

Project ECHO Implementation: Guidance from the Field

Frequently Asked Questions

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Introduction

Extension for Community Healthcare Outcomes (Project ECHO) is a telementoring program for health professionals that uses adult learning techniques and interactive video technology to connect distal community providers with specialist and multidisciplinary teams in real-time collaborative sessions. Project ECHO began in 2003 with a Hepatitis-C program at the University of New Mexico. As of February 2023, the ECHO Institute reports that there are more than 400 ECHO hubs and more than 2,900 programs offered in the United States and Canada. Worldwide, ECHO has spread to more than 860 hubs in 62 countries. As Project ECHO diffuses across the United States and Canada, and well beyond, adopters and potential adopters have raised questions about how to implement and adapt the model to advance health care access for rural and under-resourced populations.

Diffusion Associates studied ECHO implementation – the way that staff and leaders arrange and operate ECHO hubs and programs — at 34 ECHO hubs and across 62 ECHO programs in the United States and Canada. At each site, we interviewed 2-3 people associated with the ECHO hub or study site (not all study sites have a hub) and 2-4 people associated with each ECHO program. When two programs were studied at each site, they were selected based on how they were different. A most-different approach to selection maximizes structural differences and attends to similarities in observation despite the differences across programs. We conducted and transcribed 95 interviews that included 160 respondents. Interviews focused on the adoption, implementation, and sustainability of the ECHO Model. This study was funded by the Robert Wood Johnson Foundation. It was separate from but endorsed by the ECHO Institute at the University of New Mexico Health Science Center.

Our study team included 25 ECHO implementation fellows – practitioners actively implementing ECHO programs. Implementation fellows were involved in developing survey questions and in interviewing respondents. Throughout two years of conversation with fellows, they consistently emphasized the need for guidance when initiating and growing ECHO hubs and programs. The following FAQs, based on our study and feedback from fellows, are intended to address this need.

The study sites, the topic of the ECHO programs we studied, and the implementation fellow who worked alongside us are listed in Table 1. Not all sites had implementation fellows.

Table 1.

Study sites, ECHO program topics, and implementation fellows.

Study Site/ECHO Hub	ECHO Program Topics	Implementation Fellow
American Association of Pediatrics	<ul style="list-style-type: none">TraumaScreening, Brief Intervention, and Referral to Treatment	Trisha Calabrese
Association of Community Cancer Center	<ul style="list-style-type: none">Immuno-Oncology	Janelle Schrag
Beth Israel Deaconess Medical Center	<ul style="list-style-type: none">Care Transitions	Lauren Junge-Maughan

Study Site/ECHO Hub	ECHO Program Topics	Implementation Fellow
Cherokee Nation Health Services	<ul style="list-style-type: none"> Hepatitis C 	
Children's Healthcare of Atlanta	<ul style="list-style-type: none"> Child Abuse Pediatric Fellowship Pediatric Obesity & Endocrinology 	Aires Morrison
Huther Doyle	<ul style="list-style-type: none"> Medical Assisted Treatment Care Management 	
Indian Country	<ul style="list-style-type: none"> Hepatitis C 	
Indiana University Purdue University at Indianapolis	<ul style="list-style-type: none"> Integrated Pain Management Indiana Peer Education Program 	Andrea Janota*
Johns Hopkins University (SiNERGe)	<ul style="list-style-type: none"> Sickle Cell Disease 	
Center for Addiction and Mental Health and University of Toronto	<ul style="list-style-type: none"> General Mental Health First Nations, Inuit, and Métis Wellness 	Eva Serhal*
Minnesota Rural Addiction	<ul style="list-style-type: none"> Rural Addiction Rural Physician Assistant Program Addiction 	Katie Stangl
Northeast Ohio Medical University	<ul style="list-style-type: none"> Ohio Systems of Care Project ECHO for Multi-System Youth Integrated Care 	Sara Dugan
Northern New England ECHO Network	<ul style="list-style-type: none"> Older Adult Medication Assisted Treatment Expansion 	Kayla Cole
Ochsner Health	<ul style="list-style-type: none"> Liver Disease Management Hep C Elimination 	
Oklahoma State University	<ul style="list-style-type: none"> Infant Mental Health Pediatric Obesity Medicine 	Tara Jackson
Ontario Hospital for Sick Children (Epilepsy)	<ul style="list-style-type: none"> Children and Youth with Epilepsy Epilepsy Genetics 	
Ontario Hospital for Sick Children (Paediatric)	<ul style="list-style-type: none"> Paediatric Palliative Care Obesity Management 	Annie Jiwan
Oregon ECHO Network	<ul style="list-style-type: none"> Hepatitis C: Treatment and Elimination Nursing Facility Behavioral Health 	Maggie McLain McDonnell
Penn State University	<ul style="list-style-type: none"> Medication for Opioid Use Disorder Boy Scouts Summer Camp Revamped 	Jessica Beiler

Study Site/ECHO Hub	ECHO Program Topics	Implementation Fellow
Rutgers University	<ul style="list-style-type: none"> Community Health Workers Complex Endocrinology 	Kathy Dodsworth-Rugani*
Southern Illinois University	<ul style="list-style-type: none"> Hypertension Community Health Workers 	Karen Fraase
Texas Tech University	<ul style="list-style-type: none"> Palliative Care Telemedicine 	Laura Lappe
U.S. Army	<ul style="list-style-type: none"> Pain Management – Madigan Center Pain Management - Landstuhl 	
U.S. Air Force	<ul style="list-style-type: none"> Diabetes 	
University of Chicago	<ul style="list-style-type: none"> Behavioral Health Integration Hepatitis C 	Karen Lee*
University of Colorado	<ul style="list-style-type: none"> Autism Case Review Adolescent Reproductive Health 	Leah Willis
University of Kansas	<ul style="list-style-type: none"> Substance Use Disorders Kansas Kids Map 	Whitney Henley
University of Missouri	<ul style="list-style-type: none"> Asthma Dermatology 	Rachel Mutrux
University of Nevada, Reno	<ul style="list-style-type: none"> Nutrition Education Sports Medicine 	Troy Jorgenson*
University of Rochester	<ul style="list-style-type: none"> Sexual Health Center of Excellence Drug User Health 	
University of Utah	<ul style="list-style-type: none"> Behavioral Health Pregnancy Care 	Sarah Day*
University of Virginia	<ul style="list-style-type: none"> Hepatitis C Pulmonary 	Kimberly Albero
Weitzman Institute	<ul style="list-style-type: none"> Complex Care Management Alcohol & Smoking 	Ariel Porto*
West Virginia University	<ul style="list-style-type: none"> Hepatitis C/HIV Substance Use Disorder 	Jay Mason*

Note: * Indicates the fellow is a coauthor of this document.

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Organizing ECHO Hubs

No two ECHO hubs or programs are structured in the same way. Variance in where ECHO starts, how hubs and programs are managed and staffed, and where they are located in an organization is common. The following questions and answers provide insight into adopting, implementing, and growing an ECHO hub or program.

1. WHAT TYPES OF ORGANIZATIONS HOST ECHO HUBS?

Universities, academic medical centers, health systems, nonprofits, military, and professional associations hosted ECHO hubs and programs we studied.

ECHO hubs are frequently associated with a university and, more specifically, with academic medical centers or schools of public health. More than half of the ECHO hubs we studied were affiliated with a university or college. Universities and medical colleges are likely adopters as they are populated by subject matter experts, often have experience with medical continuing education, and ECHO, as an educational intervention, fits with their mission.

Yet, ECHO hubs are not always located within a university or medical college. Some ECHO hubs are hosted by a health care system or affiliated with providers who are not based in a college or university. These organizations also have access to subject matter experts and participants may be providers within the system – such as with Ochsner Health Systems and the U.S. Army. ECHO hubs are also hosted by professional associations, nonprofits, and regional/state networks. Professional associations, such as the American Academy of Pediatrics, and other types of nonprofits, such as Huther Doyle, have broad access to subject matter experts and can recruit from their networks of members.

2. WHERE ARE ECHO HUBS LOCATED IN ORGANIZATIONS?

The organizational home of an ECHO hub, at least initially, typically aligns with where the champion or sponsor who launches the ECHO works. What's important about organizational location is finding a fit between ECHO and the mission or aim of an organizational unit.

Each adopting organization has its own unique structure, even when they are in the same institutional sector. Variance in ECHO hub location is easily observed when looking at hubs affiliated with universities or medical colleges. For example, the following ECHO hubs are all within schools or colleges of medicine at universities. Each is affiliated with a unit where ECHO fits the mission of that unit.

- » At Southern Illinois University, the ECHO hub was located within the School of Medicine's Office of External Relations which focused on community relations, regional programs, clinical outreach, and advocacy.
- » Project ECHO Nevada was housed within the Office of Statewide Initiatives at the University of Nevada, Reno School of Medicine, which aimed to improve access to quality health care for rural Nevadans.
- » ECHO-Chicago was located within the University of Chicago's Biological Sciences Division in the Department of Pediatrics but was also part of UChicago Medicine's Urban Health Initiative which aimed to improve access to high quality care in urban, under-resourced communities.
- » Show-Me ECHO was part of the Missouri Telehealth Network in the School of Medicine at the University of Missouri.

3. HOW ARE ECHO HUBS STRUCTURED?

After looking across 34 ECHO hubs, we identified three types of hub structures: Independent hubs, nested hubs, and loosely structured hubs. These structures differ in the degree of separateness or autonomy and the extent to which ECHO is the only or the primary focus of work. Each of these structures can work well. In addition, a hub that starts off as loosely structured can become a nested or independent hub over time.

Independent stand-alone hubs typically have their own budgets and staff dedicated to ECHO and focus only, or primarily, on ECHO related work. For example, Show-Me ECHO at the University of Missouri had a staff of 27 people and 38 programs. ECHO hubs that stand-alone include those located within the University of Colorado, Rutgers University, the University of Chicago, Indiana University Purdue University at Indianapolis (IUPUI), Penn State University, and the Oregon Health and Sciences University.

Some ECHO hubs are nested within a larger department or division and are a programmatic area of work. These hubs typically do not have a budget dedicated to ECHO and ECHO is often one of several programs that they provide. For example, the ECHO hub at West Virginia University was part of the Clinical and Translational Science Institute (WVCTSI). The budget for ECHO was part of the larger WVCTSI budget and ECHO was one programmatic area within WVCTSI. Three staff worked full-time on ECHO programming and they drew on the talents and expertise of colleagues in the WVCTSI who did not work solely on ECHO.

In some instances, an organization may have one or more ECHO programs that operate independently and without a centralized hub. We identify these as loosely structured hubs. We observed that in this model you typically have one or two people who focus on ECHO programs who also have other roles and responsibilities. ECHO work at NEOMED was located in the Department of Health Affairs. They did not have full-time staff devoted to ECHO or a specific ECHO budget, though several people were working on ECHO projects. Staff working on ECHO sometimes coordinated their work but programs operated independently. Similarly, ECHO programs at Ochsner Health were coordinated by a staff person in the Multi-Organ Transplant Institute who had ECHO as part of her responsibilities.

4. SHOULD WE ENCOURAGE PEOPLE TO ATTEND ECHO IMMERSION (LAUNCH) TRAINING?

There was little question about the value of attending immersion (launch) training at the ECHO Institute.

Nearly all of the respondents in our study who participated in immersion training, did so in-person at the University of New Mexico. The University of New Mexico experience was highly regarded by interviewees (one leader at the University of Colorado attended immersion training four times). It was common for teams to attend training together as it provided time to focus on ECHO and develop relationships that strengthen the team. For example, at Southern Illinois University, teams attended immersion training together so they could develop ideas and concepts in a quiet place away from distractions. ECHO teams from other institutions also reported returning from immersion training with an implementation plan.

The value of attending immersion went beyond the time away from the office and the practical guidance offered. Attendees returned with a deeper understanding of why ECHO was important and how their work fits within the larger ECHO movement. They also met staff from other ECHOs and developed working relationships that lead to ongoing discussions about how best to implement and sustain ECHO.

With COVID, immersion training moved on-line. Few of our respondents had participated in the online immersion training. Still, some of what we learned about the value of in-person immersion can apply to an online experience. For example, teams can attend online immersion at the same time from the same location. In addition, online participants can reach out to each other and develop virtual relationships that can lead to discussions about implementing ECHO.

5. DO SOME ECHO SITES HAVE INTERNAL TRAINING PROGRAMS?

Nearly all ECHO hubs provided some in-house guidance or training for staff and subject matter experts. The training complements and sometimes supplants immersion (launch) training at the ECHO Institute. Internal training programs vary in the extent of training and who participates. We found many instances of hubs and programs using or adapting training materials available from the Project ECHO Resource Library (PERL).

Project ECHO at Penn State had a well-developed in-house training program for hub members and expert presenters. The training included a staged 10-minute video of a case discussion that participants watched before they came to the training. During the training, participants practiced a mock ECHO case discussion and debrief. Facilitators had a best practice facilitation guide that was shared among the entire hub team.

The Weitzman Institute initially sent staff to immersion training but transitioned to offering an in-house training program. Training was provided to all education team members even if they were only tangentially involved in ECHO programs. Faculty attended an ECHO orientation where they learned about expectations and how ECHO was different from a webinar. Faculty were asked to review an exemplary recorded session and participate in a “dry run.”

ECHO superhubs offer training to staff at other hubs, as well as provide training within their organization. For example, the ECHO Ontario Superhub, at the Centre for Addiction and Mental Health and University of Toronto, provided rigorous training on the ECHO Model including details of all four components of the ECHO Model, a simulation, and facilitation training.

6. HOW ARE ECHO HUBS STAFFED?

No two ECHO hubs we studied were staffed the same – titles, responsibilities, and time devoted to ECHO differed, though there was a distinction between those with administrative responsibilities across several ECHO programs – often a project manager or a director – and those providing support to programs – such as coordinators. Staffing levels varied from one person doing all ECHO work as part of their responsibilities, to larger hubs with multiple staff with specialized ECHO roles.

At some ECHO hubs, no one person was assigned full-time to work on ECHO. Rather, ECHO was just part of a job description. For example, ECHO was part of a larger set of responsibilities assigned to existing staff who were coordinating or managing other programs, interventions, or initiatives at the Association of Community Cancer Centers, Texas Tech University, Northern New England ECHO Network, and Huther Doyle.

At other ECHO hubs, one person was assigned to work on ECHO – and only ECHO. This was the case at the University of Virginia, Southern Illinois University, and Minnesota Rural Health. Individuals at these three ECHO hubs facilitated meetings, recruited participants and subject matter experts, and assisted with feedback and evaluation.

