AEM
Education and Training

Applying Project ECHO (Extension for Community Health Care Outcomes) to improve addiction care in rural emergency departments

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Abstract

Background: Advancements in research and legislation have improved emergency provider ability to treat opioid use disorder (OUD), but dissemination into rural emergency departments (EDs) is limited. Project Extension for Community Healthcare Outcomes (ECHO) allows community generalists to learn from specialists through telementoring. We aimed to use ECHO to facilitate knowledge translation, increase confidence, and change behavior of rural ED providers treating patients with OUD.

Methods: Stakeholder interviews were conducted with rural ED providers. A group of ED addiction experts created an ECHO curriculum with eight OUD topics. ED health professionals were recruited and completed pre/post surveys centered around knowledge and comfort with treating OUD in the ED, with focus on clinical practice and stigma. Following the ECHO model, sessions included a 20-min didactic followed by two cases presented by participants, with discussion facilitated by faculty.

Results: Twenty-seven participants registered; seven attended ≥75% of sessions and completed both surveys. Of the seven, three were physicians, two advanced practice providers, one nurse, and one clinical pharmacist. Eight 1-hour sessions were conducted in two cohorts between January and December 2021. On a 5-point Likert scale, respondents on average agreed with questions evaluating acceptability (mean $\pm$ SD 3.96 ± 0.64), appropriateness (mean $\pm$ SD 4.18 ± 1.18), and feasibility (mean $\pm$ SD 4.00 ± 1.17). Participants had a 1.09-point increase (paired t-test = 2.43, $p = 0.05$) on 7-point Likert-scale questions measuring self-efficacy and a 0.13-point change (paired t-test = 2.64, $p = 0.04$) on 4-point Likert scale questions measuring stigmatizing attitudes (reduction of attitudes). A total of 71% (5/7) reported changes in clinical practice and 57% (4/7) in departmental protocols after participation.

Conclusions: Our ED OUD ECHO course successfully created a model for rural ED providers to learn from ED addiction experts. It was well received and impacted self-reported provider stigmatizing attitudes, patient-facing behavior, and departmental

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initiatives. Recruitment was challenging and participation was limited. Future efforts will target maximizing recruitment.

NEED FOR INNOVATION

Recent evidence and changes in legislation have opened the door to a new era of treating opioid use disorder (OUD) in the emergency department (ED).[1] Increased research has created a robust foundation of evidence for emergency providers to draw upon when treating patients with OUD. Overdose education and naloxone distribution has been shown to be safe and effective in preventing death from overdose.[2] ED initiation of buprenorphine was found to improve engagement with outpatient treatment, reduce illicit opioid use, and decrease use of inpatient addiction services.[3] Training is no longer required for the DATA 2000 waiver, reducing a significant barrier to prescribing buprenorphine.[4]

Despite recent advancements, penetration of new evidence-based practices (EBPs) into community EDs may be limited, particularly in rural areas. The majority of ED addiction specialists are located in academic medical centers, thus concentrating the uptake of EBPs in and around these institutions, 99% of which are in urban or suburban areas.[5] Rural areas have fewer providers with experience and expertise prescribing medications for OUD when compared to urban and suburban locales.[6] In a survey of U.S. clinicians, travel time and expense were the biggest barriers to Continuing Medical Education (CME), highlighting challenges relevant to rural providers.[7] Furthermore, rural providers face unique challenges in delivering addiction care, and CME intended for a broader audience may not apply to their practice setting. Innovative approaches are needed to link rural community ED providers with addiction specialists who can support best practices in treatment of OUD.

BACKGROUND

Project Extension for Community Healthcare Outcomes (ECHO) is a structured telementoring educational model that trains community providers in specialty care. ECHO is based in social cognitive, situated learning, and community of learning theories and has been shown to improve provider behaviors and knowledge and reduce treatment disparities.[8–13] For hepatitis C, the model yielded similar outcomes in patients being treated in rural areas and prisons as those at an academic center. ECHO curricula spanning a range of clinical topics have been implemented, but at the time of this publication only one program targeting emergency medicine (EM) providers (pediatric) has been reported in the literature.[7,10,11,13–18]

OBJECTIVE OF INNOVATION

Our objective was to use the ECHO model to facilitate knowledge translation, increase confidence, and change behavior of rural ED providers treating patients with OUD. We also aimed to evaluate the feasibility of using ECHO to provide telementoring for one area of specialized care within EM. The University of Chicago Institutional Review Board approved this study.

DEVELOPMENT PROCESS

The primary faculty lead had obtained board certification in both addiction medicine and EM. Three other faculty members, each boarded in both EM and medical toxicology, helped author didactics and co-facilitate ECHO sessions. The ECHO-Chicago program at the University of Chicago is a designated ECHO superhub that trains other organizations to develop ECHO programs. Faculty were trained by ECHO-Chicago staff, who have undergone extensive training at the ECHO institute in New Mexico. All faculty reviewed ECHO-Chicago's facilitator guide and attended several planning meetings with ECHO-Chicago staff. The primary faculty lead observed several ECHO-Chicago sessions led by experienced facilitators. Other faculty observed one ECHO-Chicago session.

