Using data to track, monitor, and focus efforts for opioid overdose.	Program expertise in database, geo-mapping, and surveillance.
Langabeer et al, 2020 ⁴⁵	Houston Emergency Opioid Engagement System (HEROES)	Houston, TX	Actively engage and retain patients into an emergency treatment program.	Paramedics and peer coaches make "house calls" to engage patients into comprehensive treatment.
Mechem et al, 2019 ²⁹	PFD Alternative Response Unit 2 (AR-2)	Philadelphia, PA	Providing care to individuals post overdose to reduce transports.	Specialized units with unique teams are dispatched to treat individuals and engage them into treatment.
Mirigian et al, 2018 ²¹	Pennsylvania Opioid Overdose Reduction Technical Assistance Center (TAC)	Pennsylvania	Address the opioid crisis in 42 counties across Pennsylvania.	Program expertise leveraging technology to support the state.
Powell et al, 2019 ²²	Opioid Overdose Recovery Program (OORP); Lifeline ED	Newark and Camden, NJ	Increase treatment, recovery, and support services.	Post-overdose treatment and referral program.
Rebbert-Franklin et al, 2016 ²⁸	Maryland Local Overdose Fatality Review Teams	Maryland	Identify risk factors for overdose deaths.	Unique forensic teams that analyze data to target prevention efforts.
Reichert et al, 2017 ²⁷	Safe Passage	IL	Establish linkage to treatment for opioid use disorder, increase induction treatment.	Large, comprehensive program providing harm reduction, education, and linkages to treatment.
Rowe et al, 2019 ³²	Drug Overdose Prevention and Education Project	San Francisco, CA	Detect market changes in illicit drugs, expand naloxone access.	Program providing on the street surveillance of the illicit drug market.
Schiff et al, 2016 ³⁴	Angel	Gloucester, MA	Establish linkage and induction to treatment.	Program established to provide linkages to treatment programs within the community.

(Continues)

TABLE 1 (Continued)

Manuscript authors/year	Program/intervention	Location	Purpose	Significant features
Scott et al, 2020 ⁴⁷	Recovery Initiation and Management After Overdose (RIMO)	Chicago, IL	Evaluate program's direct effect on linkage.	Comprehensive program providing harm reduction, education, linkages to treatment, and involvement of peer coaches.
Watson et al, 2020 ⁴⁶	Project Point (Planned Outreach, Intervention, Naloxone, and Treatment)	Indianapolis, IN	Create an effective and scalable intervention.	Comprehensive program providing harm reduction, education, linkages to treatment, and involvement of peer coaches.
Waye et al, 2019 ⁴⁹	AnchorED (Anchor Emergency Department)	RI	Conduct case investigations after opioid overdose.	Connection with in-patient facilities for serious cases.
Grey literature				
Acushnet Cares Outreach, 2020 ³⁹	Acushnet Cares Overdose Outreach Initiative	Acushnet, MA	Connect overdose survivors with treatment.	Program which engages faith-based communities to help with the opioid epidemic.
Barnes, 2017 ³⁶	Positive Action Against Chemical Addiction/New Bedford Police	New Bedford, MA	To provide patients or family members education.	Comprehensive program that positively leverages law enforcement.
Bernard-Kuhn, 2018 ⁴⁰	Quick Response Team	Hamilton County, OH	Outreach after overdose.	From 2018–2020, 218 people successfully entered comprehensive treatment.
Castillo, 2017 ³⁷ ; Boston Public Health, 2017 ³⁸	Healthy Streets Outreach Program/Post Overdose Response Team (PORT)	Boston, MA	Increase post-overdose outreach programs.	Provides services to the most vulnerable, including injection users and sex workers.
Edge, 2017 ¹⁹	Santa Fe Opioid Overdose Outreach Project	Santa Fe, NM	Reduce risk of subsequent overdose.	Comprehensive program providing harm reduction, education, linkages to treatment, and involvement of peer coaches.
Guilford County, 2020 ²³	Guilford County Solution to the Opioid Problem (GCSTOP) Rapid Response Team	Guilford County, NC	Prevent repeat overdose.	Community education events include outreach to faith-based organizations.
Mayhew, 2017 ⁴²	Quick Response Team (extension of Hamilton County)	Boone County, OH	To help people break out of their addiction cycle.	Pioneering program providing harm reduction, education, linkages to treatment, and involvement of peer coaches.
Munz et al, 2017 ⁴⁸	Engaging Patients In Care Coordination (EPICC) program	St. Louis, MO	Increase access to treatment for opioid use disorders in ED setting	Comprehensive program providing harm reduction, education, linkages to treatment, and involvement of peer coaches.
Wilson, 2019 ¹	Virginia Quick Response Team	Huntington, WV	Patients choose treatment most effective for them.	Comprehensive program providing harm reduction, education, linkages to treatment, and involvement of peer coaches.