An ECHO hub may also have several people working fulltime on ECHO programs. At Rutgers University, for example, the director initially hired two staff – one with a background in education and the other with advanced work in public health and evaluation. Over time, this staff grew to three program administrators, a full-time assistant director of evaluation and quality improvement, a full-time finance and operations staff member, and several clinical coordinators. ECHO-Chicago

at the University of Chicago also had a large, dedicated ECHO staff that grew as ECHO programming expanded. When the Chicago ECHO work was starting out, each person was a jack-of-all-trades. As more staff were added, role and responsibilities became more specialized. The Missouri Telehealth Network Show-Me ECHO Team included 27 people, with eight partnerships with other organizations. For one of those eight partnerships, Show-Me ECHO was funding .10 FTE of 23 University of Missouri Extension Specialists to build community understanding of ECHO as a means of increasing participation by providers across the state.

7. WHAT INTERNAL ORGANIZATIONAL PARTNERS DO ECHO HUBS LEVERAGE FOR SUPPORT?

Partnering with or leveraging resources elsewhere in the organization can help reduce the cost of operating an ECHO and collaborating can build support for and knowledge about ECHO. In addition, ECHO can provide benefits to partners.

The SiNERGe ECHO drew on experts affiliated with the Johns Hopkins University Medical School to present didactics and as panel members to discuss case presentations. Similarly, ECHO hub staff affiliated with the Universities of Nevada-Reno, Colorado, Chicago, Rutgers, Kansas and Missouri and others mentioned reaching out to experts within their institution to support ECHO programs.

At some institutions, such as Southern Illinois University, partnerships extended to offices of marketing, communication, community relations, government relations, and telehealth programs. The Penn State ECHO team worked with development office staff in the College of Medicine to publicize ECHO work and identify potential supporters of the operation.

At the University of Kansas Medical Center, the ECHO hub linked to disease-specific units such as oncology and population-specific units such as pediatrics, along with outreach, continuing education, and telehealth. These links across units benefited ECHO; in turn, the ECHO work raised the profile of each unit in addressing health disparities, reaching rural populations, and using new communication technologies.

8. DO ECHO HUBS EVER CHANGE THEIR LOCATION IN AN ORGANIZATION?

Changing administrative homes is not common but it does occur. Organizational shifts may sound surprising and even concerning. We found, however, that fidelity can be maintained and sustainability increased as ECHO hubs move within and across organizations if the staff remain constant.

ECHO hubs typically align with the interests of the subject matter experts who initiated ECHO. But as the number of programs increase and the topics begin to incorporate new subject areas, it sometimes makes sense for the home location of the hub to move. For example, in response to a merger with the campus eConsult program, ECHO Colorado transitioned from the School of Public Health to the School of Medicine. Utah ECHO started with a Hepatitis C ECHO program housed in the transplant service line. As the focus of the ECHO programming broadened and funding lines shifted, the ECHO portfolio of programs was moved to the Office of Network Development and Telehealth and placed within the Education Team.

At the Northeast Ohio Medical University, the Department of Family and Community Medicine contracted with the ECHO Institute to offer a community health worker ECHO program. When the initiating staff left the university, the Department of Psychiatry took the lead on ECHO and expanded programming. Discussions about becoming a superhub led to a decision to relocate ECHO to the Department of Health Affairs to increase institutional support and broaden collaboration across the university.

Shifts can be more dramatic than this. The Rural Addiction ECHO in Minnesota and the Northern New England ECHO Network each changed organizations twice during our study such that we observed their respective ECHO work across three organizations.

9. CAN A HUB'S REPORTING STRUCTURE INFLUENCE ITS WORK AND FOCUS?

Where a hub is located can and often does influence ECHO work. A hub's reporting structure may bring more or less leadership support, autonomy, credibility, and financial resources. Reporting structures do matter – and we found successful implementation in many different reporting structures. For example:

- » The Weitzman Institute was the research, education, and policy arm of the Community Health Center, Inc. (CHC), the largest federally qualified healthcare center in Connecticut. ECHO was situated within the educational work stream and was one of several models or programs that the Institute supported. Being nested in the education workstream allowed the Institute to consider if ECHO was the best model for an educational program compared to other models they could draw on.
- » The ECHO hub at Southern Illinois University was located within the School of Medicine's Office of External Relations which focused on community relations, regional programs, clinical outreach, and advocacy – and this influenced how the staff talked about and acted on ECHO opportunities.
- » The Indiana University Purdue University at Indianapolis ECHO Center, located within the Richard M. Fairbanks School of Public Health, had autonomy and flexibility, but was not initially affiliated with an academic department, making it more challenging to tie the work to the academic core. The Center was actively exploring integration with an academic department which could lead to more cost sharing and support from leadership.
- » ECHO Colorado moved the School of Public Health to the School of Medicine which opened up opportunities to work with more medical faculty.

Funding ECHO Hubs and Programs

Nearly all ECHO programs are offered at no charge to participants. Funding comes from other sources, both internal and external to the host organization. Who funds ECHO work and how these funds are used is discussed in this section.

10. HOW HAVE ECHO HUBS AND PROGRAMS USED START-UP FUNDS?

Many hubs in our study received start-up funds to build an ECHO infrastructure and to launch their initial programs. The amount and source of start-up funding varied. However, decisions about how to use these funds were somewhat consistent and focused on conducting needs assessments, hiring staff with specific skills, and general support for launching initial ECHO programs.

The Oregon ECHO Network and ECHO Colorado used start-up funds to conduct extensive needs assessments. The Oregon Health Authority Transformation Center provided start-up funds to complete a feasibility study and develop a business model for offering Project ECHO throughout Oregon. The nine-month needs assessment included interviewing leaders at several ECHO hubs across the U.S. about best practices and challenges of building their ECHO networks, a survey of primary

care clinicians to assess which ECHO topics interested them the most, and implementing a pilot ECHO program about primary care behavioral health integration. The Colorado Health Foundation provided start-up funds to conduct focus groups and a listening tour of health systems, community-based organizations, traditional advocacy groups, and organizations that had an existing referral relationship with specialists at the University of Colorado Anschutz Campus. This needs assessment laid the foundation for ECHO Colorado's structure and mission to be state-focused, community-driven, and directed by a board representing non-university entities.

Project ECHO at Penn State received internal funds to start its ECHO. These funds were sufficient to hire two positions: A project director to support ECHO operations and a marketing manager to generate interest and attract participants. In New Jersey, the Nicolson Foundation, which focused on improving the health and well-being of vulnerable populations in the state, provided ECHO start-up funds to Rutgers University. These funds were used to hire a staff person with a background in education and another staff person with advanced work in public health and evaluation, to support the hub administrative lead, and to launch three ECHO programs.

11. WHICH STATE OR PROVINCIAL DEPARTMENTS FUND ECHOS?

State and provincial departments affiliated with health are those most likely to fund ECHOs, but other government departments provide funding. While there is no magic formula for finding state support, knowing the priorities of the state and meeting with state officials makes state funding more likely as evidenced by what interviewees told us.

The ECHO work at The Hospital for Sick Children and the Centre for Addiction and Mental Health and University of Toronto was “evergreen” funded. Funding for these ECHO hubs was provided by the Ontario Ministry of Health and would continue as long as ministry requirements were met.

We found many instances of a state department or division aligned with Medicaid funding ECHO programs. For example, Huther Doyle, a longtime addiction treatment provider in Rochester, New York, was part of Health Homes of Upstate New York (HHUNY), a Medicaid-funded program that aimed to coordinate those involved in an individual's care to support better health outcomes. ECHO Colorado received funding from the Medicaid Upper Payment Limit program. Medicaid Managed Care organizations in Missouri provided funding to the Show-Me ECHO hub on an annual basis. The Northeast Ohio Medical University Systems of Care ECHO received funding from Ohio Medicaid which was administered through the Government Resource Center. At the Oregon ECHO Network, two cohorts of the Nursing Facility Behavioral Health ECHO were funded through Centers for Medicare & Medicaid Services (CMS) civil money penalty funds.

We commonly found more than one state department or division providing support to an ECHO hub. At the University of Kansas Medical Center, ECHO work was supported by the Kansas Department of Health and Environment and the Kansas Department of Commerce to offer a program to medical providers about disabled persons entering and staying in the workforce. The ECHO hub at Indiana University Purdue University at Indianapolis received funding from three different divisions within the Department of Health in addition to the Indiana Department of Corrections.

12. DO SOME HOME OR HOST ORGANIZATIONS FUND ECHO WORK?

Universities, academic medical centers, health systems and nonprofits may provide one-time or ongoing funding for ECHO work from general or operating funds. However, seldom are ECHO operations entirely funded by an organization. In addition, or in place of general fund, organizations sometimes provide in-kind support where current jobs are redefined to include ECHO.

Project ECHO at Texas Tech University was an example of small-scale funding from the organization. The Medical Education Department provided a camera and small conference room for the Palliative Care ECHO, but there was no specific funding for operational support. An interviewee said, “Everyone’s time is kind of tossed in, and we’re kind of borrowing it from everyone at this point in time.”

The U.S. Air Force and U.S. Army illustrated how in-kind support can come from redefining job descriptions. The U.S. Air Force provided internal in-kind support when it allowed a health system leader to found and launch an ECHO hub with a series of ECHO programs as an additional job responsibility—the hub did not have its own budget or allocation. Similarly, in the U.S. Army, ECHO Pain Management provided release time to clinical leads, but did not provide ECHO-specific operational support. A similar model was in play at Huther Doyle and Ochsner Health Systems where ECHO work was part of the role and responsibility of existing staff.

Penn State Project ECHO began with startup funds from the university. These funds were used to hire two staff and pilot several ECHO programs. Because the team was successful in finding grants, they were able to reserve some of the internal startup funding to support ECHO projects without funding and as a funding backstop for staff. Similarly, University of Utah Health Project ECHO initially received funding from the senior vice president of Health Sciences and the departments of Surgery and Medicine. It continues to receive internal funding from the Office of Network Development and Telehealth and the University of Utah Medical Group.

A different internal funding model was used to support ECHO at West Virginia University where ECHO was part of the Clinical and Translational Science Institute funded by the National Institutes of Health (NIH). As long as NIH funds remained stable, funding was likely to continue for core ECHO staff.

ECHO operations at Indiana University Purdue University at Indianapolis were supported initially with internal funds allocated for Grand Challenges. These funds paired faculty, staff, and students from many disciplines in partnership with community and business leaders to address problems impacting Indiana and the world. One of the Grand Challenges was “Responding to the Addictions Crisis” and funds from this challenge supported the establishment of the ECHO hub and several ECHO programs.

13. ARE SOME ECHOS SUPPORTED BY PHILANTHROPIES OR OTHER PARTNERS?

Associations, philanthropies, and even individuals have provided funds to support ECHO operations. But these organizations seldom provide all the funds an ECHO needs to maintain operations. The following examples illustrate the variety of ways that associations, foundations, and even individuals have provided financial support for ECHO programming.

The Illinois Health and Hospital Association (IHA) reached out to an associate provost in the Southern Illinois University (SIU) School of Medicine, with the message: “There’s this innovative program we want to include in our grant for innovation and quality improvement. Would you partner with us to be the hub?” IHA provided funds to initiate the ECHO hub at SIU. At the Oregon ECHO Network, five organizations that had participated in a steering committee for ECHO committed funds to launch the ECHO hub.

The Nicholson Foundation in New Jersey reached out to the Robert Wood Johnson Medical School at Rutgers University to partner in introducing the ECHO Model to health care policy makers and influencers across New Jersey. The ECHO operation at Children’s Healthcare of Atlanta relied on an initial grant from the AT&T Foundation and smaller private foundations to get off the ground. The Integrated Care ECHO at Northeast Ohio Medical University (NEOMED) was initially funded by

Ohio's Medicaid Technical Assistance & Policy Program. When this funding ended, the program received funding from Peg's Foundation which had invested in the Best Practices in Schizophrenia Center at NEOMED.

The Boy Scouts Summer Camp ECHO at Penn State was initially supported by a single donor who previously served on the National Board for the Boy Scouts of America. Penn State was working with the college's development team to appeal to other private donors.

14. HAVE SOME ECHO HUBS DONE WELL WITH MINIMAL FUNDING?

Initially, an ECHO launch may only require minimal funding as long as current staff are willing and able to take on new responsibilities to work on ECHO, and subject matter experts are willing and able to volunteer for the work. However, ECHO programs that are underfunded struggle to continue to provide programs and maintain staff and expert commitment.

At Ochsner Health System in New Orleans, Louisiana, ECHO operational support was integrated into the current role of one staff person. ECHO had no separate budget and external funds were not directly supporting physician or staff time. While Ochsner was supportive, ECHO work was also being done, at least in part, on "personal" time – in the evenings, weekends, or days off.

Huther Doyle in Rochester, New York was operating two ECHOs with no additional funding. When asked why people take on additional uncompensated work, one respondent said, "Because that's just the nature of what we do. We're givers." Another respondent described funding as coming out of "Saturday afternoons." The alignment of ECHO with personal and organizational values was sufficient for current ECHO programs at Huther Doyle. That said, staff acknowledged that additional funding would be required for stability of existing programs or the development of new programs.

In academic medical centers, ECHO was sometimes entirely externally funded. Many of these ECHO hubs had some initial funding, but were expected to become self-funded. This was the expectation at ECHO Colorado, Project ECHO at Penn State, and Project ECHO at Rutgers University's Robert Wood Johnson Medical School. Sometimes, ECHO work was never supported financially by the organization. At one site, Beth Israel Deaconess Medical Center in Boston, ECHO work was funded externally from the start with a research grant from the U.S. Agency for Healthcare Research and Quality. In the end, although study results showed improved care and cost savings, those savings were captured by insurers and not the hospital. Sustainable funding from the medical center was not forthcoming and the ECHO work ended with the federal grant.

15. HOW DO FEDERAL, PROVINCIAL, OR STATE FUNDING PRIORITIES IMPACT ECHO PROGRAMS?

Many ECHO programs in the United States are funded by contracts with state departments, especially departments of health. These funds are often pass-through funds provided to the state by federal programs and offices and have designated uses, typically topical or content parameters. For example, across many states, and led by the federal government, attention to the opioid crisis in the country drove funding priorities to focus on opioid treatment and opioid overdose prevention. Not surprisingly, many ECHO programs were funded as a rapid means for sharing opioid treatment information among providers and specialists. During the COVID-19 pandemic, federal and state funding prioritized treatment and prevention of COVID-19. Project ECHO at Oklahoma State University Center for Health Sciences, among many ECHO hubs, grew quickly in response to COVID-19 needs and opportunities funded by state and federal governments. In the U.S., government funding determined the topic of some ECHOs which also meant that some topics or content areas struggled to find government funding.

