



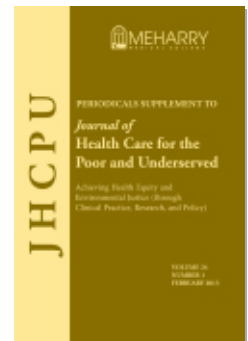
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Khushbu Khatri
Marwan Haddad
Daren Anderson

Journal of Health Care for the Poor and Underserved, Volume 24, Number 2, May 2013, pp. 850-858 (Article)

Published by The Johns Hopkins University Press
DOI: 10.1353/hpu.2013.0093



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Project ECHO: Replicating a Novel Model to Enhance Access to Hepatitis C Care in a Community Health Center

Khushbu Khatri
Marwan Haddad, MD, MPH
Daren Anderson, MD

Abstract: Project Extension for Community Healthcare Outcomes (Project ECHO™) is an innovative telemedicine program that improves patient care by developing and supporting the competence of primary care providers. The Community Health Center, Inc. replicated this model to address significant access issues and improve hepatitis C management and treatment for its patients.

Key words: Hepatitis C, community health centers, telemedicine, primary care, Project ECHO

Between 2.7 million and 3.9 million Americans live with a chronic hepatitis C infection (HCV),¹ but less than 20% receive treatment for the condition.^{2,3} Many medically underserved patients, who are appropriate candidates for antiviral treatment, do not receive treatment for a variety of reasons, including limited or no insurance coverage and the high cost of antiviral therapy.³⁻⁶ These access barriers are compounded by the fact that HCV is particularly prevalent in populations struggling with substance abuse problems, poverty, homelessness, mental illness, low literacy, and language issues.^{2,3,7,8} Often, patients with HCV receive fragmented care from a variety of sources which can contribute to the low rates of treatment initiation, and poor treatment outcomes.³

Federally qualified health centers (FQHCs) emphasizing access, quality, and cultural competence are ideal locations to meet the complex needs of underserved patients with chronic illnesses such as HCV. Federally qualified health centers are ahead of many other primary care delivery systems in implementing the patient-centered medical home (PCMH) model which emphasizes care-coordination, patient centricism, enhanced access, and self-management to improve patient outcomes.⁹ This model promises to reduce health care disparities by enhancing health outcomes and reducing costs for ethnic/racial minority populations.^{10,11} While the PCMH in the context of a FQHC is powerful for overcoming barriers to care, there is still a need for innovative health care delivery models to enhance access to treatment for specialized conditions, such

THE AUTHORS are affiliated with Community Health Center, Inc., where **DR. HADDAD** is the Director of Buprenorphine and Suboxone Services and **DR. ANDERSON** is VP/Chief Quality Officer. Please address correspondence to Daren Anderson, MD; VP/Chief Quality Officer, Community Health Center, Inc., 635 Main St., Middletown, CT 06457; 860-347-6971; daren@chc1.com.

as HCV. Few primary care providers (PCPs) have adequate training in HCV treatment.^{3,12,13} Primary care providers also have limited access to specialists for consultation or referral, and communication between specialists and PCPs is often inadequate.^{14,15,16} Specialists willing to see patients with limited or no health insurance often have long waiting lists for appointments.^{8,17,18}

Project Extension for Community Healthcare Outcomes (Project ECHO™) is an innovative program that uses teleconferencing, case-based learning, and disease management to expand access to specialty care for underserved patients. First conceived at the University of New Mexico (UNM), Project ECHO is a model that addresses rural health access issues for chronic HCV patients in New Mexico. The model has since spread to a variety of health care settings in multiple areas of specialty care across the United States and internationally.^{19–22}

During a typical HCV Project ECHO session, a short didactic lecture is given by a member of the team of multidisciplinary specialists followed by case presentations by PCPs joining the session by videoconference. The multidisciplinary team of experts may include a hepatologist, an infectious disease specialist, a pharmacist, and a behavioral health specialist. Primary care providers submit their cases in advance by completing and faxing a standardized paper form with the patient's deidentified medical history, laboratory results, physical exam, diagnostic images, and specific questions for the panel. The team then works with that PCP to help develop a comprehensive treatment plan to be carried out by the primary care clinic staff. Other PCPs on the network participate in the case discussions, make suggestions, and offer advice to the presenting provider. Through this process of shared learning and guided practice community providers gain extensive sub-speciality knowledge. Over time, they gain competence and confidence and are able to provide effective, evidence-based treatment to more underserved patients. In a recent study, PCPs taking part in Project ECHO achieved equal or superior treatment outcomes as compared to specialists when treating HCV.¹²

