

## INNOVATION AND IMPROVEMENT

## ECHO Care: Providing Multidisciplinary Specialty Expertise to Support the Care of Complex Patients



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**BACKGROUND:** Programs for high-need, high-cost (HNHC) patients can improve care and reduce costs. However, it may be challenging to implement these programs in rural and underserved areas, in part due to limited access to specialty consultation.

**AIM:** Evaluate the feasibility of using the Extension for Community Health Outcomes (ECHO) model to provide specialist input to outpatient intensivist teams (OITs) dedicated to caring for HNHC patients.

**SETTING:** Weekly group videoconferencing sessions that connect multidisciplinary specialists with OITs.

**PARTICIPANTS:** Six OITs across New Mexico, typically consisting of a nurse practitioner or physician assistant, a registered nurse, a counselor or social worker, and at least one community health worker.

**PROGRAM DESCRIPTION:** OITs and specialists participated in weekly teleECHO sessions focused on providing the OITs with case-based mentoring and support.

**PROGRAM EVALUATION:** OITs and specialists discussed 427 highly complex patient cases, many of which had social or behavioral health components to address. In 70% of presented cases, the teams changed their care plan for the patient, and 87% reported that they applied what they learned in hearing case presentations to other HNHC patients.

**DISCUSSION:** Pairing the ECHO model with intensive outpatient care is a feasible strategy to support OITs to provide high-quality care for HNHC patients.

**KEY WORDS:** ECHO model; continuing medical education; case-based learning; complex care; high-need, high-cost patients.

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## INTRODUCTION

High-need, high-cost (HNHC) Medicaid patients struggle with multiple medical and behavioral health conditions that are frequently paired with functional limitations and difficulties overcoming social barriers to care.<sup>1,2</sup> Traditional primary care services are often ill-prepared to address these patients' complex needs, and sometimes overlook the social issues that prevent engagement in effective primary care.<sup>3</sup> Addressing the needs of this population using innovative complex care models in the primary care setting could translate into more effective and efficient care.

Several complex care models exist that connect HNHC Medicaid patients to appropriate care.<sup>4</sup> Models vary widely with respect to intensity and setting; elements of successful models include intensive care coordination, team-based care, integration of medical and behavioral health services, and attention to social barriers.<sup>5</sup> Preparing primary healthcare teams to use these approaches is important, and common obstacles include insufficient clinical support, ineffective communication with specialists that can lead to care fragmentation, and productivity demands that prevent outpatient intensivist teams (OITs) from spending more time with the patients who need it.<sup>6,7</sup>

To address some of these barriers in New Mexico (NM), we paired complex care in the primary care setting with the Extension for Community Health Outcomes (ECHO) model (Appendix Figure 1). The ECHO model simultaneously connected OITs to a multidisciplinary specialist team for weekly case-based guidance and mentorship, empowering teams to directly address the complex needs of their HNHC Medicaid patients, i.e. ECHO Care patients.

## SETTING AND PARTICIPANTS

During the ECHO Care pilot (September 2013–June 2016), six OITs served HNHC Medicaid patients across NM. Teams were located at three safety net hospital-based outpatient clinics and three federally qualified health centers in medically underserved communities, and served only ECHO Care patients. OITs typically consisted of a nurse practitioner or physician assistant (NP/PA), a registered nurse (RN), one or

two community health workers (CHWs), and a licensed mental health provider (i.e., social worker or counselor)—who provided direct behavioral health (BH) care to ECHO Care patients—all of which were supported by a part-time administrative assistant (Fig. 1). A part-time primary care physician at each site supported each OIT as needed, especially when patients initiated buprenorphine treatment for opioid use disorder.

We used the ECHO model to support OITs to provide effective wrap-around services<sup>8,9</sup> (e.g., patient navigation, medical training, transportation support) and manage the diverse and complex needs of the ECHO Care patients. The ECHO model connects multiple healthcare providers at different sites with a multidisciplinary specialist team in virtual “teleECHO sessions”.<sup>10</sup> This approach empowers healthcare providers through a knowledge sharing network, in which participants learn from each other and from specialists.<sup>11</sup> ECHO programs traditionally focus on a particular topic or disease, for example, hepatitis C infection,<sup>12</sup> substance use disorders (SUDs),<sup>13</sup> or chronic pain.<sup>14</sup> In the case of ECHO Care, sixteen multidisciplinary specialists were brought together to help OITs address the wide variety of complex physical, behavioral, and social needs of ECHO Care patients. Specialists consisted of experts in addiction medicine, cardiology, endocrinology, gastroenterology, infectious disease, nephrology, neurology, palliative care, psychiatry, pharmacy, and pulmonology, as well as a hospitalist, a nurse, an experienced CHW, a licensed social worker, and a Legal Aid representative.