An initial internal investment in ECHO can lead to external governmental support. The Oregon ECHO Network's Hepatitis C program was initially funded by the Oregon Health & Sciences University via proceeds from the pharmacy program. At the time of the first cohort, the program was a general hepatitis C diagnosis and treatment ECHO. The second cohort saw the program change to include consideration of how substance use affected the diagnosis and treatment of hepatitis C. Given this change, the next two cohorts were sponsored through the State Targeted Response for the Opioid Crisis and State Opioid Response funding from the Substance Abuse and Mental Health Services Administration that passed through the Oregon Health Authority.

It is difficult to describe the Centre for Addiction and Mental Health and University of Toronto ECHO hub without reference to its dedicated annual funding from the Ontario provincial government. Hub and program funding started as a three-year demonstration project, with additional long-term funding contingent on demonstrating both a need among healthcare providers, and successful implementation. After both outcomes were demonstrated, the project was funded on an annual basis and was expanded to additional high need specialty areas. Similarly, Ontario Ministry of Health decision makers saw the opportunities ECHO provided to address epilepsy across the lifespan. The Ministry provided "evergreen" funding to the Hospital of Sick Children (SickKids) for epilepsy programs that was expected to continue as long as ministry requirements were met. For the SickKids work, the ministry had significant input into the programs offered. If the hub wanted to build something different or shift allocations, they needed to ask.

16. WHAT ARE SOME SUCCESSFUL FUNDING STRATEGIES?

Necessity can lead to inventive funding strategies. Some funding strategies focus on strategic diversification, some on finding partners with secure funding, and still others on finding ways to share the costs of ECHO programs or operate with a fee. All funding strategies rely on intentionality – serendipity is not a strategy. The most successful funding strategies requires staff to proactively cultivate relationships and look for funding opportunities.

Successful funding strategies often acknowledge that funds are required for basic operational support *and* for programmatic support. That is, an ECHO hub has routine costs including staff, IT, marketing and so on. These are operational costs which may vary depending on the number of programs, but which are also distinct from programs. Programmatic funding is typically tied to a specific ECHO program. Programmatic funding should contribute to operational funding. Still, having some operational funding distinct from programmatic funding can allow staff to engage in non-programmatic work – such as applying for grants, developing networks, and publishing findings.

Many ECHO hubs wanted to diversify their funding streams. The University of Missouri Show-Me ECHO hub, which had 38 ECHO programs, had multiple funding streams such as state appropriation funds and contracts with each of three Medicaid Managed Care organizations. ECHO programs at Show-Me ECHO also had diverse funding, such as the Asthma ECHO which was funded by the U.S. Centers for Disease Control and Prevention, the Missouri Telehealth Network, and private foundations. Similarly, ECHO Colorado pursued multiple sources of funding – grants, institutional support, royalties, and contracts – as a strategy for financial health. This "braided funding" model meant they were not overly dependent on any single funding source.

Another approach to funding is to find a partner – external or internal to the organization – that can provide ongoing support. The Oregon Health Authority Transformation Center funded the Oregon Rural Practice-Based Research Network (ORPRN) at Oregon Health & Science University to develop a business model for offering Project ECHO throughout the state. ORPRN was chosen because of its strong connections with rural practices and experience with research in primary care. ECHO at West Virginia University is part of the Clinical and Translational Science Institute which is funded by the National Institutes of Health (NIH). As long as NIH funds remained stable, funding was expected to continue for core ECHO staff.

Emerging from the Northern New England ECHO Network was an opportunity for Maine Quality Counts/Qualidigm to use its ECHO knowledge to support other organizations and initiatives that lacked the operational capacity to deliver quality ECHO programs. Referred to informally as a “rent-a-hub,” Maine Quality Counts/Qualidigm developed a collaborative support model where an organization with content expertise and funding could partner with them to plan and deliver ECHO programming. Support included, but was not limited to, education planning, program development and kickoff meetings, hosting/facilitating the ECHO sessions, and providing technical and evaluation support (including iECHO). In the end, this funding strategy yielded modest success for Northern New England ECHO Network.

The Northern New England model was based on efforts at the Weitzman Institute in Connecticut which offered its expertise to support ECHOs for third parties. Weitzman developed a pricing structure that provided basic coverage for hub team experts and coordinator staff time. ECHO programs without overall grant or contract support operated under a “cost-sharing model,” where individual health centers or stakeholders such as health plans paid a fee per provider or per clinic for participants to join, however, there was flexibility. “We try to work with the health centers to find a way,” said an interviewee. “We’ve also let them, if they don’t have the funds, join at no cost, and then review after a year.”

Recruiting and Engaging ECHO Participants

Participants (formerly called “spokes”) and their practice are the focus of ECHO programs. Here we discuss who participates, and how to recruit and engage participants. Engagement, in particular, is a hot topic among ECHO staff since it is so important to the effective functioning of the ECHO Model.

17. ARE ECHO PARTICIPANTS ALWAYS HEALTH CARE PROVIDERS?

ECHO participants are not always health care providers, though most ECHO programs we studied were designed for health care providers.

Many different types of health care providers participate in ECHO sessions. A survey of programs in our study found that ECHO sessions nearly always include physicians, nurses, nurse practitioners, or physician associates/assistants and about half of all sessions included pharmacists, but participants are not always health care providers. Several ECHO programs we studied were designed for community health workers. In Nevada, an ECHO program was developed when community health workers expressed an interest in receiving training to provide better support for clients with diabetes. The ECHO hub at Rutgers University also sponsored a program for community health workers and participants included policy makers, community stakeholders, and community health workers. Additionally, ECHO participants are not always health care professionals. At Penn State, participants in the Boy Scout Summer Camp Revamped ECHO program were summer camp leaders and staff.

18. DO ECHOS ONLY FOCUS ON RURAL HEALTH CARE PROVIDERS?

ECHO was initially focused on rural providers – and that focus continues in many ECHO programs. Many programs, however, focus on under-resourced populations which can be urban or rural.

The Minnesota Rural Addiction programs focused nearly exclusively on rural primary care providers. However, ECHO programs also meet the needs of urban providers. The ECHO hub at the University of Chicago often focused on the south

and west side of Chicago which were low income and under- resourced areas of the Chicago health system. Some ECHO programs focused on providers within a health care system regardless of the rurality of that system. The Complex Care Management ECHO program at the Weitzman Institute focused on nurses within the Community Health Center - the home of the institute - throughout multiple urban areas of Connecticut. Similarly, participants at ECHO programs sponsored by the University of Utah were typically affiliated with the University of Utah, though providers in under resourced rural areas throughout the Intermountain West regularly participated. ECHOs affiliated with the U.S. Army and Air Force focused on physicians practicing in military clinics and hospitals which may be in urban, rural, and international settings.

19. DO SOME ECHO PROGRAMS FOCUS ON EMPLOYEES OR AN INTERNAL AUDIENCE?

We found several instances where ECHO programs are meeting the needs of the host organization’s staff. ECHO can be an effective training and practice improvement model for health care systems.

At Ochsner Health, the Liver Management ECHO program had been offered for more than seven years. Participants were primarily Ochsner Health providers from multiple clinics and hospitals. Ochsner Health adopted Project ECHO largely because the system was growing due to the acquisition of hospitals in Louisiana and Mississippi. With this growth came an expansion of the Ochsner provider pool and a need to “provide guidance so providers can learn how to best manage their patients.” ECHO was the means to offer this guidance for liver management.

Participants in the Weitzman Institute’s Complex Care Management ECHO were nursing staff with Community Health Care, Inc. (CHC), who practice at the top of their license with complex patients. Participating CHC nurses met twice monthly for 90 minutes to discuss curricular topics set by leadership. Nurses’ schedules included blocked time to participate in the ECHO sessions.

For large geographically dispersed organizations – such as the U.S. Army and Air Force – the ECHO Model has been used to help ensure that health care providers offer consistent care to patients regardless of where the patient enters the system.

20. CAN A SPOKE BE A TEAM OF PEOPLE?

Yes! Whether intentional or not, dyads or small teams from the same organization sometimes constitute the spoke. There are advantages to this as team members can reinforce learning and adoption of best practices, and a team approach can moderate the effects of turnover.

The American Academy of Pediatrics staff recruited intact practice teams as spokes, which helped with clinical implementation and sustained use of knowledge and tools at the clinical sites by guarding against learning loss due to clinical staffing turnover. In addition, each team implemented and measured improvement in real time during ECHO programs. At Beth Israel Deaconess Medical Center, the ECHO-Care Transitions program asked participating skilled nursing facility leaders to determine the most appropriate team to discuss each case; this typically consisted of a nurse manager, rehabilitation staff, case manager, and occasionally physicians and nurse practitioners. Because of the time pressures on nurses at skilled nursing facilities, the study team at Beth Israel modified the ECHO approach so that they met with each nursing home team one-on-one over Zoom rather than requiring all teams to meet together at the same time in a typical ECHO format.

The Northern New England-sponsored Older Adult ECHO had community organizations serving in the role of spokes. Each community organization designated a community coordinator to facilitate the ECHO process for their community and

the community coordinator received a small stipend. The role of each community coordinator was to ensure that the community partners came together for ECHO sessions and to coordinate their community's case presentation as well as communications/meetings between ECHO sessions.

21. HOW GEOGRAPHICALLY DISPERSED ARE ECHO PARTICIPANTS?

Sometimes participants come from one city or region, often they come from the same state or province, and some participants in the same session come from multiple states.

The ECHO programs we studied at the University of Virginia had a specific geographic scope. The Hepatitis C ECHO focused on clinicians in the far southwest of the state (Virginia) while the Pulmonary ECHO participants were recruited from a federally qualified health center (FQHC) that had a Black Lung program.

Other programs had a statewide or provincial focus as funding came from the state or the province and those funds were directed for use throughout those areas. For example, Oregon ECHO Network's Nursing Facility Behavioral Health ECHO was designed for frontline skilled nursing facility staff working in rural and under-resourced facilities across Oregon. A state or province focus was the norm and examples can be found at the Hospital for Sick Children in Ontario, the Community Health Workers programs at Rutgers University and Southern Illinois University, and for the Kansas Kids Map ECHO out of the University of Kansas, among many others.

Some ECHO programs target participants from multiple states. The Cherokee Nation ECHO welcomed participants from across the state, region, and country. Participants in the John Hopkins Sickle Cell Disease ECHO were primarily hematologists who practiced in and beyond the Northeast Region of the United States. Still other ECHO programs had a national scope. Participants in the Alcohol & Smoking (A&S) ECHO offered by the Weitzman Institute included primary care and behavioral health providers from across the country. Similarly, the Boy Scouts Summer Camp Revamped ECHO Program at Penn State attracted participants from across the country. These participants varied from large, well-funded adventure camps to rural "mom-and-pop camps that could have gone out of business years ago."

Funding sources, of course, affect and sometimes determine the geographic focus of ECHO programs. State departments of health were focused on clinics and participants from their state. Foundations and federal agencies often cast a larger geographic net.

The geographic scope of a program can change over time. The MAT ECHO program at Huther Doyle was initially national in scope with participants from across the country. When its grant ended and Huther Doyle became the lead agency for the program, the geographic focus narrowed to New York State, becoming regional in scope.

22. DO MEDICAL STUDENTS OR RESIDENTS PARTICIPATE IN ECHOS?

Medical students and residents who have little contact with rural and other under-resourced communities can learn a lot from family clinicians and federally qualified health clinic staff during ECHO sessions. Finding ways to incorporate ECHO programs into curriculum and residency training is a step some, though not all, ECHO programs take.

The Rural Physician Assistance Program in Minnesota was part of a larger Rural Physician Associate Program, a community-based educational experience for University of Minnesota third-year medical students who lived and trained in rural communities across Minnesota and western Wisconsin. The Sickle Cell Disease ECHO at Johns Hopkins sometimes had residents and interns present cases, often in teams. These residents and interns had little knowledge of Sickle Cell Disease

and attended the ECHO to present a case and learn about treatment options. The Pregnancy Care ECHO in Utah was open to fellows and residents who were encouraged to present cases and fully engage in the ECHO. The experience was considered an extension of their graduate education.

23. HOW CAN I RECRUIT PARTICIPANTS?

Recruiting participants is an ongoing activity for recurring ECHOs, and for many ECHO programs it is an ongoing challenge. “If you build it, they will come” is not a strategy endorsed by those we interviewed. Recruitment should be proactive with staff time dedicated to this critical task.

A common way to recruit participants was to make a direct appeal to potential participants. Direct appeals included sending email blasts, tailoring emails to a select group, using a listserv, sending out handouts or flyers, posting information in newsletters, and, to a lesser extent, posting on social media. ECHO programs also recognized that social influence facilitates recruitment. Faculty, facilitators, and staff sent out information or personally encouraged participation through professional networks and by working with partners in the community.

Sometimes, a personal touch was used. To generate interest among generalist providers in the Cherokee National Health Services system, the physician lead along with the coordinator of the HCV ECHO programs visited tribal clinics across North America to meet in person with medical staff and explain and demonstrate the ECHO approach. The personal touch worked. The number of participants per program increased and the relationships formed sustained participation in the programs for years.

A robust partnership network was found to be very effective in recruiting participants at many sites we studied. Project ECHO Nevada partnered with the Nevada Certification Board who certifies community health workers in Nevada. This board recruited participants to the Nutrition Education program by disseminating information about the program and advocating attendance. The West Virginia Clinical and Translational Science Institute had a strong network that ECHO used to attract participants. For example, one network partner, the West Virginia Practice-Based Research Network, recruited participants from more than 100 primary care sites. In addition, the West Virginia Primary Care Association and Area Health Education Centers were recruitment partners. The Oregon ECHO Network advisory board included insurers and health system participants who served as “marketers” for recruitment into programs. Board members saw that it was advantageous for their organization to encourage clinicians to participate as it could lead to improved quality metrics and reduce the need to provide separate Continuing Medical Education (CME) for these topics.