Project ECHO bridges the gap between primary care and specialty care by connecting the specialist to the PCP to create a “one-to-many” effect, that is unlike older forms of telehealth delivery that focus on the one-to-one encounter between a specialist and a patient. Through weekly videoconferences, didactic presentations, and case-based learning, multidisciplinary specialists help PCPs and their care teams develop expertise in a specific field which they can then apply to other patients in their clinic. As a result, PCPs deliver best-practice care to their patients and the need to refer them to specialists is reduced.

Setting

The Community Health Center, Inc. (CHCI) is a statewide FQHC providing comprehensive primary care, behavioral health, and dental care to over 130,000 of Connecticut's most underserved patients in urban and suburban practice sites. More than 60% of CHCI patients are members of racial/ethnic minority groups; over 90% have incomes of less than 200% of the federal poverty level; 60% have Medicaid or state insurance; and 22% are uninsured. Community Health Center, Inc. provides integrated care in

Table 1.**HCV PATIENT CHARACTERISTICS AT CHCI (N=872)**

Mean age, years	46.94
Gender, % (n)	
Male	63.53 (554)
Female	36.40 (318)
Race or ethnic group, % (n)	
Black or African American	11.58 (101)
Caucasian	48.05 (419)
Hispanic	37.61 (328)
Other	2.75 (24)
Receiving HCV treatment, % (n)	
Yes	4.01 (35)
No	95.99 (837)

HCV= chronic hepatitis C infection

CHCI= Community Health Center, Inc

over 200 locations by using a centralized practice management system, an electronic health record (EHR), an agency-wide intranet, and a video conferencing system.

Project ECHO was originally conceived to connect PCPs located in remote areas to specialists in academic health centers.^{7,23} Although Connecticut has an abundance of hospitals and specialists, medically underserved patients still face substantial access barriers similar to those in states like New Mexico.¹⁷ These access barriers are largely due to the lack of health insurance and the limited number of specialists accepting state Medicaid insurance.²⁴ While quality primary care is accessible to all CHC patients, there is no parallel safety net for specialized care.²⁵ A survey of FQHC medical directors reported that unwillingness of specialists to accept patients with limited or no insurance was the most frequent access barrier that their patients faced.²⁶

At CHCI there are 872 patients with chronic HCV (Table 1) that have been seen within the previous year. Only 4% are currently being treated for HCV or have received treatment within the past 12 months. The majority, 66.74%, have state Medicaid insurance and 5.28% are uninsured (Table 2). To address the pronounced need for access to evidence based treatment for HCV in its population, CHCI sought to replicate and implement Project ECHO into its PCMH model using internal resources. This project was conducted as a Quality Improvement intervention.

Replication of Project ECHO at CHCI

Over the course of nine months CHCI staff studied the Project ECHO model, developed internal capacity, built the necessary infrastructure, and adapted the model. Staff from the UNM provided critical support and guidance during the process. The adoption of Project ECHO included several discrete steps.

Table 2.**HEPATITIS C PATIENT INSURANCE STATUS TYPE (N=872)**

Insurance type	% (n)
Medicaid	48.74 (425)
Medicaid Managed Care Fee for Service	7.22 (63)
Medicare	10.78 (94)
Private Managed Care Fee For Service	2.64 (23)
Private Non-Managed Care	0.80 (7)
Uninsured	5.28 (46)
Unknown	24.54 (214)

Recruitment of faculty. The CHCI Project ECHO expert panel was assembled from the existing staff within the health center. Three CHCI sites offered HIV and HCV management. The treatment team supported by Ryan White federal funding, included two family practice physicians, an advanced practice registered nurse (APRN), and a nurse care coordinator specializing in HIV and HCV treatment. This team took the lead on replicating Project ECHO at CHCI to expand access to care to other CHCI sites and added a psychiatric APRN and a pharmacist.