**Program Description**

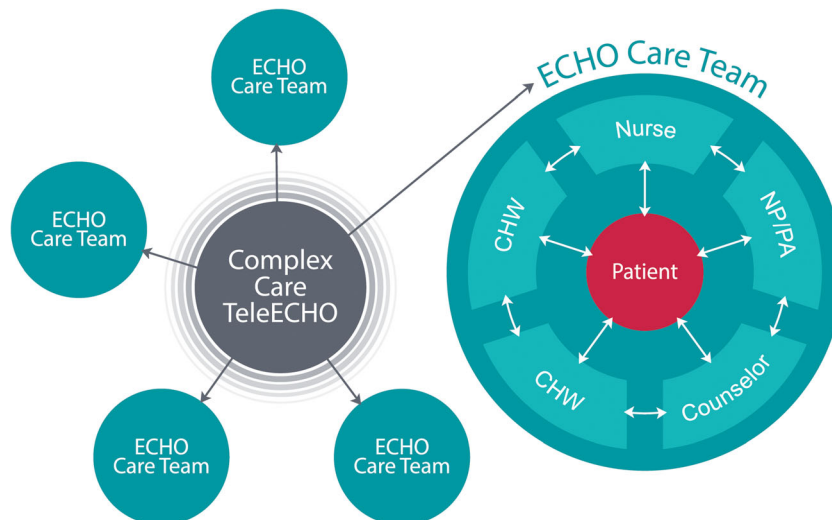
Before OITs started seeing ECHO Care patients and participating in the teleECHO sessions, they participated in a 3-day in-person team training that focused on a variety of topics (Appendix Table 1), including implementing team-based care, home visits and transitions of care, and promoting health behavior change. The training included videos, lectures, and in-person activities.

After the face-to-face training, OITs participated in weekly Complex Care teleECHO sessions that consisted of OIT-led case presentations and a specialist-led lecture on a relevant topic. Presented cases were often about the most challenging-to-treat ECHO Care patients, most of whom struggled with overcoming social barriers and behavioral health conditions that made it difficult to access effective care. Presenting OITs members completed a case presentation form about their patient before the teleECHO session, which provided specialists with pertinent information and the main concerns of the OIT (Appendix Figure 2). The specialist-led lecture curriculum evolved to address the most pressing issues faced by the OITs (Appendix Table 2) and complemented the in-depth patient case discussions, which were the primary focus of the teleECHO sessions. Lecture topics included specific disease topics (e.g., SUDs, psychiatric illnesses, liver disease) and supporting team-based care (e.g., CHW-focused training, working with managed care coordinators, professional boundaries).

Case discussions led to multidirectional knowledge sharing, with the specialists and other participants weighing in on the best course of action for the patient. OITs that did not present a case during a teleECHO session also benefited from the case discussion, and could apply relevant information to their own practice. After the teleECHO sessions, relevant specialists provided written recommendations to the presenting OIT, but it was at the team’s discretion to implement them. OITs could also re-present a patient case in a later teleECHO session to receive further suggestions as the needs of their ECHO Care patients evolved.

**Program Evaluation**

On average, 12 specialists (range, 2–19) and 23 participants (range, 4–45) attended each of the 111 Complex Care teleECHO sessions. Over the span of 34 months, 427 cases were presented on 282 unique patients or 37% of the total ECHO Care patient cohort (*n* = 770 patients). During each



**Figure 1** The ECHO Care model.

teleECHO session, an average of four cases were discussed, often including at least one follow-up case. NPs and PAs presented most (82%) cases, while presentations by RNs, BH providers, and CHWs accounted for the remaining 18%. OITs and specialists received nearly 2500 hours of continuing education credits for participating in the teleECHO sessions.

To understand the complexities of the cases presented, we extracted all diagnoses from the written case presentation forms that OITs submitted prior to the teleECHO sessions ( $n = 427$  cases). We excluded seven cases due to inconsistent or uninterpretable information. Patient medical diagnoses and social needs on case presentation forms were grouped into three categories: social, behavioral, or physical “diagnoses” (Appendix Table 3). Written recommendation forms were used to clarify the diagnoses addressed during the case discussions. A total of 1787 diagnoses were documented in the case presentation forms, including 307 social (17%), 581 behavioral health (33%), and 899 physical (50%) diagnoses, respectively. Eighty-one percent of the cases had diagnoses in at least two of the three categories (social, behavioral, or physical). Depression, pain, type 2 diabetes, anxiety/panic disorders, and hepatitis C were the most common diagnoses documented on the case presentation forms (Appendix Table 3). Despite the relatively small number of social diagnoses, these needs often affected the OITs’ ability to address their patients’ behavioral or physical diagnoses, and included unreliable housing, patient isolation or lack of support, and inconsistent patient engagement (Appendix Table 3).

In addition to categorizing the patient diagnoses, we surveyed the OITs using two approaches: post-teleECHO session surveys—filled out by participants seeking continuing education credits—indicated how the case discussions affected their practice; and a feedback survey administered once to understand OIT satisfaction with the teleECHO program.