Offering CME credits was common across programs and this may attract participants and encourage their engagement. Programs also offered Maintenance of Certification (MOC) accreditation. For example, the American Academy of Pediatrics offered CME and MOC accreditation through their Trauma and Resilience ECHO. The Community Health Worker ECHOs at Rutgers and Southern Illinois University provided certifications that made it possible for workers to bill for their services. Far less common was the use of financial incentives or gift cards – though these were used by some programs. The Immuno-Oncology ECHO program, provided by the Association of Community Cancer Centers, offered incentives to participants to attend the program and present a case.

24. HOW CAN WE ENCOURAGE BUY-IN FROM PARTICIPANTS?

Encouraging buy-in requires effort before, during, and after sessions.

At University of Utah Health, engagement was built by surveying participants in advance to identify needs and interests; engaging participants during sessions through polling, survey questions, and chat functions; administering surveys after sessions to assess the efficacy of the session and how practices might be improved; and discussing survey results to improve programs further. The ECHO Colorado hub team encouraged all program leaders to integrate participant needs into the curriculum and to see the world from the perspective of the participant. The ECHO Colorado director said that the team needed to put themselves into the shoes of the participants because if ECHO participants were “...not buying in and don’t feel like they’re getting something valuable out of this for their patients, they’re not going to show up.” Similar strategies similar were used across many ECHO hubs and programs.

Adding a face-to-face first meeting or orientation was an engagement strategy used by quite a few ECHO programs to encourage buy-in and help participants get comfortable talking with subject matter experts at academic medical centers. Ochsner Health used a kick-off in-person meeting to create a feeling of ownership and excitement. The Ochsner Hepatitis C Elimination ECHO was nested within the Hepatitis C Champions program which was designed for primary care physicians across the state. The program began with a half-day in-person training including an in-depth review of hepatitis C, the epidemiology of liver disease management staging, and the treatment of hepatitis C. This ECHO program began this way “to help primary providers feel comfortable and confident in treating hepatitis C.” After the half-day session, the virtual ECHO sessions began. Similarly, Indian Country ECHO, which designed and implemented the first Hepatitis C ECHO program created by and for the 43 tribes in the Northwest, launched with an in-person one-day training on hepatitis C screening, treatment, and management. Bringing together participants from all 43 tribes helped to build trust between ECHO staff and the participants and kept everyone engaged.

Buy-in also can be strengthened through curricular design. Zoom features such as private and public chats, raising hands, waterfall chats, desktop sharing, and breakout rooms engaged participants and provided ways for them to speak up. The use of real-life cases by participants and experts encouraged buy-in. Dynamic didactic speakers and topics of interest also created feelings of inclusion and worth.

Recruiting and Engaging ECHO Subject Matter Experts

Subject matter experts lead and participate in ECHO hub and program operations. Experts are typically physicians, but not always. Here we describe subject matter experts, discuss how to recruit and retain them, and the benefits that the experts themselves may gain from participating in ECHO.

25. ARE ECHO PROGRAMS ALWAYS LED BY MEDICAL SPECIALISTS?

We studied health focused ECHO programs that were nearly always led by health care providers; when that was not the case, the lead was typically someone with a background in health care policy or administration. There were exceptions, especially when the participants were not themselves medical specialists, such as community health workers. Outside of the programs we studied, including some focused on quality improvement in health care settings, and especially as ECHO moves beyond health and into program areas such as education, being a medical specialist may not be a necessary qualification to lead an ECHO program.

Many ECHO programs were led by medical specialists, such as hematologists, hospice and palliative care specialists, oncologists, or sport medicine specialists. But other types of health care providers also lead ECHO programs. The Minnesota Rural Addiction ECHO programs were led by two primary care physicians who said that they could relate to participants; “We know how their jobs go. We know what that clinic looks like. We know what their day-to-day looks like. We know the demands of their job.” The Complex Care Management ECHO at the Weitzman Institute was led by a chief nursing officer at the Community Health Center, Inc. At the Penn State Boy Scout Camp ECHO and the University of Nevada, Reno, Nutrition Education ECHO, the leads were dietitians. At Northeast Ohio Medical University, the Ohio Systems of Care and the Integrated Care ECHOs were led by a psychologist and a clinical counselor, respectively.

Sometimes, the lead facilitator was not a health care provider but someone with other expertise in health care. The Northern New England Older Adult ECHO was led by an executive director of the Maine Association of Area Agencies on Aging who was a licensed attorney. The Community Health Worker ECHO at Rutgers University was co-led by the assistant commissioner of the Division of Family Health Services in New Jersey.

26. WHERE AND HOW CAN WE RECRUIT SUBJECT MATTER EXPERTS?

Program leads, panel members, and didactic speakers are typically subject matter experts. They are recruited from organizational, professional, community, regional, and national networks.

In academic medical centers, subject matter experts were often drawn from within the university. The Sickle Cell Disease ECHO affiliated with Johns Hopkins University drew on expertise from across the university. An interviewee there said, “We’re lucky to be at Hopkins where we have a wide diversity of expertise around us that we can call on to help us.” Similarly, ECHO-Chicago programs included subject matter experts from various units at the University of Chicago, including the Departments of Pediatrics, Medicine, Psychiatry, Obstetrics and Gynecology, and Family Medicine, as well as professional schools including the School of Social Service Administration and the Harris School of Public Policy.

Regional networks were very useful for recruiting subject matter experts for panels and didactic presentations. Huther Doyle had “networks already developed among the substance use providers in this part of the state and with community-based organizations working with people with behavioral health issues. So, it’s relatively easy to get the word out on either the MAT or Care Management ECHO.” The Palliative Care ECHO at Texas Tech University reached out across the region to invite and encourage engagement across the palliative medicine community and, in so doing, strengthened the palliative medicine community in the region.

ECHO hubs also drew on national networks to recruit subject matter experts. Indian Country ECHO drew from 12 Indian Health Boards located across the country to recruit experts who would share their knowledge. Oklahoma State University’s Infant Mental Health ECHO recruited didactic speakers from across the country. The Immuno-Oncology ECHO at the Association of Community Cancer Centers had to draw from a national network of experts to develop the curriculum because the field was still emerging and experts were not concentrated in one geographic area.

Reaching out to national experts doesn’t need to rely on an existing network or set of relationships. The Minnesota Rural Addiction ECHO leads said they were “not shy” about asking people they met to present at ECHO sessions. For example, they attended a summit and heard a talk about stigma. They emailed the presenter and asked if he would present at an ECHO session. Sometimes just asking someone is all you need to do.

Once recruited, interviewees shared that it’s important to not over-use experts. Willing and talented experts can become the “go-to” person for a certain specialty area and may be repeatedly asked to serve in a role as a hub team or panel

member. Hub leaders at the Weitzman Institute made a conscious effort to develop a “deep bench” of experts by partnering with other agencies and organizations, such as the National Council for Mental Wellbeing, which had a network of experts that they could tap.

27. SHOULD WE CONVENE A PANEL OF SUBJECT MATTER EXPERTS FROM MULTIPLE DISCIPLINES?

Multidisciplinary panels are not essential for a successful ECHO program – we found many ECHO programs led by one or two experts. Still, multidisciplinary panels have several benefits. They can address multiple aspects of a case, including social determinants of health; facilitate recruitment of participants and speakers through their networks; and present didacts. They bring together organizations and experts to share ideas, to learn from each other, and may create more cohesion across the health care delivery system. Overall, panels can promote holistic approaches to health care.

Rutgers University’s Endo ECHO panel attracted panel members from across the medical school and other schools. The panel included two endocrinologists, an advanced practice nurse, a peer support specialist, a clinical social worker, and a pharmacist. ECHO Chicago used existing networks to develop multidisciplinary panels. Their Behavioral Health Integration ECHO multidisciplinary panel included a primary care physician, a psychiatrist, and a community-based social worker, and their Hepatitis C ECHO panel included a hepatologist, a pharmacist, a social worker, and an addictions specialist. Panel members can also come from multiple organizations across large distances. For example, the Trauma and Resilience ECHO multidisciplinary panel at the American Academy of Pediatrics’ (AAP) included experts from AAP, the University of California at Los Angeles, and the University of Massachusetts.

28. WHICH CHARACTERISTICS STAND OUT WHEN DESCRIBING SUBJECT MATTER EXPERTS WHO ARE A GOOD FIT FOR ECHOS?

We heard from many interviewees that the best subject matter experts know how to listen and are open to learning.

One expert at Rutgers University said he gained a “perspective on what’s going on out there” and that “out there” does not always look like what he and others see in an academic medical center. The ECHO hub leader at the University of Utah Health shared that he learned from “listening to people in our area, our potential participants, and giving them what they ask for rather than what we sit back at the University and conjure up as a great program.” In addition to listening, sharing and learning, experts who were dedicated to the ECHO Model talked about humility; a willingness to show that they struggled with many of the same issues as others in the group and did not have all the answers. It may be that experts attracted to ECHO are already predisposed to inclusive discussion, listening, and empathy.

Still, screening experts was helpful. The West Virginia University ECHO staff recruited medical specialists to become hub experts based on communication styles and personalities. Prospective ECHO experts were screened by reviewing past presentations or work on other projects. Then practice sessions were held before the program launch. Practice sessions were particularly important as opportunities for new experts to get to know one another and learn how to play off each other’s comments to foster the “all teach, all learn” philosophy. The ECHO operation at the Centre for Addiction and Mental Health and the University of Toronto emphasized the importance of recruiting the right subject matter experts. ECHO leaders there have found that the “all teach, all learn” orientation required vulnerability, and the ability to be both a teacher and learner. The team looked for experts who were comfortable with flattened organizational structures, lowered status divisions between medical disciplines, and reduced cultural hierarchies.

29. HOW CAN WE KEEP SUBJECT MATTER EXPERTS ENGAGED?

The energy of ECHO goes a long way in encouraging sustained engagement. So, too, does recognition in the form of paid-and protected-time.

Cases, especially those provided by participants, were frequently described as a way to capture and maintain engagement of experts, and of all participants. Relatedly, experts wanted their knowledge to be useful and used. At ECHO-Chicago, respondents described case presentations as a teaching and engagement tool. A standardized case form was used to draw providers' attention to certain components of care, but providers could tailor the case based on what was most relevant or challenging to them, and this promoted engagement. The Dermatology ECHO at the University of Missouri incorporated ongoing quality improvement partly as a means of keeping program leaders engaged. If it became apparent to staff that a component of the program wasn't working well, changes were made rapidly. Said an interviewee, "We're kind of ruthless about quality. We have to be, because every time someone comes, it has to be a good experience for them. It has to be the right experience."

Some ECHO hubs created attractive graphic one-page dashboards to efficiently remind subject matter experts of why ECHO matters. Penn State University's Project ECHO team kept subject matter experts and advocates informed and engaged in multiple ways. The team proactively provided a report to the dean every six months that described their work and the return on investment from startup funds. The report was promotional and informative, leading to an opportunity to inform a new dean about ECHO. The team hosted a "growth and gratitude event" that connected individuals and acknowledged their work.

Maintaining engagement also requires acknowledging the time commitment being made. One form of acknowledgment is to pay for people's time. Many grants supporting ECHO programs included a percentage of the experts' time. Project ECHO at Oklahoma State University Center for Health Sciences was funded from multiple sources – including the College of Osteopathic Medicine, foundation and individual donor support, and federal pass-through dollars. The funding paid for administrative staff and, importantly, physician time. "We do some incentivization, and salary support for the hub team, which have been important," a respondent shared. "With the physician providers, they want to participate on the hub team but they have overwhelming time constraints in their practices. That's where having some salary support is helpful." Penn State physicians who offered didactics or facilitated ECHO sessions were compensated for their time. We were told, "If docs and academics aren't seeing patients, they are expected to cover their time. Everybody likes to volunteer, but that only goes so far."

Similarly, engagement can be supported through protected time. The Pediatric Obesity & Endocrinology ECHO program at the Children's Hospital of Atlanta included protected hours for the physician champions. Primary care pain champions had protected or released time to attend and participate in the Army Pain Management ECHOs. Their protected time, however, was modest—sometimes no more than .10 FTE—and some champions found it challenging to make the time commitment. Protected time can greatly facilitate implementation and sustainability, but the time needs to be sufficient for the task.

30. WHAT CAN SUBJECT MATTER EXPERTS LEARN FROM PARTICIPANTS?

Medical experts, and perhaps especially those in academic settings, can learn about the reality of practice under conditions that are quite different from where the medical experts practice. They can also learn from ECHO participants about patients they will not treat and about the diversity of providers who support patient care outside of their own setting. And we heard from some specialists who valued the ECHO experience because they in turn got to learn from other medical experts.

At ECHO Colorado, one respondent commented that the ECHO program allowed their interdisciplinary team of specialists to see patients (both indirectly via ECHO presentation and, sometimes, directly through the clinic) that they would not otherwise see because the patient might not make it far enough into the health system to access all the expertise available. Access could be limited by transportation or a lack of a referral or the difficulty of following up with more and more appointments. A physician specialist with the University of Colorado Autism ECHO said, “I grew up on the Western slope. So, I felt like, ‘Oh, I know the Western slope.’ Well, turns out I didn’t know the Western slope, and these have been powerful clinical and personal lessons.”

Practice conditions “out there” took on a different meaning for an interviewee at Rutgers University who is a state policy-maker. She described ECHO as a “litmus test for those of us working at the state and policy level. Do the policies we develop, are they working on the ground? Because according to these folks, the answer is no, in some cases.”

Working with ECHO Champions and Partners

ECHO hubs and programs often rely on the support of champions and partners to support their work. Champions are the “cheerleaders” who advocate for the work even if they are only tangentially involved in it. Advisory committees and other outside experts also shape implementation decisions and the decision environment. Partners can be funders or community organizations, and they can be other ECHO hubs or programs. Here, based on our data, we answer questions about these valuable collaborators.

31. WHO CHAMPIONS ECHOS IN ACADEMIC SETTINGS? OUTSIDE OF ACADEMIC SETTINGS?

A champion is an advocate for the adoption and sustainability of ECHO and may, or may not, be directly involved with its implementation.

