Project ECHO

A transformative model for improving health

Miriam Komaromy, MD
Professor of Medicine
ECHO Institute, University of New Mexico
Fulbright Scholar, Hanoi Medical University
At ECHO, our mission is to democratize medical knowledge and get best practice care to underserved people all over the world.

Our goal is to touch the lives of 1 billion people by 2025.
ECHO Telehealth vs. Telemedicine

ECHO Telehealth

ECHO Supports Community Based Primary Care Teams

Patients reached with specialty knowledge & expertise

Traditional Telemedicine

Specialist Manages Patient Remotely
<table>
<thead>
<tr>
<th>Statement</th>
<th>Rating</th>
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<tbody>
<tr>
<td>Project ECHO® has diminished my professional isolation.</td>
<td>4.3</td>
</tr>
<tr>
<td>My participation in Project ECHO® has enhanced my professional satisfaction.</td>
<td>4.8</td>
</tr>
<tr>
<td>Collaboration among agencies in Project ECHO® is a benefit to my clinic.</td>
<td>4.9</td>
</tr>
<tr>
<td>Project ECHO® has expanded access to HCV treatment for patients in our community.</td>
<td>4.9</td>
</tr>
<tr>
<td>Access, <strong>in general</strong>, to specialist expertise and consultation is a major area of need for you and your clinic.</td>
<td>4.9</td>
</tr>
<tr>
<td>Access to <strong>HCV specialist</strong> expertise and consultation is a major area of need for you and your clinic.</td>
<td>4.9</td>
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Outcomes of Treatment for Hepatitis C Virus Infection by Primary Care Providers

Sanjeev Arora, M.D., Karla Thornton, M.D., Glen Murata, M.D., Paulina Deming, Pharm.D., Summers Kalishman, Ph.D., Denise Dion, Ph.D., Brooke Parish, M.D., Thomas Burke, B.S., Wesley Pak, M.B.A., Jeffrey Dunkelberg, M.D., Martin Kistin, M.D., John Brown, M.A., Steven Jenkusky, M.D., Miriam Komaromy, M.D., and Clifford Qualls, Ph.D.

ABSTRACT

BACKGROUND
The Extension for Community Healthcare Outcomes (ECHO) model was developed to improve access to care for underserved populations with complex health problems such as hepatitis C virus (HCV) infection. With the use of video-conferencing technology, the ECHO program trains primary care providers to treat complex diseases.

METHODS
We conducted a prospective cohort study comparing treatment for HCV infection at the University of New Mexico (UNM) HCV clinic with treatment by primary care clinicians at 21 ECHO sites in rural areas and prisons in New Mexico. A total of 407 patients with chronic HCV infection who had received no previous treatment for the infection were enrolled. The primary end point was a sustained virologic response.

RESULTS
A total of 57.5% of the patients treated at the UNM HCV clinic (84 of 146 patients) and 58.2% of those treated at ECHO sites (152 of 261 patients) had a sustained virologic response (difference in rates between sites, 0.7 percentage points; 95% confidence interval, −9.2 to 10.7; P = 0.89). Among patients with HCV genotype 1 infection, the rate of sustained virologic response was 45.8% (58 of 128 patients) at the UNM HCV clinic and 49.7% (74 of 149 patients) at ECHO sites (P = 0.57). Serious adverse events occurred in 15.7% of the patients at the UNM HCV clinic and in 6.9% of the patients at ECHO sites.

CONCLUSIONS
The results of this study show that the ECHO model is an effective way to treat HCV infection in underserved communities. Implementation of this model would allow other states and nations to treat a greater number of patients infected with HCV than they are currently able to treat. (Funded by the Agency for Healthcare Research and Quality and others.)
### Treatment Outcomes

<table>
<thead>
<tr>
<th>Outcome</th>
<th>ECHO</th>
<th>UNMH</th>
<th>P-value</th>
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<tr>
<td></td>
<td>N=261</td>
<td>N=146</td>
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<tr>
<td>SVR* (Cure) Genotype 1</td>
<td>50%</td>
<td>46%</td>
<td>NS</td>
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<tr>
<td>SVR* (Cure) Genotype 2/3</td>
<td>70%</td>
<td>71%</td>
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*SVR=sustained viral response