3.1 | Harm reduction in the community

Many of the programs included some type of harm reduction component. General principles related to harm reduction include acknowledging the negative effects of substance use disorder while separating the explicit stigma of substance use from the individual.¹⁸ For the purposes of this review, we included programs with forms of harm

reduction including community naloxone distribution or syringe exchange programs. In 2017, New Mexico began a targeted effort to distribute naloxone to the community, along with programs in New Orleans, Pennsylvania, and New Jersey.^{19–22} In Pennsylvania, EMS responders reported high levels of burn-out before initiating their community education and naloxone distribution program, which is now in effect across 42 counties.²¹ North Carolina's GCSTOP (Guilford

County Solution to the Opioid Problem) is 1 of the few programs we found that explicitly mentioned a syringe exchange program as part of their harm reduction strategy.²³ This program is administered using evidenced-based, social science research from the University of North Carolina Greensboro's School of Social Work.

3.2 | Integration of law enforcement with EMS

First responders, including criminal justice, have been trained in greater numbers to respond to the opioid epidemic.²⁴ We found 3 specific post-opioid interventions that engaged law enforcement officers along with EMS in innovative ways. In North Carolina, a comprehensive and coalition-focused program entitled Project Lazarus includes the hiring and training of police officers in drug diversion, as well as, holding pharmaceutical disposal events.²⁵ The program uses post-overdose data to target potential future activity, plan educational events, and deliver naloxone kits to the community.²⁵ The LEAD (Law Enforcement Assisted Diversion) Program in Seattle found positive effects on recidivism (lower arrests) when law enforcement officers enrolled low level drug offenders into case management and treatment services, as opposed to incarceration.²⁶ Similarly, the Safe Passage Initiative in Illinois allows individuals seeking treatment to voluntarily present to any police department without penalty to request help for substance use disorder.²⁷ Although technically not an outreach program, Maryland's Local Overdose Fatality Review Teams were established to bring police, EMS, medical examiners, social services, school superintendents, and various county public health officials together with health care providers to review information regarding recent decedents from overdose. The stated goals of Local Overdose Fatality Review Teams are to review risk factors across communities and achieve greater interagency collaboration with the hopes of informing public health law.²⁸

3.3 | Innovative community outreach

We found several examples of non-traditional, innovative outreach efforts made by EMS that redefine the concept of paramedicine. A program described by Mechem et al²⁹ described development of the EMS Alternate Response Unit-2 (AR-2), an emergency unit that operates in areas with high overdose rates. This highly specialized response team is equipped with naloxone and will provide transportation directly to a substance abuse treatment facility after an overdose, if the patient is willing to enter treatment. The AR-2 unit works with case managers and social workers to find a substance abuse facility with an immediate opening, so they can provide a warm-handoff.

Keseg et al³⁰ described 2 programs that incorporated EMS, 1 located in Columbus, OH and the other in Palm Beach County, FL. The RREACT (Rapid Response Emergency Addiction and Crisis Team) in Columbus and the Palm Beach County Pilot Programs are collaborations of fire department, community EMS, and police officers that provide referrals to treatment for individuals who refuse transport to the

ED following an overdose.^{30,31} These programs also offer education on harm reduction and treatment options. Rowe et al³² described the community-based Drug Overdose Prevention and Education program in San Francisco, CA. This program conducts street-outreach in areas heavily impacted by the opioid crisis. With a focus on harm reduction, Drug Overdose Prevention and Education collaborates with EMS on an early warning system that monitors overdose data for any surge in overdoses that may indicate the presence of fentanyl.