Within academic settings, champions can be administrative leaders in roles such as a provost, dean, or chancellor. Physicians and faculty within academic settings can be champions as well. Champions may form a team that includes administrative leaders and subject matter experts. Project ECHO at Penn State started as a top-down initiative when an incoming chair of the Department of Medicine in the University’s College of Medicine asked, “Where’s your Project ECHO?” The dean of the School of Medicine then provided startup funds to hire staff and technical support. In 2012, the chancellor of the University of New Mexico’s academic medical center asked the University of Colorado Anschutz Campus chancellor, “Why don’t you have an ECHO?” Intrigued about the general concept, the Colorado chancellor convened a small focus group with representatives of the two hospitals and five graduate schools on campus to discuss what they knew of the ECHO concept. A task force was established to explore what ECHO might look like in Colorado. Senior leadership at the University of Utah Health supported ECHO in its initial adoption, including funding for the program and giving autonomy to a prominent physician so that he could grow and develop ECHO and find what worked and what didn’t. That physician, in turn, championed ECHO for more than a decade and mentored facilitators, experts, and staff in the ECHO Model at Utah and well beyond.

Outside of academic settings, champions can be, for example, nonprofit leaders, policy makers, physicians, or educators. Maine Quality Counts, a nonprofit focused on healthcare quality improvement through clinician education, was one of several champions behind the Northern New England ECHO Network. The Virginia Department of Health encouraged

the University of Virginia School of Medicine to adopt the ECHO Model. In Minnesota, ECHO was championed by two rural primary care physicians, one of whom commented, “We were non-conventional. We’re not based out of a university; we are not researchers. We were literally rural family doctors at that point, by no means a specialist in anything except what we had done in Little Falls.” After attending immersion training at the ECHO Institute, the team returned to Minnesota to launch their program. Adoption of ECHO was supported by the CEO of St. Gabriel’s Hospital who was “very into this work. He was very supportive. He felt the mission of the facility and this ECHO was something that had to be done.”

The chief operating officer of the Nicholson Foundation championed ECHO to health care policymakers and influencers across New Jersey. She organized a team of people from multiple state health divisions and offices, along with foundation staff, to attend immersion training in New Mexico. The Nicholson Foundation also invited Sanjeev Arora, MD, to New Jersey on two occasions—once to help think through a strategy for ECHO and the second time to speak to state leaders, including two state senators and the chancellor of Rutgers. Eventually, they partnered with Rutgers University and invested \$4 million in ECHO over a five-year period.

32. SHOULD WE CONSIDER WORKING WITH AN ADVISORY COMMITTEE?

Many ECHO hubs and programs work with an advisory committee, steering committee, or advisory council. Advisory committees can help guide decisions about new programs, solicit input and feedback on existing programs, and extend networks for recruiting subject matter experts and participants. Meetings with advisory committees can be an opportunity to brainstorm about community needs and connect with other programs. Advisory committees can also become champions for your ECHO work.

The ECHO operation at Children’s Healthcare of Atlanta had a physician oversight committee that approved all new ECHO programs, as well as a diversity and inclusion panel to better address this critical aspect of ECHO program curricula. The ECHO hub at the University of Nevada, Reno, had an advisory council that informed ECHO hub and program decisions. In Oregon, a 15-member steering committee comprised of leaders from insurers, medical associations, an academic medical center, and other organizations met to discuss needs across the state, create a business model, and decide on the parameters of a statewide network for Project ECHO. In the summer of 2017, five organizations that had participated in the steering committee committed funds to launch the Oregon ECHO Network.

Partnerships with organizations outside of the Centre for Addiction and Mental Health and the University of Toronto were an important means of program development and expansion. A provincial steering committee developed by the Ontario Ministry of Health to inform the growth of ECHO in Ontario included the Ontario College of Family Physicians, Health Quality Ontario (a group that supported quality improvement in healthcare), the Centre for Effective Practice, and members of each ECHO program team. The hub also had an advisory committee made up of stakeholders from academic institutions, primary care associations, healthcare quality improvement organizations, and other healthcare organizations.

33. WHAT ROLES DO PARTNERS PLAY?

Partners – whether internal or external to an organization – can play many roles. They can be advisors, funders, champions, and recruiters. They can provide certification and other forms of recognition. It is rare to find an ECHO hub that does not have one or more partners. Partnerships are sometimes built from existing relationships; other times they are new.

Partnerships were central to the Oregon ECHO Network, which partnered within the Oregon Rural Practice-based Research Network at Oregon Health & Science University (OHSU) in Portland. The ECHO operation benefited from the stability provided by being housed at an academic medical center, with human resources and grant management support, as well as from OHSU's brand. OHSU was one of the eight sponsoring organizations that comprised the Oregon ECHO Network advisory board, along with six Medicaid insurers in Oregon, and Providence Health Plan (a vertically integrated health system). The goal of creating the Oregon ECHO Network was to create a neutral ground, "a bit of a Switzerland for them," said an interviewee. "And the subscribing organizations can do something that's beyond what's good for their own organizations, really the intent is what's good for the state of Oregon."

At Project ECHO Nevada at the University of Nevada, Reno, partners played a vital part in supporting the hub and its programs. At the hub level, partnerships developed through the formation of an advisory council that guided the hub team's decisions about new programs. Partnerships such as those with the state hospital consortium, professional associations, and grantors/funders supported marketing and recruitment and, overall, were important to the sustainability of this hub. In particular, the Nutrition Education program had a strong relationship with the Nevada Certification Board that oversaw the certification of community health workers in the state. This board approved the continuing education credits offered by the Nutrition Education program and assisted with marketing the series.

The Northern New England (NNE) ECHO Network was born from a partnership of multiple organizations across three states working together to share resources. Formal network partners included Maine Quality Counts (which became Qualidigm), Citizens Health Initiative at the University of New Hampshire, the Vermont Program for Quality Health Care, the Northeast Telehealth Resource Center, and the Area Health Education Centers (AHECs) that served Maine, Vermont, and New Hampshire. Collectively, these partners inquired with the ECHO Institute about becoming a hub and proposed a regional ECHO network into a grant application. Overtime, however, this partnership morphed with some partners dissolving, and other partners taking their own lead as ECHO hubs. So, partnerships can be a powerful model for ECHO, but distributed ownership, such as what NNE ECHO Network set out to do, may not hold overtime.

34. ARE ANY ECHOS OFFERING A PROGRAM JOINTLY WITH ANOTHER ORGANIZATION?

Two or more organizations can work together to develop and or offer an ECHO program.

The American Academy of Pediatrics' (AAP) Trauma and Resilience ECHO worked in partnership with other organizations on grant-funded projects. Their ECHO program focused on a pediatric approach to trauma treatment and resilience and was funded in part by the U.S. Substance Abuse and Mental Health Services Administration. The University of California at Los Angeles (UCLA) was the grant recipient, with AAP as one of the subcontracting organizations to UCLA. The University of Massachusetts was also a subcontractor. AAP managed the ECHO, with UCLA and the University of Massachusetts contributing faculty experts. Evaluation of the program was done by UCLA, with AAP assuming responsibility for participant recruitment, running the ECHO sessions, processing documentation, and providing continuing medical education and maintenance of certification accreditation.

The ECHO team at Cherokee Nation's HCV Elimination Program in Tahlequah, Oklahoma set up its operation and then responded to the inquiries of other medical specialists to start their own ECHO hubs and involved Cherokee Nation's team in playing key roles in new ECHO programs organized around infectious disease. In both cases—the establishment of new hubs and in helping to staff new ECHO programs—the Cherokee Nation ECHO team extended the reach of Project ECHO to benefit additional rural under-resourced populations on tribal lands. In the case of advising Oklahoma State University

medical leaders, this meant a considerable widening of topics to which the ECHO Model was applied in the state by partnering together. For the Northwest Portland (Oregon) Area Indian Country and the United South and Eastern Tribes, it meant reaching more tribes throughout North America with HCV and HIV programming.

One of the primary goals of the Northern New England (NNE) ECHO Network was to spread the utilization of Project ECHO throughout northern New England. The governance structure of the NNE ECHO Network was a shared leadership team with representatives from each of its formal network partners. Maine Quality Counts, a nonprofit focused on healthcare quality improvement through clinician education, was designated as the operational, technical, and administrative lead for the Network, overseeing budgets as well as coordinating the implementation of ECHO programs. Along with Maine Quality Counts, the Citizens Health Initiative at the University of New Hampshire and the Vermont Program for Quality Health Care provided strategic leadership and advised on program development and network oversight. The Northeast Telehealth Resource Center was responsible for network/program evaluation and the Area Health and Education Centers in Maine, Vermont and New Hampshire conducted a needs analysis and assisted with outreach.

35. DO ECHOS ALWAYS HAVE UNIVERSITY PARTNERS?

University partners may be helpful, especially in identifying and recruiting subject matter experts, but subject matter experts can be found outside of universities, too.

Initially, the Weitzman Institute sought academic partners to implement Project ECHO in Connecticut; however, finding none, they decided to launch programming on their own, making it the first Federally Qualified Health Center in the U.S. to offer ECHOs. Huther Doyle had links to the University of Rochester because some staff were jointly appointed, but their overall reliance on a university was modest. The U.S. Air Force and U.S. Army ECHOs had expertise from within their own systems and universities did not figure in their work.

36. HOW DO ECHO HUBS WORK WITH OTHER ECHO HUBS?

Hubs often reach out to each other for assistance and consultation. Many ECHO staff members shared that they sat in on ECHO sessions offered by other hubs as a way to learn more about how ECHO is practiced. Few, however, actually work together on developing or offering programs.

Reaching out to other hubs was fairly common and sometimes encouraged by the ECHO Institute. Leads from the Oregon ECHO Network from West Virginia University reached out to ECHO Colorado for assistance when developing their own ECHO hubs. The ECHO hub at Rutgers University invited ECHO Chicago and Colorado ECHO hub leaders to New Jersey to help kick off their efforts. After immersion training, staff from the Northeast Ohio Medical University reached out to hubs in Alaska, the University of Washington, the Missouri Telehealth Institute, and the University of Chicago to discuss best practices around operations and to observe others' sessions. At Oklahoma State University and the University of Kansas ECHO staff leaned on colleagues at the Show-Me ECHO at the University of Missouri for advice and examples from their programming.

At the Indiana University Purdue University at Indianapolis ECHO Center, the Peer Education Program ECHO developed a working relationship with the New Mexico Peer Education Program ECHO. In spring 2018, the New Mexico team hosted the Indiana team at a monthly ECHO. In the summer of 2018, the New Mexico team hosted a two-day training specific to replication. The Indiana team again participated. The experience included visiting two facilities in New Mexico where attendees could observe a 40-hour training taught by New Mexico staff and a 10-hour workshop taught by peer educators.

It was a “fantastic introduction to how all of this works,” said an interviewee. When the Indiana team was ready to launch their ECHO program, a lead from New Mexico traveled to Indiana to co-host the first two Indiana Peer Education Programs.

Southern Illinois University School of Medicine Project ECHO partnered with the University of Chicago Project ECHO team on a pilot project. Although in the same state, they didn’t compete and, in fact, wanted to advocate together for state funding from the legislature.

Superhubs are authorized by the ECHO Institute to provide training and technical assistance to new hubs and support them as they grow their ECHO programs. Although we did not study superhub activities, the following sites were included in our study and were superhubs: American Academy of Pediatrics, ECHO Ontario, Missouri Telehealth Network, Northeast Ohio Medical University, Oklahoma State University Center for Health Sciences, Penn State College of Medicine, University of Chicago, and West Virginia Clinical and Translational Science Institute.

Designing ECHO Programs

The ECHO Model has four guiding principles: Amplification via technology, reducing disparities through didactics focused on best practices, the use of case-based learning to master complexity, and the use of data to monitor outcomes and increase impact. These principles facilitate “all teach, all learn.” Although we found variations in the guiding principles across programs – elasticity was bounded. Adaptations occur within a limited range and the shape of the ECHO model holds well. Here, we discuss what makes ECHO unique, how to identify curricular topics, structure sessions, and address cultural competency.

37. WHAT MAKES ECHO UNIQUE FROM OTHER LEARNING OPPORTUNITIES?

Aspects of the ECHO Model are unique, such as the distribution of ECHO hubs across the world working independently yet still connected, participants typically not paying for the experience, and that the rapidity with which new programs can quickly ramp up as we saw during the COVID pandemic. The most unique aspect of the ECHO Model is its core principle of All Teach, All Learn (ATAL), a concept based in adult learning that is consistently expressed as the core attribute of the ECHO Model. We identified five dimensions of ATAL. First, learning was framed as bi-directional or shared between the participants and the experts.

Second, an additional layer of learning was multi-directional because while participants learned from experts and experts learned from participants (a bi-directional learning effect), participants also learned from each other, and experts learned from other experts (a multi-directional learning outcome). A leader at the Clinical Education Initiative ECHO at the University of Rochester succinctly summed up this multi-directional learning experience: “Everyone is a stakeholder in the learning process.”

Third, ATAL was about building relationships that extend and deepen the sharing of knowledge. Participants built relationships that continued beyond ECHO sessions so that ATAL was ongoing. In Minnesota, the Rural Physician Assistant Program (RPAP) reinforced relationships among third-year medical students dispersed across the state. The ECHO component of their RPAP experience “enables them to have face time with their friends, their peers.”

Fourth, ECHO was focused on learning about “the other” or as expressed by a leader at ECHO Colorado, “putting yourself in someone else’s shoes.” At Indiana University Purdue University in Indianapolis, the Indiana Peer Education Program ECHO

was a collaboration among the university, a nonprofit organization, the state department of health, and several correctional facilities. Respondents there talked about ATAL as “an opportunity for learning where people are and what barriers they face.” One respondent described ATAL as, “Being in a moment together. We’re crying, we’re laughing, we’re learning from each other, sharing our experiences. . . the sense of humanity and the inherent goodness of people.”

A fifth dimension of ATAL was a focus on cultural competency where all participants learned new patterns of behavior and applied them in the appropriate setting. The ECHO Ontario First Nations, Inuit and Métis Wellness program at the Centre for Addiction and Mental Health and University of Toronto, involved building a strong community of practice across a culturally diverse group. This required relational work and cultural humility to understand that one is continually learning about diversity among participants and communities. The team modified their curriculum to include more than biomedical knowledge. The curriculum encouraged participants to consider physical, mental, emotional, and spiritual ways of knowing when discussing cases and presenting didactic lessons. Family and community aspects of wellness were considered as well as individual wellness. The model equally balanced expertise from the community of practice with biomedical expertise.

Few other educational experiences have “all teach, all learn” as their core. The ECHO Model, and the people who adopt and implement it, hold fast to this core principle.

38. WHAT STRATEGIES ENCOURAGE “ALL TEACH, ALL LEARN”?

Multiple strategies are used to encourage “All Teach, All Learn” (ATAL). These strategies create a safe learning environment where participants and experts are comfortable being open and not knowing all the answers.