Replication visit. To learn about Project ECHO and ensure fidelity to its model, a few members of the CHCI ECHO team went to a replication orientation held in Albuquerque, New Mexico. UNM Project ECHO staff conduct such replication visits on a recurring basis and provide detailed information regarding the administration, technology, history, and philosophies of Project ECHO.

Joining Project ECHO New Mexico. To gain practical experience prior to implementation of the model, the CHC ECHO team joined the existing ECHO sessions, run weekly at UNM. For six months, CHCI's team attended the ECHO sessions, presented cases, and learned the details of how the model worked through active participation.

Technical capability. Much of the technological infrastructure for Project ECHO was already in place at CHCI. Each practice location had a video conferencing system allowing participants to connect to the weekly sessions. However, the video conference system is heavily used by staff across the agency, presenting scheduling and access issues. Additionally, several interested providers provide care in remote sites such as homeless shelters or have flexible hours and are not on site during ECHO sessions. To address these issues, CHCI purchased a mobile teleconferencing platform, Vidyo®, which allowed all ECHO participants to securely join the conferences from any computer with a webcam or from mobile devices (smart phones or tablets).

Community Health Center, Inc. modified the case submission process to capitalize on its EHR, by developing an internal electronic referral within the EHR for case submissions. These referrals highlight the presenter's concerns and are assigned to CHCI's ECHO Coordinator who forwards the cases to all ECHO faculty. During ECHO sessions

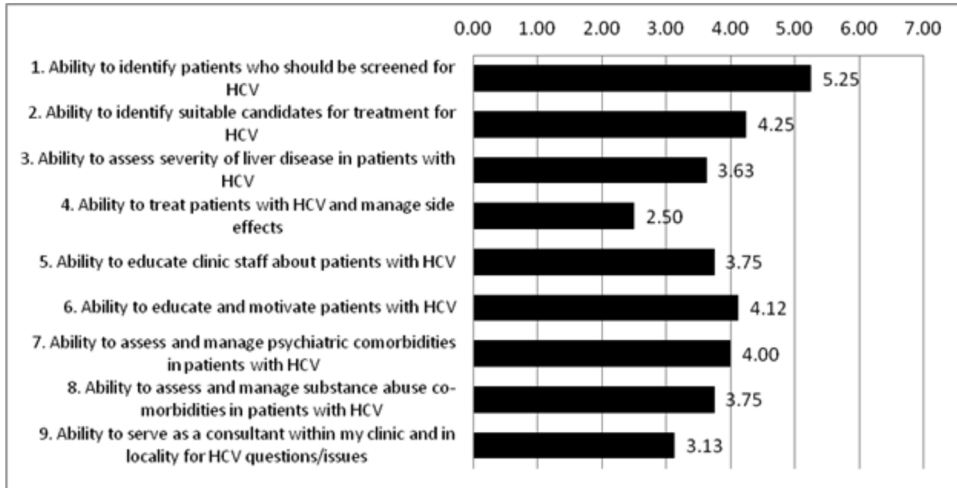


Figure 1. Baseline average self-efficacy scores for PCPs participating in CHCI Project ECHO (N=8)^a

^aRating scale on a 1–7 basis: 1 = none or no skill at all; 2 = vague knowledge, skills or competence; 3 = slight knowledge, skills or competence; 4 = average among my peers; 5 = competent; 6 = very competent; 7 = expert, teach others

PCP= Primary Care Provider

CHCI= Community Health Center, Inc

ECHO= Project Extension for Community Healthcare Outcomes

the participants and faculty log onto the EHR and have access to the complete patient record. In addition, the presenting PCP records the recommendations from the ECHO expert panel directly into the EHR, thereby maintaining a complete electronic record of the ECHO referral and the new treatment plan. Through usage of the EHR, CHCI Project ECHO is a streamlined paperless process.