A variety of programs integrating EMS are offered across Massachusetts that include interprofessional, collaborative opioid response programs including Project Outreach in Plymouth, Acushnet Cares Overdose Outreach, the New Bedford Program that includes a visit from a chaplain, the Healthy Streets Outreach Program outside Boston, and the Angel Program run by the Gloucester Police Department.³³⁻³⁹ In each case, these programs work across public agencies to conduct outreach and connect opioid overdose survivors to treatment services. The Quick Response Team model was developed in Colerain County, Ohio and has since proliferated across the state as well as in West Virginia, and in parts of Pennsylvania.⁴⁰⁻⁴² The model is designed with a community paramedicine approach whereby an EMS first responder is joined by a peer recovery coach, social worker, or behavioral health specialist for an emergency, acute visit (eg, immediately post-overdose) or 24–48 h after the overdose has occurred. The team meets with the individual to address their medical, behavioral or social support needs, then attempts to connect them to treatment. This model has the potential to further engage first responders with new tools to treat opioid use disorder as a disease, reduce stigma, and combat compassion fatigue through action-oriented partnerships with peer recovery coaches who have proven success.⁴³

3.4 | Inclusion of peer recovery support

Peer recovery support specialists are individuals with lived experience who are uniquely able to engage people who use drugs into treatment.⁴⁴ Peer coaches are increasingly being used in hospital EDs and are finding roles in community programs. One program in Houston combines multiple models including Quick Response Team and integrates immediate treatment and counseling for opioid overdose survivors. The Houston Emergency Opioid Engagement System (HEROES) is a collaboration between researchers at University of Texas Health Science Center and the Houston Fire Department EMS.⁴⁵ This program uses 911 call data to locate opioid overdose survivors who were not transported to the ED. A paramedic and a peer recovery coach are part of an assertive outreach team who locate and engage opioid overdose survivors into treatment. The program is also staffed with a DATA-waivered nurse practitioner who provides buprenorphine, a licensed chemical dependency counselor who provides substance abuse counseling, and peer recovery coaches who provide support groups and regular check-ins on participants of the program, and preliminary results suggest that 88% of people are retained in treatment at 30 days.^{45,46} Programs such as EPICC (Engaging Patients in Care Coordination) in St. Louis, the RIMO (Recovery Initiation and

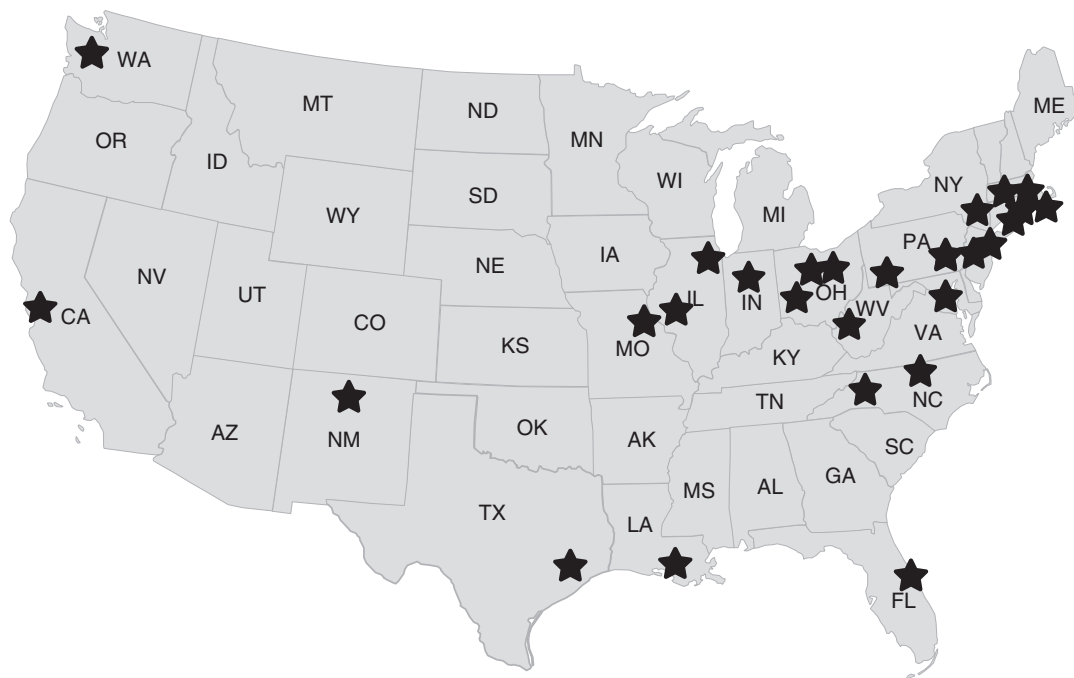


FIGURE 2 Map of post-opioid overdose interventions including emergency medical services (EMS) in the United States