At West Virginia University, ECHO staff and leaders reinforced ATAL by asking potential participants what programs they want to see developed. Hub leaders and staff were also careful—even cautious—about who they recruited to facilitate programs and who they asked to serve as experts. Fit matters. Facilitators and experts were selected based on their communication styles and personalities. Practice sessions were held before program launch so that participants were comfortable asking questions and volunteering answers from their experiences. For example, their Substance Use Disorder ECHO encouraged participants to share their experiences in practice and policies with less reliance on hub experts from an academic medical center which has more resources and different rules to follow than primary care providers.

At the University of Colorado, the ECHO Colorado hub leaders placed a strong value on the role that behind-the-scenes program coordinators played in building an ATAL culture. The coordinator of the Adolescent Reproductive Health ECHO said, “I really think the coordinator, although often associated with the logistics and coordination role, really has the responsibility to help bring “All Teach, All Learn” into each session.... It’s really important for the coordinator to provide regular feedback to the facilitator. Like, ‘Hey, next time let’s create more space for participants.’ Or ‘Hey, we need to call on some participants to show them that they do belong in that space.’” Respondents at the Oregon-ECHO Network also lauded coordinators for how the coordinators guided the program and encouraged participants to share comments and actively participate. We repeatedly heard that coordinators played an important role in creating a space where participants were encouraged to participate.

Subject matter experts and facilitators played a critical role in modeling and recognizing ATAL behaviors. At the University of Chicago, leaders set the tone for ECHO sessions and built an environment in which “All Teach, All Learn, *All Support*.” When asked about this approach to ECHO, one leader said, “The approach that I’ve always taken goes back to the communal aspect of what ECHO is all about. My style has been to be as inclusive as possible. My fear is talking down to somebody in a session or talking over or around somebody. ECHO is so great because it lends itself to participation. It’s about respect and seeing the people on the other end as equals. We’re all doing this together. We’re all trying to learn about a disease, fight

a disease, treat a disease, and take care of patients. And for me, trying to see things on that level has made it easier, and it becomes a self-fulfilling prophecy because I end up learning so much from their experiences.”

Humor can also encourage ATAL. In the Rural Addiction ECHO program in Minnesota, jokes and good-natured banter were part of each session. The primary care physician leaders made the sessions interesting and fun. And participants keep coming back – with more than 150 sessions and an average attendance of 80 participants per session. Said one leader, “Most everyone loves our talks because it [substance use] has to be normalized, right?” A similar strategy was used in the Infant Mental Health ECHO at Oklahoma State University where the team indicated that with a hard topic like abuse and neglect, it was important to occasionally take the time to laugh which, in turn, helped “our warmth as a team” come through and made everyone feel part of the team.

39. WHO AND WHAT INFLUENCES THE CHOICE OF AN ECHO PROGRAM TOPIC?

Multiple factors influence the topic of an ECHO program, including community need, and the interests of funders and experts.

A community need can be expressed by the community, a partner organization, and from the participant population. At West Virginia University, ECHO programs were started from the ground up; with topics proposed by participants or partners. The Nutrition Education ECHO program at the University of Nevada, Reno started because community health workers expressed interest in receiving training and support through a program like ECHO to better manage their clients with diabetes. The Oregon ECHO Network conducted a nine-month needs assessment that included a survey of primary care clinicians to assess which ECHO topics were of greatest interest. A Pain Management Task Force for the U.S. Army identified a need to maximize the role of primary care providers in managing chronic pain and rolled out five Army Pain Management ECHO hubs.

A community need can also be found in pre-existing data. A leader at the Show-Me Dermatology ECHO at the University of Missouri stated that need came from experience and data: “In multiple countries, over multiple decades, over time, it’s been shown that one in five complaints by primary care patients are dermatology related, and most of those diagnoses never get made because [those generalist providers] don’t know dermatology.”

The topic of an ECHO program is also influenced by funding. Grant and contract support for ECHOs often came from state and federal funding streams intended for a specific purpose such as eliminating hepatitis C or addressing opioid use disorders. These funds determined the topic. The American Academy of Pediatrics (AAP) supported ECHO operations from funded contracts and grants. The success of the AAP in receiving contracts and grants meant that its ECHO programs and training roles changed according to which proposals were funded. Similarly, at other ECHO hubs we observed researchers responding to requests for proposals where the topic aligned with their research and ECHO was a good fit for the proposal. The ECHO-Care Transitions program at Beth Israel Deaconess Medical Center was originally funded by a foundation and was then awarded a three-year grant from the U. S. Agency for Healthcare Research and Quality. A lead researcher for the study noted that they did the work with “no-strings attached...We got to identify our own goals and aims and study what we thought was most important.”

40. HOW IS A PROGRAM CURRICULUM DEVELOPED?

In nearly all instances, the curriculum is developed by the subject matter expert. Often, participants or the community being served provide input into the curriculum. In some instances, the curriculum is developed centrally and then dispersed to multiple hubs for use.

The curriculum for Cherokee Nation Health Services HCV Elimination ECHO was informed by in-person outreach to under-resourced rural health providers on tribal lands. The General Mental Health ECHO at the Center for Addiction and Mental Health and University of Toronto developed its curriculum through a triangulated needs assessment, which included analyzing data about mental health learning needs directly from primary care providers, looking at population health needs articulated in the literature, and seeking expert consensus. Once the curriculum was developed, participants ranked each topic based on interest and learning need, and a curriculum was developed. The Adolescent Reproductive Health ECHO at ECHO Colorado leveraged quantitative and qualitative data from evaluation and assessment, as well as informal interviews with current participants and potential target audience members, to inform the curriculum.

The Immuno-Oncology (IO) ECHO at the Association of Community Cancer Centers had to develop a curriculum in a field where best practices were still emerging. Immuno-oncology was a complex and specialized field of study. Clinical guidelines were being updated regularly based on emerging research. The IO ECHO curriculum was built from available evidence and through a survey of network members and experts. The result was a responsive curriculum grounded in current research and promising practices.

The curriculum for the U.S. Army Pain Management ECHO programs was developed by the Joint Pain Education Program team. This became the approved curriculum and what all Army programs were expected to use. Subject matter experts could add to the evidence base or share their experiences during the lecture. Similarly, the SickKids Epilepsy ECHO program curriculums, informed by a needs assessment and provincial guidelines, were developed by a team and the same curriculum was used for programs that were offered at multiple times and days of the week.

About half of the ECHO programs we studied, especially those offered on a rotating basis, had curriculum that was set in advance of the program being offered. Other ECHO programs developed curricula just-in-time or a few sessions in advance.

41. ARE DIDACTICS ALWAYS NECESSARY?

Didactics are a key part of the ECHO Model and nearly all ECHO sessions include a didactic.

In the programs we studied, didactics were often presented by the one or two subject matter experts leading the program. Still other programs invited subject matters not affiliated with the ECHO program to present didactics. Often, it was the combination of the two – with some didactics in an ECHO program led by the facilitator expert with invited presenters throughout the program or when a topic required someone with different knowledge. For example, didactics in the Endo ECHO at Rutgers University were provided by the panel of experts, but if the panel was “uncomfortable with the topic” or there was “controversy” they invited external speakers because they “want to hear the other perspective.” Didactics for the Sickle Cell Disease ECHO at Johns Hopkins University focused on topics that “everyone should know about. If there are new guidelines, we focus on presenting new guidelines. We go back to previous topics that we haven’t discussed recently and redo those.” Didactics were selected and presented by the lead faculty although they did have guest speakers who they recruited from the university and beyond.

Some programs focused almost entirely on didactics, and offered fewer cases – usually because cases were challenging to recruit, or because there was an urgent need for information dissemination in response to a crisis such as a pandemic. The Child Abuse Pediatric (CAP) Fellowship ECHO at Children’s Healthcare of Atlanta was largely didactic-based and so were the Minnesota Rural Addiction programs. In contrast, Beth Israel Deaconess Medical Center’s ECHO-Care Transitions consisted of only case discussions – each Skilled Nursing Facility chose a patient case to discuss during a 10-to 15-minute pre-scheduled case discussion. At the University of Colorado, the monthly Autism Case Review ECHO was, as the title implies, case based. Didactics were offered only as needed to supplement a specific participant-submitted case.

There is a balance to maintain when working on didactics as it is easy for a didactic to go on for too long and the ECHO session might then feel more like a webinar. ECHO program staff guarded against this by frequently providing a PowerPoint template and or reviewing external presentations in advance. For example, at Texas Tech University, the Palliative Care ECHO provided external didactic speakers with a master PowerPoint deck and presentations were reviewed in advance to ensure they did fit their time limit (among other considerations). Most programs we studied limited the didactic portion of the session to about 15-30 minutes.

42. CAN I EXTEND ECHO TO INCLUDE IN-PERSON EVENTS OR TRAININGS?

We found many instances where an in-person component was added to an ECHO program. These sessions helped build trust among the participants and helped them feel connected to each other.

ECHO programs sometimes began with an in-person orientation or training. The Hepatitis C ECHO implemented by Indian Country ECHO launched with an in-person one-day training on hepatitis C screening, treatment, and management, bringing together participants from all 43 tribes, which helped to build trust between ECHO staff and the participants. Following the in-person event, the ECHO consisted of telehealth sessions for the rest of the program. The Community Health Worker ECHO at Southern Illinois University included one full day of training followed by a set of ECHO sessions that focused on general issues that address “what you need to know as a CHW, the who, what, and how” and a set of sessions that focused on specific conditions (e.g., diabetes, asthma). The Nursing Facility Behavioral Health ECHO at the Oregon ECHO Network enhanced participation through a live kickoff event prior to the beginning of the ECHO sessions. The kickoff event included a breakfast and mock ECHO sessions where participants could practice the ECHO case format. The event introduced participants to each other and “people came to the table with ideas.”

Sometimes, ECHOs were part of larger initiatives which include in-person events. For example, the Hepatitis C Elimination program affiliated with Ochsner Health System was part of a larger Hepatitis C Elimination initiative by the state and included a half-day of training followed by a 12-week Hepatitis C ECHO program. The ECHO Hepatitis C program with the University Virginia was part of a hepatitis C telehealth initiative funded by the state that coupled ECHO with ongoing consultations for hepatitis C medication assisted treatment via an in-person training.

43. CAN ECHO PROGRAMS BUILD FROM OR EXTEND AN EXISTING PROGRAM?

We found many instances of ECHO building from existing programs – and this is an effective way to quickly build out ECHO programs and expand access while leveraging scarce resources.

The two programs we studied at the Northeast Ohio Medical University (NEOMED) - Systems for Care and Integrated Care at NEOMED (IC@N) ECHOs - were built from existing programs. The Systems for Care ECHO provided in-person case consultation. ECHO made it possible for this program to expand access to the existing program. The Integrated Care at NEOMED program started as an interprofessional team providing individual training to care setting staff who were trying to build an integrated case model. ECHO helped to standardize the content and curriculum offered to participants and expand the program’s reach.

The Boy Scouts Summer Camp ECHO at Penn State University existed for several years prior to making it an ECHO. Program leaders met with summer camp leaders and staff across Pennsylvania and eventually outside of the state. When ECHO started at Penn State’s College of Medicine, the Boy Scout Summer Camp program leaders saw the potential to reach more participants and to involve participants in peer learning. They adjusted the program and quickly turned it into an ECHO program.

The Hepatitis C ECHO at the University of Virginia began as the Virginia HEP C Outreach Program developed to respond to limited access to care, especially specialists, in the far southwest of the state. COVID forced changes in the Virginia HEPC outreach program and this was when ECHO was adopted as part of the larger outreach initiative.

Huther Doyle was part of Health Homes of Upstate New York (HHUNY), a Medicaid- funded program that aimed to coordinate those involved in an individual's care to support better health outcomes. Huther Doyle provided in-person training for care managers across more than 40 care management agencies. The training of care managers was an ongoing priority at Huther Doyle. After attending immersion training and with the onset of COVID, Huther Doyle decided to use the ECHO Model to deliver the training and professional development to care managers, case managers, care coordinators, and others.

44. IS ANYONE USING ECHO AS A TRAINING PROGRAM FOR INTERNAL EMPLOYEES/STAFF?

Several organizations used the ECHO Model to train their own staff. This was certainly the case for the U.S. Army and Air Force, but it was also the case for health care systems. ECHO can help build or reinforce institutional norms across a complex system and be a way for participants to meet each other and build relationships and partnerships.

The Complex Care Management ECHO at the Weitzman Institute was used to orient nurses within the Community Health Center, Inc., the Weitzman Institute's parent organization, to a "philosophy of primary care," a commonly overlooked area of study in many bachelor's degree nursing curriculums, so that they could practice complex care coordination effectively in an FQHC setting. Prior to ECHO, nurses would spend six months to a year in a training program. Once Community Health Center, Inc.'s Chief Nursing Officer became familiar with ECHO, she saw it as an opportunity to provide ongoing training for nurses. Nurses' schedules were blocked so that ECHO didn't affect opportunities for completing billable visits.

Part of the decision to adopt Project ECHO for Liver Management was related to the growth of Ochsner Health. Ochsner was acquiring hospitals in Louisiana and Mississippi. With this growth came an expansion of the Ochsner provider pool and a need to "provide guidance so providers can learn how to best manage their patients." ECHO was a means to offer this guidance. In a large complex organization such as Ochsner Health, ECHO was a means to train physicians so that patients would experience comparable or standardized care regardless of where they entered the system.

A slightly different take on ECHO for training within an organization was the inclusion of residents – where ECHO was seen as an extension of their training. The Pregnancy Care ECHO in Utah included medical residents and ECHO was described as an extension of their graduate education. Residents presented cases to learn from their mentor, but "they're also soliciting opportunities from the participants to ask questions, to teach them something that might happen in their community. That same "all teach, all learn" ethos within residency and other graduate medical programs exists within this program as well."

45. WHAT CURRICULAR INNOVATIONS ARE ECHO HUBS AND PROGRAMS TRYING OUT?

Programs innovate within the ECHO framework. Sessions are tailored or modified and sometimes the sessions extend to time between sessions. Some programs offered the case first; others the didactic first.

“Flipping” the session was piloted in Southern Illinois University where Hepatitis C ECHO lectures were recorded in advance and the ECHO sessions focused on questions, cases, and discussion. By doing this, the Hepatitis C ECHO lead hoped to “stretch out the experience over time.” Many programs used tools associated with Zoom and other video-based technologies such as raising hands, waterfall chats, and breakout rooms.