Between June 2015 and June 2016, 27 OIT members seeking continuing education credits filled out 274 post-session surveys (87% of all OIT members filled out these surveys and agreed to participate in research on program impact). From the 274 surveys, 106 were from OIT members who had presented a case. Seventy percent of these responses indicated that the

case discussion changed the presenter’s care plan for their patient. Participants who did not present a case also benefitted from the case discussions. Seventy-four percent of responses (201 of 271) indicated that participants learned something new from the cases presented by others, and 87% (170 of 195) of the responses indicated that the information discussed would be useful to care for their own patients. The sample sizes vary because participants were not required to answer every question.

Additionally, the feedback survey measured OIT member self-efficacy and satisfaction with the Complex Care teleECHO program. Eighty-three percent of survey participants felt that the teleECHO program helped to develop their expertise (Table 1, Question 1), and 75% of respondents felt comfortable teaching their patients what they had learned (Table 1, Question 2). Most (83%) survey respondents indicated that participating increased their professional satisfaction (Table 1, Question 3). Finally, nearly all (92%) survey respondents agreed that their participation benefitted patients under their care, and that ECHO Care enhanced the quality and safety of care for their patients (Table 1, Questions 4 and 5, respectively).

## DISCUSSION

Pairing the ECHO model with intensive outpatient care is a feasible strategy that supports OITs to provide high-quality care to HNHC patients. The interdisciplinary design of OITs enabled these healthcare providers to address ECHO Care patients’ simultaneous social, behavioral, and physical “diagnoses” with the guidance and support from a multidisciplinary team of specialists. This consistent mentorship correlated with improved OIT self-efficacy in caring for HNHC patients (Table 1).

ECHO Care specialists were essential in mentoring OITs to address their patients’ complex needs, and a description of their perceptions of ECHO Care is forthcoming. The range of patient diagnoses illustrates the importance of the multidisciplinary nature of the ECHO Care specialists (Appendix Table 3). Without their expertise, many of these patients would have been referred to multiple specialists, which could have led to care

Table 1 OIT Feedback Survey Results

Question number	Survey question*	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean (SD) <sup>†</sup>
1	I continue to develop expertise through participation in Project ECHO.	0%	0%	17%	33%	50%	4.33 (2.13)
2	After gaining expertise in the diseases addressed in Complex Care Clinic, I am comfortable teaching patients what I have learned.	0%	8%	17%	50%	25%	3.92 (2.02)
3	Learning to provide care for complex patients has increased my professional satisfaction.	0%	0%	17%	33%	50%	4.33 (2.13)
4	My participation in Project ECHO benefits patients under my care.	4%	0%	4%	46%	46%	4.29 (2.12)
5	ECHO Care enhances the quality and safety of care for my patients.	4%	0%	4%	50%	42%	4.25 (2.11)

\*The feedback survey response rate was 77%.  $n = 24$  for all questions and consists of responses from 5 NP/PAs, 6 RNs, 3 BH providers, and 10 CHWs  
<sup>†</sup>Mean and SD were calculated as weighted values based on the number of responses from each credential type

fragmentation. For example, the gastroenterologist and infectious disease specialist guided OITs on appropriate treatment strategies for hepatitis C cases. The addiction specialist supported OITs to manage patients' medications for addiction treatment at the primary care level. Finally, the psychiatrist and licensed social worker helped teams manage patients' psychosis and other diverse mental health disorders. The importance of the Complex Care teleECHO sessions as support for the OITs was underscored by the survey feedback; participants stated that they applied what they learned during the case presentations to their practice, including the management of concurrent complex diseases, and believed that participation in the teleECHO sessions was important to "provide excellent specialty care where [the] patients live."

There are several limitations to this evaluation of the Complex Care teleECHO program. We collected patient diagnoses from written case presentation forms; future evaluations could use recordings of the teleECHO sessions to reveal undocumented complexities of the cases and how they were addressed. Further, we only measured satisfaction at one time point using the feedback survey. Using a pre/post-evaluation design could further validate our findings. Finally, measuring healthcare utilization and costs are two common measures that can gauge the success of complex care models.<sup>4,15–18</sup> These outcomes are beyond the scope of this report, and are described in a complementary article.<sup>19</sup>

This pilot demonstrates that the ECHO model can be used to increase primary care providers' access to multidisciplinary expertise, facilitating their ability to manage complex issues directly and increasing access to specialty care for the patients who need it the most.<sup>5,20</sup> Organizations should consider adding an ECHO component to their existing programs for HNHC patients, and evaluating the impact of this additional component. The ECHO Institute provides free training, and several organizations across the country have incorporated ECHO into their complex care programs. The main barrier is developing a sustainable payment model; however, building an evidence base regarding the potential cost savings may help to address this barrier.<sup>19</sup>

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