PCP recruitment. The CHCI Project ECHO staff and faculty recruited PCPs from each practice site who were interested in treating HCV. Recruitment efforts were particularly focused on sites known to have a high number of untreated HCV patients and with more limited access to specialists. To minimize disruption to clinic operations, only one provider from each site was allowed to join. A total of eight providers from different sites ultimately joined the ECHO sessions. Surveys of these providers indicated a low degree of knowledge about HCV and limited confidence in ability to treat this illness (Figure 1). Primary care providers and faculty members receive Continuing Medical Education (CME) credit for each ECHO session they attend.

Data collection. The University of New Mexico Project ECHO provides its technologies and innovations to other organizations willing to replicate Project ECHO. One such technology is iECHO, a web-based program to aid in administration of Project ECHO. iECHO allows the coordinator to log and track the operational details of each ECHO session including date, session notes, attendees, patient identifiers, and didactic lecture information. Documents can also be uploaded and attached to the corresponding record in iECHO.

Table 3.**ECHO HCV CLINIC SESSION CHARACTERISTICS**

Unique HCV sessions	12
Total no. patients presented	63
Total no. unique patients presented	48
Mean presentations per clinic	5
Mean presentations per ECHO participant	7
No. Didactic presentations	10

HCV= chronic hepatitis C infection

ECHO= Project Extension for Community Healthcare Outcomes

Initial Results

Project ECHO at CHCI has now been in operation for six months and has conducted 12 HCV sessions (Table 3). Each session runs for two hours every two weeks (the alternating week is reserved for HIV case presentations). The sessions include a brief didactic lecture followed by case presentations. Since the program's inception, CHCI PCPs have presented and created care plans for 48 unique patients with HCV (Table 3).

Conclusion

The PCMH is a model of advanced primary care that provides patients with enhanced access to coordinated, high-quality, evidence-based care. In this project, CHCI integrates the ECHO model into a well-established medical home and used it to bring needed care to patients with HCV. Furthermore, by incorporating the ECHO model into its EHR and video conferencing systems, CHCI creates a fully integrated health care delivery platform that can be accessed remotely from any location. While numerous health care settings across the U.S. are working to replicate the ECHO model,^{20,21} CHCI is the first FQHC to do so independently. The ECHO model has enormous potential to improve health outcomes and reduce cost. Care that was once delivered in specialty locations can now be received in primary care settings. Patients who previously lacked access to HCV specialty care are now able to be treated, thereby reducing the impact of advanced liver disease. In addition, the ECHO model allows all the benefits and resources of a community health center to be at the disposal of a highly complex and vulnerable population.

The main threat to the ECHO model is financial. Currently, there is not a well-established model to finance Project ECHO. The CHCI operates in a fee-for-service environment that reimburses only for face to face patient encounters. While health savings undoubtedly occur as a result of ECHO, these savings are not passed on or realized by CHCI. Furthermore, CHCI clinicians and expert faculty take two hours per week to attend and conduct the ECHO sessions, time that would otherwise be

spent seeing patients and generating revenue. This lost productivity, in addition to the necessary technological infrastructure, represents substantial costs that need to be reimbursed in some way if ECHO is to be successfully expanded and sustained over the long term. Some funders in other states have offered reimbursement to primary care providers for presenting cases at an ECHO session.²⁷ Such a per-case reimbursement mechanism is one method to address the sustainability of the model. However, as more entities form Accountable Care Organizations (ACOs), the alignment of incentives for shared cost savings should encourage projects such as ECHO and may represent a more effective, long-term solution.

The impact of the Affordable Care Act (ACA) of 2010 on interventions such as Project ECHO remains to be seen. The ACA will extend coverage to millions of Americans, many of whom will gain coverage through expansion of state Medicaid programs. Given the limited availability of specialists willing to accept Medicaid insurance, this may result in an increased need in programs such as ECHO.

As health care systems begin to deliver more efficient, integrated care, models like Project ECHO are needed to fundamentally change the current standard of specialist and primary care interaction. A strong, vibrant primary care infrastructure using technology and team-based approach to care, as emphasized in Project ECHO, must be at the heart of any new and innovative health care delivery model.

Acknowledgments

Supported in part by a grant from Vertex Pharmaceuticals.

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