The Oregon ECHO Network’s Hepatitis C program offered an optional community of practice session between their knowledge and skill focused ECHO sessions. These community of practice sessions focused on case discussion and featured a short didactic lecture designed to help participants develop their Hepatitis C elimination program.

ECHO programs also innovated with the curricular framework. For example, the University of Utah Health ECHO tried a module-based curriculum where a single topic could be discussed over multiple sessions and cases aligned with the topic. The Community Health Worker ECHO at Southern Illinois University sometimes placed participants in small groups or dyads where they would share a case.

As an early adopter of ECHO, Colorado had a lot of experience with the model and believed that the didactic-case presentation format was not always appropriate or necessary. So, Colorado ECHO innovated at the hub level by creating “buckets” or a typology of ECHO programs. For example, they had a “learning series” bucket that included ECHO programs that had a didactic and facilitated discussions but not a case presentation; an “enhanced case management” bucket where ECHO programs had didactics and participant-submitted cases; and a “community of practice” bucket where ECHO programs were moderated discussions with no planned didactic or case presentation. All buckets were based on the needs of the participants. The “bucket” typology was not fixed and changed over time.

46. HOW CAN WE ADDRESS CULTURAL COMPETENCY IN AN ECHO PROGRAM?

When asked this question, most ECHO program facilitators and staff shared that their work becomes culturally responsive when the interests of the participants are at the forefront of all planning and discussions. An example was ECHO-Chicago. After a team from the University of Chicago returned from immersion training in New Mexico, they discussed how the ECHO Model could be adapted to an urban environment, specifically the South and West Sides of Chicago, which were low income and under-resourced areas within the Chicago health system. The goal was to support providers in under-resourced communities so that individuals get care at “the right place, at the right time, and by the right provider.” In reaching out to safety net providers in Federally Qualified Health Centers in the city, the ECHO Behavioral Health Integration team modified the ATAL approach with the addition of “All Support” since these providers were under considerable and constant stress. This was particularly poignant for issues arising during ECHO case presentations that related to larger systemic issues or social determinants of health. Program leaders noted that many times providers could do little to change a patient’s circumstances. The program team stressed the importance of being humble and acknowledging what you don’t know, relaying their own experiences with challenging issues, and provided a space for the group to share experiences and support each other.

Greater cultural competency can come by observing participation and even in the order in which people participate. Indian Country ECHO leaders talked about the importance of paying attention to the implicit cues in the tribe member’s engagement: “We always ensure that indigenous voices are heard, respected, used, and prioritized. They are part of faculty. We make sure that our indigenous faculty speak first in giving recommendations and not necessarily the specialist.” For Indian Country ECHO, cultural competency was a priority and achieved by developing relationships and listening closely. They shared, “We’re not experts in any of the tribes that we’re working with. They’re the experts.” Indian Country ECHO “meets people where they are” and worked to do what the tribes needed and wanted. This work was also a gift – facilitators said that they were fortunate to be invited by the tribes to learn about each tribal culture.

Cultural competence sometimes required changing how language and cases were used in ECHO sessions. During case presentations in programs run at the Centre for Addiction and Mental Health in Toronto, the potential for a more culturally relevant approach for First Nations, Inuit, and Métis patients and communities became evident, including considerations for cultural safety and culturally specific resources. Adaptations to the model included altering terms used within ECHO (for example changing the language from ‘hub’ and ‘spoke,’ to ‘resource team’ and ‘community member,’ respectively), and the development of a holistic framework for the case presentation and recommendations). The team also considered if sessions would be open to everyone in Ontario, or would be open only to Indigenous healthcare providers, or all healthcare providers who served Indigenous communities. It was delivered to staff at organizations mandated to support First Nations, Inuit, and/or Métis clients. The facilitation model was adapted as well; instead of having a facilitator coordinate the session, the role of Cultural Host was developed to coordinate the sessions. Additionally, to ensure that no single community or perspective was exclusively represented, different communities were featured each week.

Cultural competence included making social determinants of health front and center in planning and implementation. For example, in the Rutgers University Community Health Workers ECHO, participating policymakers heard if policies they designed to address social determinants were actually doing what those policies were designed to do. Engaging an inclusive set of stakeholders allowed the Rutgers team to keep the experts and staff focused on and learning about the social determinants that impact patients and patients’ caregivers.

Recruiting and Presenting ECHO Cases

Cases are a core component of the ECHO Model. Participant-presented cases are the ideal form of a case and the desired approach in most ECHO programs. It can be challenging to recruit participants to present a case. Many ECHO hubs and programs have developed strategies to encourage participants to present cases. Other ECHO hubs and programs rely on subject matter experts to present cases or build cases during a session, or hold “ready-made” cases in reserve if staff cannot recruit spoke participants to present a case for a session. Here we discuss cases in more detail.

47. DO ALL ECHOS HAVE CASES PRESENTED BY PARTICIPANTS?

No – although participant presented cases are the gold standard. Our study included a couple of programs that were didactic based with few if any cases.

The Air Force Diabetes Management ECHO became more lecture-based over the years, partly because of the difficulty of persuading participants to present a case to the group for discussion. Indeed, Air Force facilitators stopped referring to some of their programs as ECHOs for this reason. The Child Abuse Pediatric Fellowship ECHO program at Children’s Healthcare of Atlanta did not include case presentations as part of regular sessions, but during separate quarterly sessions, case presentations were used.

In the absence of a participant-presented case, we found that many ECHO programs relied on the subject matter expert(s) to present a case. For example, the facilitator for the Adolescent Reproductive Health ECHO at the University of Colorado presented cases based on questions she was asked by providers. The Sickle Cell Disease ECHO at Johns Hopkins University was a weekly program with a high demand for cases. If a participant did not come forward with a case, then a subject matter expert on the panel used a case from their own practice. Overtime, the Sickle Cell Disease ECHO developed a “bank” of panel member cases that they could draw on if they did not have a participant-led case. The Palliative Care ECHO at

Texas Tech did not rely on participants to present cases. A respondent shared, “We haven’t been able to get cases from people. We’ve got ideas for ECHOs, concepts on what to cover from our participants, which is good, but in terms of a case presentation, as in the ideal model of ECHO, we haven’t had that.” Instead, the Palliative Care ECHO created its own case content which aligned with the didactic topic.

48. DOES A CASE ALWAYS NEED TO BE ABOUT A PATIENT?

Cases reflect the focus of the programs – and not all ECHO programs focus exclusively or even primarily on patient care or treatment. The subject of a case is often a patient, but it can also be about a policy or process that affects patient care.

In the Indiana Peer Education ECHO Program at Indiana University Purdue University at Indianapolis, participants were incarcerated individuals and cases were often built around a challenge the peer educator faced in their facility. These challenges could be about other peer educators, but also policies and procedures. In the Boy Scout Summer Camp ECHO at Penn State University, cases focused on nutrition, menus, and food planning for summer camps. Ohio Systems of Care Project ECHO for Multi-System Youth at Northeast Ohio Medical University assisted case workers, social workers, and counselors with the care of youth requiring intensive home-based treatment and support across a variety of social systems. Patients were the focus of the case, but there was a secondary focus on how care was coordinated across the system.

Some cases focus on the patient as well as policy or procedures. The Behavioral Health Integration ECHO program at the University of Chicago included patient and process change cases structured around the Plan-Do-Study-Act (PDSA) approach to quality improvement. The Medication Assisted Treatment (MAT) ECHO program at West Virginia University had complex cases that focused on the patient as well as programmatic and policy questions surrounding MAT.

49. DO SOME ECHOS USE DIFFERENT LANGUAGE TO DISCUSS “CASES”?

As originally designed, the ECHO Model was based on patient cases as they are presented in health care settings, including residencies and other trainings for medical professionals. As the ECHO Model is applied to a broader range of subjects and or when the participants include a professionally diverse audience, the term “case” may be differently understood or less applicable. We found several programs that were using or experimenting with new language to describe case-based learning. Cases, scenarios, real-life examples, problems, situations, challenges, and other related terms can be used to support case-based learning. Find the term that works best for your participants.

At the Penn State ECHO hub, the staff found themselves explaining what a case was or might mean to participants. They were “softening the language” and participants were asked if they “have a case, a question, an example, a challenge” to initiate a case-based discussion. In their Medication for Opioid Use Disorder ECHO, participants were reminded that “a case can be anything that you’re dealing with. It could be a patient, it could be a general question, it could be a challenge that you’re seeing across multiple patients in your clinic.” In the Boy Scouts Summer Camp ECHO, the term case was found to be intimidating to participants and the phrase “real-life camp examples” was used to initiate case-based discussions. The case template used for the Boy Scouts Summer Camp ECHO stated, “If you have a real-life camp example or question that you’d like to discuss, fill out this survey form.”

The Endocrinology ECHO at Rutgers University tried not to use the word “case” all the time because provider participants often thought this meant more work. In addition, it was not “the right terminology when you have a diverse audience including dietitians, social workers, and case managers.” The team was using the language of a “patient scenario” and asked participants, “Tell us about a situation that you would like some advice on.” Similarly, the Community Health Worker

ECHO at Rutgers University did not ask for cases, but instead asked questions such as, “Is there anyone who has experienced this in their work or field? If so, where are you from? What is the scenario?”

50. HOW CAN WE ENCOURAGE PARTICIPANTS TO SUBMIT CASES FOR PRESENTATION?

Participants often need to be encouraged to submit cases. Some are very busy and submitting a case takes time. Others may not have a developed, prepared case readily at hand. What we heard is that participants were often reticent to present a case because they were uncomfortable discussing what they don’t know.

ECHO hubs and programs have developed many strategies to recruit cases from participants. Perhaps the most common and important way to encourage cases was to develop a safe place where participants felt comfortable sharing that they did not know something or were uncertain about how to proceed. Subject matter experts and facilitators were key to creating a safe place – they set the tone. Huther Doyle characterized their ECHO sessions as having no barriers between generalists and specialists and where participants and experts “come into this with your ego in check.” In reference to an Army Pain Management ECHO, the facilitator said, “We never judge. We never second guess. It’s always very kind. And we see people grow in their confidence to the point that they’re offering advice to others.” At Rutgers University, patient care was described as a puzzle where “each of us has our own little piece of this puzzle. When we all get together you can realize the full picture.” ECHO sessions can become a collaborative learning environment where participants share cases and facilitators develop a safe space that fosters relationships. We also found numerous instances of leaders learning that their spoke participants were messaging and meeting outside of the planned ECHO program sessions—a further sign of a collaborative learning environment having been formed.

ECHO program staff can make a case presentation an expectation, or a requirement to receive CME or other types of certifications/recognition. Army Pain Management ECHO participants were primary care pain champions in clinics and expected to present a case. To ensure they had the capacity to participate in ECHO and present a case, their panel size, number of patients managed, and Relative Value Unit (RVU) goal was “decremented.” To become a hepatitis C Champion, participants in the Hepatitis C Elimination ECHO hosted by Ochsner Health System were required to present cases. Similarly, when providers registered for an ECHO-Chicago program, presenting a case was stated as an expectation, required for continuing education credits, and presentation dates were scheduled at the onset of each session.

The Center for Addiction and Mental Health and University of Toronto encouraged participants to present cases through a Statement of Collaboration. Participants in the Nutrition Education ECHO at the University of Nevada attended an orientation where they learned about the principles of the ECHO Model and were assigned a date to present a case during orientation.

Some ECHO programs provided financial incentives to encourage participants to present cases. One site offered a \$30 incentive; another site paid participants \$2,500 to take part in the program with an understanding that each participant would present a case.

Often, we found more than one strategy used to encourage participants to present cases. The Hepatitis C ECHO team at Oregon was successful in recruiting participants to present cases and reported that every session had a case discussion. This ECHO team had two different case forms available and gave participants the option to present a more traditional patient-oriented case or a systems challenge. Some of the strategies this ECHO team used to recruit cases included calling for case volunteers at the beginning and end of sessions, direct emails to participants, and asking participants to present a follow-up report from a previously presented case.

51. ARE CASE PRESENTATIONS PREPARED IN ADVANCE? DO THEY USE TEMPLATES?

A case can be prepared, submitted, and reviewed in advance or created “on the fly” via discussion. Cases have been structured using a standardized template, a tailored template, or no template. How cases are presented depends on the expectations of the facilitators, the willingness of the participants, and the nature or subject of the case.

Many ECHO hubs and programs had templates that they shared with participants and then once the templates were completed by participants, reviewed in advance of the case presentation. At ECHO-Chicago, the case report form or template served as a learning tool: “The cases are influenced by the case report form that we use, because the fields in the form highlight areas that providers should pay attention to. Completing the case report becomes an effective learning tool, as well as a communication tool.” At West Virginia University, the Clinical and Translational Science Institute’s ECHO hub developed an electronic case form where participants could copy and paste from their electronic medical record, submit multiple cases at once, and select a presentation date which made it easier for participants to submit a case and easier for hub members to review them prior to presentation. At the General Mental Health ECHO at the Centre for Addiction and Mental Health and University of Toronto, the hub team provided one-on-one support for individuals in preparing their case presentations. Initially, participants did not submit cases in advance for the Sickle Cell Disease ECHO program at Johns Hopkins University. This changed, however, and participants submitted cases in advance so that they could be reviewed, and experts consulted, if necessary, prior to the case being presented.

Templates are sometimes standardized across programs, such as with the U. S. Army Pain Management ECHOs where all programs and participants shared a common form. Many programs, however, customize their form to fit the subject matter and the participants. For example, the Indiana Peer Education Program required participants to complete a case presentation template in advance, which was shared on the screen during the session; this helped visual learners follow along. The template focused on the issue, what had been done to solve it, the benefit of getting it fixed, who would take the lead on fixing it, and a space for three questions for the council. The Boy Scout Summer Camp ECHO at Penn State also had a unique approach where participants were asked to complete a survey form if they had a real-life camp example or question they would like to discuss.

52. IF WE DON’T HAVE A PARTICIPANT CASE PREPARED IN ADVANCE, WHAT CAN WE DO?

If a patient case is not prepared in advance, several common strategies are used across the hubs and programs we studied: Have back-up cases available, ask an expert to present their own case, create a case through conversation, or open the session up to a discussion.

ECHO program staff can build an inventory of cases to draw on if they do not have a participant case for a session. The Sickle Cell Disease ECHO at Johns Hopkins University built an inventory of cases from their own practice that they used if a participant wasn’t presenting a case. The Hepatitis C ECHO at Southern Illinois University also had an inventory of cases from previous cohort presentations. At the University of Rochester, the Sexual Health ECHO was part of a grant that included a consultative line. Cases from the consultative line were used if participants did not have a case to present.