Management After Overdose) intervention in Chicago, Project POINT (Planned Outreach, Intervention, Naloxone, and Treatment) in Indiana, and AnchorED (Anchor Recovery Center and Emergency Department) in Rhode Island also leverage the lived experience of peer recovery coaches within their programs, because coaches relate to the common challenges and barriers to sustaining treatment.^{47–50}

Many of the programs found in the literature were clustered in the northeastern and eastern United States, with multiple programs in Massachusetts, North Carolina, and Ohio. Other than New Orleans, Houston, and Palm Beach County (Florida), we did not find any programs in the literature in the deep southern states. See Figure 2 for a map of post-overdose interventions including EMS in the United States.

4 | DISCUSSION

Research on the opioid crisis identifies economic deprivation, over-prescribing, and inadequate treatment access as root causes.^{51–53} This study has shown that lack of relative visibility of critical EMS agency interventions, beyond naloxone administration, could also be a contributing factor. There are also signification gaps in presentation of the outcomes of these programs which could limit replication across other communities. There are opportunities for more comprehensive community paramedicine roles beyond the overdose and more robust outcome assessments. In this study, we found limited evidence of out-of-hospital EMS post-overdose programs. Waiting for survivors of an overdose to arrive at the ED or to self-refer to treatment is ineffective, often due to stigma of opioid use disorder.⁵⁴ First responders have intimate knowledge about the communities they serve and are trained

to initiate immediate treatment to those in need and ultimately, to save lives. Yet, significantly more can be done with prehospital resources.

Providing EMS with additional resources, such as naloxone for distribution at community events and collaborations with peer recovery coaches, offer potential solutions to the issue of burn-out.⁵⁵ Although we found several effective EMS outreach programs, those who provide community education alone may not be sufficient to create long-term impact. In a study of 256 participants enrolled in a randomized controlled trial, participants with an overdose education intervention did not have statistically significant differences in future overdoses when compared with a group with no intervention.⁵⁶ If and when patients arrive in the ED, the most successful programs we found were ones where treatment, such as buprenorphine, was initiated immediately. In a study by D'Onofrio et al,³ the number of patients maintaining successful abstinence from opioids was doubled when buprenorphine was started in the ED compared with a referral for treatment. Once patients leave the hospital, if they have not started treatment, their chances decrease dramatically as they resume patterns of their prior life.⁵⁷

4.1 | Unanswered questions

There are nearly 22,000 EMS agencies across the United States, yet we found evidence of just over 2 dozen programs that have published program details in the academic or gray literature. Given the magnitude of the problem impacting both EMS and the ED, it is critical that more research be conducted to improve the clinical evidence base. Our future research aims to provide significantly more details on operational and clinical results from these interventions, through both interviews and outcome analyses. Although we found minimal

evidence that programs are disseminating information about their program offerings, little evidence exists to guide other communities in developing and replicating these programs using evidence-based guidelines. Encouraging agencies associated with academic hospital emergency medicine departments to publish the protocols and program characteristics would also help improve vital information dissemination. Critical questions remain which should guide future research: What are the short and long-term outcomes associated with EMS interventions? What operational characteristics are most significant in influencing outcomes? These are significant questions that must be addressed to curb the opioid epidemic.

4.2 | Limitations

There are several limitations to our study. As with any review of the literature, it is subject to the specific terms used for the search, the databases queried, and the inclusion and exclusion criteria that were applied. Although we adapted our research mission to include gray literature and government websites, it is possible that relevant programs were missed in this search. Despite this limitation, it is important to note there are a number of peer-reviewed studies in academic literature that demonstrate the effectiveness of EMS engagement in targeting opioid use disorder, particularly at the critical time point of overdose. We suspect there are more programs operating in smaller communities; however, they may not have a focus on research or may not have the resources to publish their outcomes. The implications from a translational research perspective, bench to bedside, should examine the dissemination of findings from metropolitan areas and academic medical centers to more rural communities where the problem of opioid use disorder persists.