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<table>
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<tr>
<th>MON</th>
<th>TUE</th>
<th>WED</th>
<th>THURS</th>
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<td>HBV</td>
<td>Community Health Workers</td>
<td>CDC Good Health and Wellness in Indian Country</td>
<td>Opioid Addiction</td>
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<tr>
<td>• Bankhurst</td>
<td>• Gish</td>
<td>• CHW Team</td>
<td>• Struminger</td>
<td>• Komaromy</td>
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<td>Tuberculosis</td>
<td>Bone Health</td>
<td>Endocrinology &amp; Diabetes</td>
<td>Chronic Pain and Opioid Management</td>
<td>Nurse Practitioner/ Certified Midwife Primary Care</td>
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<td>• Burgos</td>
<td>• Lewiecki</td>
<td>• Bouchonville</td>
<td>• Comerci</td>
<td>• Van Roper</td>
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<td>Cardiology</td>
<td>Crisis Intervention for Community Policing Agencies</td>
<td>Miners' Wellness</td>
<td>Prison Peer Education Program</td>
<td>Integrated Addictions and Psychiatry (IAP)</td>
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<td>• Achrekar, Anderson &amp; Yatskowitz</td>
<td>• Duhigg</td>
<td>• Sood</td>
<td>• Thornton</td>
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<td>Reproductive Health</td>
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<td>Hepatitis C (HCV)</td>
<td>HIV/ HCV Corrections</td>
<td>Antimicrobial Stewardship</td>
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2:1 Matched Cohort Study

11 nursing homes received ECHO intervention. Matched with 22 controls

Residents in ECHO Age facilities were 75% less likely to be physically restrained

Residents were 17% less likely to be prescribed antipsychotics
University of Rochester experts in geriatric psychiatry help train and mentor primary care clinicians in NY.

Since 2014, 500 clinicians have participated in their ECHO project funded by AHRQ.

There was a 20% reduction in emergency department visits.

24% reduction in overall costs.

Cumulative number of buprenorphine-waivered physicians per million population in traditionally underserved zip codes in NM versus US

Currently there are 1582 Zip Codes in the US with the following characteristics:
1) Rural (less than 1,000 people per sq mile.)
2) More than 50% of people identify themselves as American Indian or Alaska Native, Asian American, Black or African American, Hispanic or Latino, or Native Hawaiian/Other Pacific Islander.
3) The average household income is less than $52,250.

10,629,084 people reside in these zip codes, with 784,455 of those living in NM. There are 479 licensed providers residing within these zip codes, 110 within New Mexico.
513 patients who had a liver SCAN-ECHO visit were found within the cohort. Patients who had completed a virtual SCAN-ECHO visit were more likely younger, rural, with more significant liver disease, and evidence for cirrhosis. Propensity adjusted mortality rates using Cox Proportional Hazard Model showed that a SCAN-ECHO visit was associated with a **hazard ratio of 0.54** (95% CI 0.36-0.81, p = 0.003) compared to no visit.
How is ECHO being scaled up to respond to the opioid epidemic?
"Hub-lets" provide specialist teams

Supporting hub leads development of curriculum and provides IT, evaluation, and admin support, and participant recruitment for all hubs.
HRSA-funded National Opioid Addiction Treatment ECHO Program

INTERDISCIPLINARY
Half are medical providers, and one third are behavioral health providers

PARTICIPATION
• 429 participants from
• 192 HRSA-funded health centers
Participants in ECHO for addiction/mental health report that presenting cases changes their management plan\textsuperscript{1}.

For this national Opioid ECHO, early results show:

- Impact of case-based learning in each session
  - For those who presented a case:
    - 92% say input changed management plan
  - Learning from cases presented by others:
    - 81% learned something new from a case presented that day which will change their care of their own patients
- Marked increase in confidence and significant increase in positive attitude

Komaromy, Psychiatric Services, 2017
In 2017 $0.5B was distributed to states through the CURES Act to address Opioid Use Disorder. 20 states are implementing Opioid ECHO using CURES funds.
States and countries can use the ECHO shared-services model to scale-up their workforce to meet the need for prevention, screening, and treatment of opioid use disorder and other epidemics.
Adult learning theory

- Adults will learn only what they need to learn
- Their learning is primarily problem-based rather than subject-based
- They have a rich reservoir of experience to apply to their learning
- They learn best in informal settings
- They want guidance rather than instruction

Knowles, 1970

All of these are features of ECHO case-based learning
Project ECHO® is a lifelong learning and guided practice model that revolutionizes medical education and exponentially increases workforce capacity to provide best practice specialty care and reduce health disparities through its hub-and-spoke knowledge sharing networks.
Disease Selection

- Common diseases
- Management is complex
- Evolving treatments and medicines
- High societal impact (health and economic)
- Serious outcomes of untreated disease
- Improved outcomes with disease management
miriamk1@salud.unm.edu
Potential Benefits of the ECHO Model

- Quality and Safety
- Rapid Learning and best-practice dissemination
- Reduce variations in care
- Access for Rural and Underserved Patients, reduced disparities
- Workforce Training and Force Multiplier
- Improving Professional Satisfaction/Retention
- Supporting the Medical Home Model
- Cost Effective Care- Avoid Excessive Testing and Travel
- Prevent Cost of Untreated Disease (e.g.: liver transplant or dialysis)
- Integration of Public Health into treatment paradigm

Democratize Knowledge