Experts can also present a case based on their own experiences. The Hepatitis C ECHO at Rutgers University typically had a participant present a case, but should a participant case not be available, the facilitators “stand-in, as a backup.” In Minnesota, the Rural Physician Assistant Program Addiction ECHO was limited to third-year medical students who were

sometimes reticent to present cases so the facilitators frequently drew on their own experiences to present a case that aligned with the didactic. The subject matter expert leads for the Hepatitis C ECHO at the University of Virginia would sometimes present cases that were hard for them or unexpected. They also created cases based on emails where they saw something that was “persistently confusing or that becomes confusing because of changes in guidelines.”

Cases were also built through dialogue. The Integrated Care Management ECHO at Northeast Ohio Medical University initially required the use of a formal case submission form. Over time, case solicitation evolved into the facilitator asking if someone had a case or question about practice. This was described as “grabbing the case on the fly.” When cases were presented in the Liver Management ECHO at Ochsner Health, they came from discussion and questions and were not formally presented using a case template even though a template was readily available. The Hepatitis C ECHO at the University of Virginia and the Rural Addiction ECHO in Minnesota did not require case forms and cases were often built from conversations. We heard several examples of skilled facilitators creating a case by asking a participant for more description, by asking specific questions, and by restating the scenario as a case.

If there is no case to present, ECHO program staff may choose to engage participants in a discussion. When the Alcohol & Smoking ECHO at the Weitzman Institute didn’t have a case, they would open up questions to the floor like an open forum. Similarly, if the Obesity Management ECHO at Sick Kids had difficulty getting cases from participants, the presenters opened the floor to general discussion, allowing the participants to lead and guide the conversation, which served nearly the same purpose as a prepared case: All had something to teach, all had something to learn.

53. HOW CAN WE INCLUDE CULTURAL ISSUES AND SOCIAL DETERMINANTS OF HEALTH IN A CASE PRESENTATION?

You can intentionally draw out cultural issues and social determinants of health during a case presentation by asking about them in a case template, probing for these issues during a case discussion, or both.

Case templates can include questions about cultural norms or social determinants. Participant cases in the Integrated Pain Management (IPM) ECHO at Indiana University Purdue University at Indianapolis followed a template that included a medical history and financial and social background factors. Cases in the IPM ECHO were described as “opening the conversations to show that populations and providers may not have the same access to resources.”

Facilitators can encourage a conversation that addresses cultural issues and social determinants of health by asking questions of participants following a case presentation. At the Hospital for Sick Children in Ontario, the Obesity Management ECHO team explained, “We have had several cases where discussions have centered around trying to support a child who may not be living in ideal circumstances, either from a socioeconomic standpoint, or family crisis. And there are a lot of great suggestions and examples from community participants about things they’ve done in that scenario, which I think has helped everybody think more broadly about the external supports that might be available for these types of kids, where you feel like you’re at a bit of a loss regarding how to support them.”

The First Nations, Inuit, and Métis Wellness ECHO program at the Ontario Mental Health Centre for Addiction and Mental Health and University of Toronto encouraged participants to consider physical, mental, emotional, and spiritual ways of knowing when discussing cases and presenting didactic lessons, and suggested that family and community aspects of wellness should be considered as well as individual wellness.

Assessing ECHO Programs

Monitoring program outcomes to increase impact is a guiding principle of the ECHO Model. ECHO programs vary in how staff monitor outcomes in terms of what they measure, how they measure it, and how much support they have to conduct evaluations or research. Here we look at the frequency of data collection, promising practices, and share where to find studies that look at the effectiveness or impact of the ECHO Model.

54. HOW FREQUENTLY DO PROGRAMS COLLECT DATA FROM PARTICIPANTS? AND HOW CAN I USE THESE DATA?

Evaluation of effectiveness is a critical element of quality improvement and sustainability of a program. The amount and frequency of data collected from ECHO programs varies considerably. Some programs collected data when a program starts and when it concludes. Staff may also collect data during sessions and at the conclusion of a session. Data may be collected from participants, subject matter experts, or both. Simple archival counts about number of programs, number and types of participants, and number of cases presented are routinely collected. Automatic tracking and surveys are frequently used to collect data, but other data collection methods such as focus groups and interviews are also used. What data are collected, how it is collected, and just as important, how it is used, depends on the type of evaluation you conduct (e.g., needs assessment, outcomes analysis, quality improvement, program effectiveness), the goals and learning objectives of the program, participant willingness, access to evaluation resources, and funding availability.

Huther Doyle, an addiction services provider led two small but highly impactful community-focused ECHO programs, a Medication Assisted Treatment (MAT) ECHO program for health care providers and a Care Management ECHO for Health Homes. The type and frequency of data collection varied across the two programs based on its objectives. The MAT ECHO surveyed participants every six months and measured changes in attitudes, behaviors related to MAT, and potential patient impact. The Care Management program surveyed participants annually to determine future topics of interest, overall satisfaction, and professional development.

Staff at the Boy Scouts Summer Camp ECHO at Penn State collected information during registration such as “How big is your camp? What have you tried? What worked? What hasn’t worked?” This information was used to initiate conversations and shape didactics. This ECHO program also collected feedback at the end of the series and conducted a final evaluation at the end of the summer asking participants, “What did you actually implement at camp? What worked?” These data were used to improve the program.

ECHO-Chicago at the University of Chicago and Rutgers Project ECHO at Rutgers University collected feedback from participants and their subject matter experts during each session and after each cohort (or series). Both hubs utilized internal and external dashboards to track key metrics, set goals for improvement, and track progress over time. Unique approaches included sharing data dashboards with participants, participant organizations (ECHO-Chicago), and stakeholders such as elected officials and funders, as well as utilizing Moore’s taxonomy of learning to assess the progression from participation to knowledge gain to application of learning resulting in behavioral change and impact on patient outcomes by the Rutgers Project ECHO staff.

ECHO Ontario Mental Health at the Centre for Addiction and Mental Health and the University of Toronto staff took a unique approach to data gathering based on working across cultures with Indigenous communities. They used a sharing circle with participants that prioritized feedback and narratives from participants. Reflecting on designs for continuous quality improvement, staff continuously collected feedback from participants as needs changed. They also focused on

using findings and holding themselves accountable for taking action to ensure that they built a community of practice and met the needs of learners.

55. WHAT ARE BEST PRACTICES FOR MONITORING PROGRAM QUALITY?

Many high-quality programs require clear objectives of what you want to accomplish, an assessment that you can execute, and the identification of Performance Indicators (PIs) that enable you to track progress in meeting your goals. ECHO programs use PIs to evaluate participant satisfaction and engagement, learning, behavior change, health status, and cost savings. Monitoring program quality varies across ECHO hubs and programs in its consistency, intensiveness, resource support, and use. Few ECHOs monitor or measure quality in the same way. And not all ECHO programs measured program quality – typically because they did not have the resources or staff to do so.

Staff at the Oregon ECHO Network (OEN) had Continuous Quality Improvement (CQI) embedded in the activities of their ECHO programs. To maintain high-quality programs, OEN engaged in three different monitoring activities. They had a mid-program evaluation where two observers sat in on 1-2 sessions during an ECHO series and then shared a structured review with the ECHO expert team. Secondly, they sent a survey to participants soon after each session and shared de-identified findings with the expert teams to determine how the program was progressing. In addition, after each session the expert team completed a semi-structured review of the session and discussed what worked and where there were opportunities for improvement.

The ECHO Ontario team used an embedded evaluation approach. The team followed a quality assurance and improvement plan that included weekly and post-series surveys to measure PIs and evaluate each program. This hub, like other hubs and programs, used Moore’s Framework to develop PIs. They also assessed the extent to which participants continuously adapted and shared their learning back with participants.

Show-Me ECHO staff at the University of Missouri created a process for routinely summarizing data, providing feedback to the team, and making changes quickly and decisively based upon their outcomes data. The data were used for CQI and provided to funders to justify programs and advocate for growth. Similarly, ECHO work at the American Academy of Pediatrics were used to drive quality improvement in real-time by each participating practice team at pediatric clinics.

The Northeast Ohio Medical University (NEOMED) team utilized small tests of change, self-assessment scorecards during sessions, and evaluated participant satisfaction using surveys collected weekly and at the end of the series to evaluate participant satisfaction. A case presenter feedback survey, sent to the case presenter 2-3 months after their case, was used to determine if the case recommendations were beneficial in practice.

56. HOW CAN WE HAVE A ROBUST EVALUATION WITH LIMITED FUNDS?

Developing a robust evaluation with limited funds is challenging, especially if the ECHO staffing model is very lean. Success begets success. So, creating a “proof point” from data that can be shared with funders, participants, and the hub members is an invaluable starting point for growing a robust evaluation program.

Many ECHOs start with a limited evaluation that focuses on measuring program satisfaction and participant self-reported changes in learning. ECHO hubs and programs often made use of surveys and other data collection tools available in PERL (through the Box online system) – and we encourage making that your first stop. Other ECHO hubs and the ECHO Institute readily shared their tools and techniques. Building evaluation costs into contracts and grants was a common strategy to boost evaluation capacity.

One way to build evaluation capacity with limited funds is to leverage expertise from others. ECHO staff trained in CQI or Lean Six Sigma applied that knowledge to the design and implementation of an evaluation. ECHO programs at the Weitzman Institute, West Virginia University, the IUPUI ECHO Center, and the Hospital for Sick Children in Ontario all had access to evaluation or research expertise within their organizations they could readily access for evaluation support. The Indiana Peer Education Program ECHO at IUPUI augmented the capacity of faculty by working with a doctoral student to develop new evaluation tools and deepen their measurement of ECHO outcomes.

Partners or stakeholders outside of the ECHO host organization can also provide evaluation support. The Northern New England ECHO Network relied on one of its partners, Maine Quality Counts/Qualidigm, to provide research and evaluation support. The Systems of Care ECHO at Northeast Ohio Medical University partnered with the Ohio Government Resource Center to conduct evaluation and research. At the ECHO Ontario Mental Health at the Centre for Addiction and Mental Health and the University of Toronto, an advisory committee included stakeholders with evaluation and research skills who contributed to discussions on program evaluation.

Larger ECHO hubs sometime hire staff with evaluation skills. Rutgers Project ECHO hired a full-time evaluation and quality improvement staff member, an indication that evaluation and quality improvement played an important part in their programs. If hiring an evaluator was not within reach, some ECHOs subcontracted with organizations for evaluation, thereby gaining access to skills and resources without making a long-term commitment. For example, evaluation of the Trauma and Resilience ECHO at the American Academy of Pediatrics was led by the University of California at Los Angeles and funded by a grant.

Show-Me ECHO was well funded through state appropriation funds as well as through contracts with each of three Medicaid Managed Care organizations. Regular collection of data about ECHO programs was important for continued support. “We feel like evaluation is key to our sustained funding,” said an interviewee. “We have outcomes that we tout and there are four or five that we are counting right now, but we always need new outcomes. And we think that is key to our sustained funding, as is recruiting expert hub team members from all areas of our state.”

57. WHERE CAN I FIND STUDIES ABOUT THE EFFECTIVENESS OR IMPACT OF ECHO PROGRAMS?

A comprehensive collection of studies about the approach, effectiveness, and impact of ECHO programs can be found on the Project ECHO website, <https://hsc.unm.edu/echo/what-we-do/research-on-echo-model.html> (November 2022).

The ECHO Institute’s Box-based Project ECHO Resource Library (PERL) contains information about evaluation and assessment. Access is granted to the Box folder by the ECHO Institute.

In addition, the ECHO Institute hosted a global conference, MetaECHO, in 2014, 2016, 2017, and 2019. These conferences brought together Project ECHO’s global replication partners, providers, health policy experts, government officials, academic leaders and funders. Research, evaluations, and lessons learned were presented at these conferences. You can review content from these conferences at <https://hsc.unm.edu/echo/what-we-do/echo-conference/> (November 2022). A next MetaECHO is scheduled for September 18-21, 2023, in Albuquerque, New Mexico.

This ECHO Implementation study began with a study to assess the state of the evidence about Project ECHO (Extension for Community Healthcare Outcomes) and suggested directions for learning more about its performance in the field. You can find that report at <http://www.diffusionassociates.com/wp-content/uploads/2019/09/echo.pdf> (November 2022).

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ECHO Implementation Profiles

Diffusion Associates studied the implementation of Project ECHO at 34 hubs and across 62 programs in the United States and Canada. Implementation Fellows, who are experienced practitioners actively implementing ECHO hubs and programs, assisted with the study. Interviews with 160 respondents provided insight into the adoption, implementation, and sustainability of the ECHO Model.

In addition to these FAQs, you can access *Implementation Profiles* at diffusionassociates.com/echo. These profiles describe how and why hub and program leaders adopt ECHO, how they define and enact ECHO principles, factors that influence adoption and implementation, and a vision for the future and what is needed to realize it.

Implementation Profiles focus on ECHO implementation at the following 34 sites:

- » American Association of Pediatrics
- » Association of Community Cancer Centers
- » Beth Israel Deaconess Medical Center
- » Cherokee Nation Health Services
- » Children's Healthcare of Atlanta
- » Huther Doyle
- » Indian Country - Northwest Portland Area Indian Health Board
- » Indiana University Purdue University at Indianapolis
- » Johns Hopkins University (SiNERGe)
- » Minnesota Rural Addiction
- » Northeast Ohio Medical University (NEOMED)
- » Northern New England Network
- » Ochsner Health
- » Oklahoma State University
- » Ontario Centre for Addiction and Mental Health
- » Ontario Hospital for Sick Children (Epilepsy)
- » Ontario Hospital for Sick Children (Paediatric)
- » Oregon ECHO Network
- » Penn State University
- » Rutgers University
- » Southern Illinois University
- » Texas Tech University
- » U.S. Army Pain Management
- » U.S. Air Force
- » University of Chicago
- » University of Colorado
- » University of Kansas
- » University of Missouri
- » University of Nevada, Reno
- » University of Rochester
- » University of Utah
- » University of Virginia
- » Weitzman Institute
- » West Virginia University

Diffusion Associates (diffusionassociates.com) works with social innovators and sponsors committed to designing and scaling out effective interventions. To learn more about our work, please visit our website or contact R. Sam Larson, Principal and Senior Consultant, at rsamlarson@diffusionassociates.com.