ACKNOWLEDGMENTS

The authors wish to thank Arlene Cortez, MPH, for her assistance in data collection during an early version of this article.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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How to cite this article: Champagne-Langabeer T, Bakos-Block C, Yatsco A, Langabeer JR. Emergency medical services targeting opioid user disorder: An exploration of current out-of-hospital post-overdose interventions. *JACEP Open*. 2020;1-10. <https://doi.org/10.1002/emp2.12208>

APPENDIX 1

Search Strategy using medical subject headings (MeSH) and search terms

Database: PubMed	
First responder concept	("Emergency Medical Technicians"[Mesh]) OR "Firefighters"[Mesh]) OR "Emergency Medical Services"[Mesh]) OR "Allied Health Personnel"[Mesh:noexp] OR "community paramedicine" OR "paramedicine" OR "EMS" OR "prehospital" OR "fire department" OR "Emergency Responders"[Mesh:noexp] OR "community fire"
Opioid user concept	("Opioid-Related Disorders"[Mesh]) OR "Drug Users"[Mesh]) OR "Substance-Related Disorders"[Mesh]) OR "Drug Overdose"[Mesh]) OR "Drug-Seeking Behavior"[Mesh]) OR "Substance-Related Disorders"[Mesh:noexp] OR "Substance Abuse, Intravenous"[Mesh]) OR "addict"[Title/Abstract]) OR "people who use drugs"[Title/Abstract]) OR "PWUD"[Title/Abstract]) OR "people who inject drugs"[Title/Abstract]) OR "PWID"[Title/Abstract]) OR "substance user"[Title/Abstract]) OR "drug user"[Title/Abstract]) OR "substance users"[Title/Abstract]) OR "injection drug use"[Title/Abstract]) OR "injection drug users"[Title/Abstract]) OR "opioid user"[Title/Abstract]) OR "opioid users"[Title/Abstract]) OR "IDUs"[Title/Abstract]) OR "opiate overdose"[Title/Abstract])
Program concept	("Community-Institutional Relations"[Mesh]) OR "Telerehabilitation"[Mesh]) OR "Mental Health Recovery"[Mesh]) OR "Therapeutics"[Mesh:noexp] OR "Community Networks"[Mesh]) OR "Motivational Interviewing"[Mesh]) OR "Tertiary Healthcare"[Mesh]) OR "Health Promotion"[Mesh:noexp] OR "United States Substance Abuse and Mental Health Services Administration"[Mesh]) OR "Tertiary Prevention"[Mesh]) OR "Social Workers"[Mesh]) OR "addiction treatment" OR ("harm reduction and addiction treatment services") OR "post-opioid interventions" OR "program"[Title/Abstract]) OR "opioid overdose outreach"[Title/Abstract]) OR "post-opioid program"[Title/Abstract]) OR "opioid overdose program"[Title/Abstract]) OR "intervention"[Title/Abstract]) OR "outreach"[Title/Abstract]) OR "addiction health services" OR "post-opioid intervention" OR "programs"[Title/Abstract]) OR "response"[Title/Abstract]) OR "community response"[Title/Abstract]) OR "overdose aftercare"[Title/Abstract]) OR "prevention"[Title/Abstract]) OR "community outreach"[Title/Abstract]) OR "community program"[Title/Abstract]) OR "local outreach"[Title/Abstract]) OR "post-overdose intervention"[Title/Abstract]) OR "post-opioid overdose"[Title/Abstract]) OR "outreach programs"[Title/Abstract]) OR "opioid addiction care"[Title/Abstract]) OR "drug addiction rehabilitation" OR "opioid rehabilitation" OR "after overdose"[Title/Abstract]) OR "overdose survivor engagement" OR "prevention"[Title/Abstract]) OR "community"[Title/Abstract]) OR "multidisciplinary program"[Title/Abstract]) OR "collaborative program"[Title/Abstract]) OR "multidisciplinary programs"[Title/Abstract]) OR "treatment facilities"[Title/Abstract]) OR "interventions"[Title/Abstract])