Learners consisted of physicians, advanced practice providers (APP), nurses, and clinical pharmacists. We recruited participants through multiple avenues, including Illinois Department of Public Health regional administrators, target region county administrators, personalized emails to medical directors and hospital administrators, Illinois College of Emergency Physicians, contacts at the academic medical center closest to the study region, and advertisements in the ECHO-Chicago newsletter. Initial contact with potential subjects was via email through the individual organizations. Recruitment material was targeted to rural providers. Learners were asked to attend at least 75% of sessions. All sessions were recorded and posted on the password-protected ECHO website. CME was offered.

Curriculum development

We present our approach to curriculum development using Kern's six-step model:

Problem identification

Qualitative interviews with people who use drugs (PWUD) in the study region (southernmost 16 counties in Illinois) revealed both negative experiences with clinicians and a heavy reliance on the ED for care.[19] Literature review revealed barriers to specialized training for rural providers and a lack of evidence supporting ECHO in EM.[7]

Targeted needs assessment

We performed a series of structured stakeholder interviews with physicians, APPs, and nurses in the study region using an interview guide focused on challenges in treating PWUD in the ED and preferences in topics, scheduling, and logistics of a potential ECHO course. Some respondents enrolled in the initial cohort. These findings are presented elsewhere, but selected topics identified by respondents included concurrent use of opioids and methamphetamines, deescalation, reduction of stigmatizing attitudes, and capacity building for linkage to outpatient care.[20]

Goals and objectives

Content experts incorporated findings from the stakeholder interviews with literature review and used an iterative process to identify eight topics for didactics with specific objectives for each (Table 1).

TABLE 1 Topics, content experts, and objectives of the ECHO sessions

Session	Topic	Content expert	Objectives
1	The role of the ED in the opioid epidemic	Steven Aks, DO—toxicologist and EP	• Understand what role the ED plays in the continuation of the opioid epidemic • Understand what role the ED plays in combating the opioid epidemic • Understand the structure of the ECHO course and review a sample case
2	Legal issues and communication skills	P. Quincy Moore, MD—addiction specialist and EP	• Understand what legal protections patients that use drugs have while being treated in the ED • Understand basic approaches to verbal deescalation and what role law enforcement and security can play in your treatment of patients who use drugs
3	Methamphetamines	P. Quincy Moore, MD—addiction specialist and EP	• Understand terminology, pharmacokinetics, and toxidromes as they relate to methamphetamines • Explore the most common complications from methamphetamine use and their presentation to the ED • Discuss management of acute and chronic complications of methamphetamine use disorder
4	Opioids and infectious disease	P. Quincy Moore, MD—Addiction Specialist and EP	• Understand infectious complications of OUD and appropriate treatment • Understand the importance of screening for infectious diseases in the ED and how to incorporate this into personal practice and/or departmental policies
5	Medications for OUD	P. Quincy Moore, MD—addiction specialist and EP	• Understand what medication for OUD (MOUD or MAT) is and what role it can plan in the ED • Identify which patients are most appropriate to start MOUD in the ED • Discuss the resources that are required for an individual provider and/or department to practice MOUD in the ED
6	Take-home naloxone	P. Quincy Moore, MD—addiction specialist and EP	• Understand the evidence behind take-home naloxone and its role in harm reduction • Identify which patients would benefit most from take-home naloxone • Describe different formulations of the medication and advantages/disadvantages to each • Understand the laws that help facilitate take-home naloxone distribution and use by lay persons
7	Prescribing guidelines and prescription monitoring programs	Steven Aks, DO—toxicologist and EP	• Define best practices in prescribing opioids from the ED • Discuss examples of opioid prescribing guidelines and strategies for implementation in a department/hospital • Understand what prescription monitoring programs are and how best to utilize them in the ED
8	Nonopioid pain control	Neeraj Chhabra, MD—toxicologist and EP	• Identify opioid alternatives for the management of acute pain • Describe indications where an opioid alternative may be effective

Abbreviations: ECHO, Extension for Community Healthcare Outcomes; OUD, opioid use disorder.

Educational strategies

Each cohort consisted of eight 1-hour sessions on Wednesdays at noon. Following the ECHO model, each session included a 20-min didactic followed by two cases presented by participants, with discussion facilitated by faculty. All participants presented cases during the course and were encouraged to engage in discussion, with facilitators helping uncover relevant teaching points.

Implementation

Teleconferencing technology (Zoom Video Communications, Inc.) was used. Recorded sessions and supplementary resources were uploaded to the ECHO-Chicago website. Additional communication was via email.

Evaluation and feedback

All participants were asked to complete a survey prior to and immediately following the course. Survey questions assessed reaction, learning, and behavior in addition to self-reported knowledge translation and confidence with treating OUD, with particular focus on clinical care and stigma.

THE IMPLEMENTATION PHASE

The content experts chose eight topics (Table 1) based on stakeholder input and expert opinion regarding common areas of knowledge deficit in OUD diagnosis and management.