Opioid concept	("Analgesics, Opioid"[Pharmacological Action]) OR "Analgesics, Opioid"[Mesh]) OR "Heroin"[Mesh]) OR "Fentanyl"[Mesh]) OR "alpha-methylfentanyl"[Supplementary Concept]) OR "Street Drugs"[Mesh:noexp]
All for concepts combined	("Community-Institutional Relations"[Mesh]) OR "Telerehabilitation"[Mesh]) OR "Mental Health Recovery"[Mesh]) OR "Therapeutics"[Mesh:NoExp]) OR "Community Networks"[Mesh]) OR "Motivational Interviewing"[Mesh]) OR "Tertiary Healthcare"[Mesh]) OR "Health Promotion"[Mesh:NoExp]) OR "United States Substance Abuse and Mental Health Services Administration"[Mesh]) OR "Tertiary Prevention"[Mesh]) OR "Social Workers"[Mesh]) OR "addiction treatment" OR ("harm reduction and addiction treatment services") OR "post-opioid interventions" OR "program"[Title/Abstract]) OR "opioid overdose outreach"[Title/Abstract]) OR "post-opioid program"[Title/Abstract]) OR "opioid overdose program"[Title/Abstract]) OR "intervention"[Title/Abstract]) OR "outreach"[Title/Abstract]) OR "addiction health services" OR "post-opioid intervention" OR "programs"[Title/Abstract]) OR "response"[Title/Abstract]) OR "community response"[Title/Abstract]) OR "overdose aftercare"[Title/Abstract]) OR "prevention"[Title/Abstract]) OR "community outreach"[Title/Abstract]) OR "community program"[Title/Abstract]) OR "local outreach"[Title/Abstract]) OR "post-overdose intervention"[Title/Abstract]) OR "post-opioid overdose"[Title/Abstract]) OR "outreach programs"[Title/Abstract]) OR "opioid addiction care"[Title/Abstract]) OR "drug addiction rehabilitation" OR "opioid rehabilitation" OR "after overdose"[Title/Abstract]) OR "overdose survivor engagement" OR "prevention"[Title/Abstract]) OR "community"[Title/Abstract]) OR "multidisciplinary program"[Title/Abstract]) OR "collaborative program"[Title/Abstract]) OR "multidisciplinary programs"[Title/Abstract]) OR "treatment facilities"[Title/Abstract]) OR "interventions"[Title/Abstract]) AND (((("Analgesics, Opioid"[Pharmacological Action]) OR "Analgesics, Opioid"[Mesh]) OR "Heroin"[Mesh]) OR "Fentanyl"[Mesh]) OR "alpha-methylfentanyl"[Supplementary Concept]) OR "Street Drugs"[Mesh:noexp]) AND ((((((("Emergency Medical Technicians"[Mesh]) OR "Firefighters"[Mesh]) OR "Emergency Medical Services"[Mesh]) OR "Allied Health Personnel"[Mesh:noexp] OR "community paramedicine" OR "paramedicine" OR "EMS" OR "pre hospital" OR "fire department" OR "Emergency Responders"[Mesh:noexp] OR "community fire")) AND (((((((((((((((("Opioid-Related Disorders"[Mesh]) OR "Drug Users"[Mesh]) OR "Substance-Related Disorders"[Mesh]) OR "Drug Overdose"[Mesh]) OR "Drug-Seeking Behavior"[Mesh]) OR "Substance-Related Disorders"[Mesh:noexp]) OR "Substance Abuse, Intravenous"[Mesh]) OR "addict"[Title/Abstract]) OR "people who use drugs"[Title/Abstract]) OR "PWUD"[Title/Abstract]) OR "people who inject drugs"[Title/Abstract]) OR "PWID"[Title/Abstract]) OR "substance user"[Title/Abstract]) OR "drug user"[Title/Abstract]) OR "substance users"[Title/Abstract]) OR "injection drug use"[Title/Abstract]) OR "injection drug users"[Title/Abstract]) OR "opioid user"[Title/Abstract]) OR "opioid users"[Title/Abstract]) OR "IDUs"[Title/Abstract]) OR "opiate overdose"[Title/Abstract]) Sort by: Best Match