Outcomes

Of the 27 registered participants, 12 attended at least one session, and seven attended at least 75% of the eight sessions and completed both pre and post surveys. These seven were eligible for analysis. They represented six rural EDs and included three physicians, two APPs, one nurse, and one clinical pharmacist. Nine participants completed the pre survey, of whom seven identified as White, one as Black, and one as biracial and Hispanic. Eight 1-hour sessions were conducted in two cohorts between January and December 2021.

The survey (available in supplemental material accompanying online article) was created by a team of content experts and adapted in part from the Opening Minds Stigma Scale for Health Care Providers. Self-efficacy, knowledge, and stigmatizing attitudes toward PWUD were assessed in both pre and post surveys, while acceptability, appropriateness, feasibility, personal practice changes, and departmental changes were assessed only in the post survey. Results are presented here using the Kirkpatrick model[21,22]:

Reaction

On a 5-point Likert scale with 1 as "completely disagree" and 5 as "completely agree," respondents on average agreed with questions evaluating acceptability (mean $\pm SD$ 3.96 $\pm$ 0.64), appropriateness (mean $\pm SD$ 4.18 $\pm$ 1.18), and feasibility (mean $\pm SD$ 4.00 $\pm$ 1.17).

Learning

Overall, participants had a 1.09 point increase (paired t-test = 2.43, p = 0.0511) on a 7-point Likert scale in self-efficacy questions addressing self-reported ability to care for PWUD. There was a 0.13 point change (paired t-test = 2.64, p = 0.0384) on a series of 4-point Likert scale questions measuring stigmatizing attitudes (indicating a reduction of stigmatizing attitudes). There was a 20% increase (paired t-test = 1.87, p = 0.1106) in correct answers for a series of four multiple-choice knowledge questions.

Behavior

Seventy-one percent (5/7) of participants reported changes in their own clinical practice based on knowledge from the course, including adopting ED-initiated buprenorphine into their practice, establishing linkages to care for patients initiating buprenorphine, adopting Alternative To Opioids (ALTO) approaches for pain management, and encouraging colleagues to obtain their waiver to prescribe buprenorphine. Fifty-seven percent (4/7) reported increasing the number of patients to whom they prescribe take-home naloxone.

RESULTS

Seventy-one percent (5/7) of participants also described departmental changes that resulted from their participation, including initiating a departmental buprenorphine pilot, creation of ALTO order sets, pursuing the ACEP Pain and Addiction Care in the Emergency Department certification, and reviewing opioid prescribing policies.[23,24]

Reflective discussion

Overall, this OUD ED ECHO course had mixed results. Our model allowed rural ED providers to access the expertise of addiction specialists and engage in dialogue around challenges unique to their practice environment. Based on acceptability, appropriateness, and feasibility scores, the course was well received. Stigmatizing attitudes toward PWUD was reduced, and specific clinical practices and departmental initiatives were adopted as a result of participation. There was no statistically significant change in knowledge.

Nevertheless, recruitment was challenging and attendance was low. We recruited participants through various methods, but struggled to engage potential learners. This is consistent with the limited literature evaluating ECHO in ED providers.[9] We suspect this is due to a variety of factors, including ED staffing models utilizing nonlocal providers, lack of compensation for participation, limited interest or stigma toward the topic, inconsistent scheduling of clinical obligations in the ED, limited recruitment area due to funding scopes, and the COVID-19 pandemic. Recruiting participants from a broader geographic region may help increase attendance. We also recommend that given scheduling models in the ED, sometimes finalized months in advance, recruitment should occur well ahead of future courses.

Regional differences in rural areas may present unique barriers and facilitators to both patient care and implementation of ECHO, limiting generalizability. Our small sample size further limits generalizability. Nevertheless, we feel the combination of successful impact and challenges in recruitment are important to highlight in the EM ECHO literature. We were unable to track the impact on patient outcomes but used provider reporting of practice and departmental changes as proxies for downstream patient-centered outcomes. We hope that participant-led initiatives at the departmental, hospital, or regional level may lead to broader impact beyond the course participants but did not measure this.

CONCLUSIONS

Our ED opioid use disorder Extension for Community Healthcare Outcomes (ECHO) course successfully created a model for rural ED providers to learn from ED addiction experts. The course was well received and impacted self-reported provider stigmatizing attitudes, patient-facing behavior, and departmental initiatives. However, recruitment was challenging and participation was limited, which is consistent with previous studies. Future efforts will be targeted toward maximizing recruitment and broadening the impact of this course.

AUTHOR CONTRIBUTIONS

P. Quincy Moore and Mai Tuyet Pho developed the study concept and design. P. Quincy Moore, Sandra Tilmon, Neeraj Chhabra, Daniel J. McCabe, Steven E. Aks, and Mai Tuyet Pho participated in acquisition of the data, with P. Quincy Moore, Sandra Tilmon, and Mai Tuyet Pho performing analysis and interpretation of the data. P. Quincy Moore drafted the manuscript and all authors performed critical revision of the manuscript. Mai Tuyet Pho acquired the funding.

CONFLICT OF INTEREST
The authors declare no potential conflict of interest.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.