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Rapid Deployment of a Statewide COVID-19 ECHO Program for Frontline Clinicians: Early Results and Lessons Learned

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Commentary

Rapid Deployment of a Statewide COVID-19 ECHO Program for Frontline Clinicians: Early Results and Lessons Learned

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In a pattern repeated around the country, Oregon reported its first coronavirus patient on February 28, 2020.[1] A week later, the governor declared a state of emergency.[2] While the media initially focused on efforts to address COVID-19 in large cities, many rural communities were working in parallel to prepare. In these rural areas, there was an increasing concern that the burden of COVID-19 may be particularly dire due to factors such as older populations, higher prevalence of chronic diseases and poverty, and less health care access.[3-6] Rural clinicians, especially those working in outpatient settings, are caring for patients during the pandemic with few resources and many questions. There was, and continues to be, an urgent need for the rapid dissemination of emerging public health and treatment best practices, scientific evidence, and available resources for rural clinicians.

Project ECHO (Extension for Community Healthcare Outcomes) provides an ideal model for the rapid dissemination of pertinent information to rural clinicians during a crisis. Developed at the University of New Mexico in 2003, Project ECHO is a telementoring education model that expands primary care clinicians' ability to manage complex health conditions. An interdisciplinary expert faculty, an "all teach, all learn" approach, and a combination of didactic and case-based learning characterize ECHO programs.[7-9] Since 2016, the Oregon ECHO Network (OEN) has provided telementoring to rural and urban clinicians through a variety of ECHO programs, including substance use disorders, adult and pediatric psychiatry, and smoking cessation. The OEN is housed within a statewide primary care practice-based research network, the Oregon Rural Practice-based Research Network (ORPRN).[10-12]

Shortly after the first COVID-19 case, OEN, ORPRN staff and consultants realized Project ECHO could provide a unique and valuable tool to connect and share emerging information with clinicians across the state. While OEN leadership initially wondered whether we had the resources to create and implement a COVID-19 program in just a few

days, we could not sit on the sidelines when we had a successful, well-established Project ECHO program that could bring together public health and health care experts to share timely information in response to this novel situation. The process of creating the COVID-19 ECHO program for frontline clinicians, along with results from the first 4 weekly sessions, confirm crucial factors and strategies that we believe allowed us to support clinicians, especially in rural areas, in this pandemic. Our experience can provide guidance for others in future health crises.

Development of COVID-19 ECHO

A few days after OEN and ORPRN leadership brought their idea to the state, the governor's office made a request to OEN on March 13, 2020: Create a COVID-19 Response ECHO for health care providers to launch on March 19, 2020. Two key challenges presented: (1) How to rapidly prepare and (2) How to accommodate a much larger number of participants than normal. OEN programs typically take 3 to 6 months of planning, including identifying faculty, developing curricula, securing accreditation to provide continuing medical education (CME), and recruiting participants. Our programs usually accept no more than 35 participants to maximize interactions. We had less than a week to prepare, and we anticipated over 500 participants. With this short timeframe, OEN's previously established systems and relationships were paramount. They allowed us to widely promote the COVID-19 ECHO, register participants through an established registration portal (though to maximize participation, registration was not required), identify highly qualified and credible faculty experts, develop a secure process for evaluation, and offer CME.

Adapting for the high volume of participants necessitated certain deviations from the traditional ECHO model. It was important to create a format that was more interactive and responsive than a traditional webinar, but still feasible with a large audience. Quickly striking that balance required using the participant chat box feature in multiple ways. We did a real

time reading, synthesizing and asking of key questions during each session, as well as an iterative process of debriefing after each session, utilizing a close reading through the entire chat box (15 to 20 pages of text) along with post-session survey responses. This allowed us to make week-by-week adjustments in both the content and format of the sessions.

Participants

A total of 737 individuals participated in the first COVID-19 Response ECHO; mean participation across the first 4 sessions was 718. As of April 15, 2020, 1110 individuals had registered for the ECHO series. Although registration was not required to attend, participants were incentivized to register because OEN uploaded resources (eg, session recordings, chat box history) to the registration website. In addition, participants received CME by registering and completing post-session surveys. We sent post-session surveys to all registrants, and 413 unique individuals (a subset of registrants) returned at least 1 post-session survey by the week following the fourth session. The demographics between all registrants and those who completed a post-session survey are similar, as seen in Table 1. Over 25% of participants reported practicing in either a rural or frontier area (comparable to Oregon's rural population[13]), and over 75% provide direct patient care.

Session Components/Curriculum

Each COVID-19 ECHO session began with a public health update, given by Oregon's Chief Medical Officer and members of her team and a local County Health Officer. The update included the latest information about cases, hospital capacity, personal protective equipment, testing, telehealth, and treatment. After this update and an initial round of questions from the chat box moderator (a family physician), expert presenters, such as infectious disease specialists, gave updates on clinical features of COVID-19. Each session also featured a community presenter sharing their on-the-ground experience regarding best practices and lessons learned. We selected community presenters and topics based on feedback from

ECHO participants. For example, 1 urban and 1 rural provider presented on changes to their workflows and staffing during the fourth session after numerous participants requested more information about the experiences of primary care settings. Other community presentations included guidance on telehealth, advanced care planning and end-of-life care, and best practices for nursing home care in rural areas. Beyond the content of the formal session, participants constantly asked questions of and learned from each other through the chat box. Additional OEN staff monitored the chat box in real-time to answer questions about registration, how to access information and resources following the session, and to post links into the chat box from presenters' slides.

Participant Satisfaction

We assessed satisfaction with the sessions via an email survey sent to all registrants. Over 200 participants returned post-session surveys each week (mean 213). Participants rated these first 4 sessions highly, with 94% rating the sessions good, very good, or excellent. There were no significant differences between rural and urban participants.

Rural Participant Feedback and Planned Practice Changes

We also asked participants to answer several open-ended questions in the post-session surveys, including "What did you like best about this ECHO session?" and "Changes in my practice I'm going to make." As demonstrated in Table 2, preliminary qualitative results suggest that rural participants appreciated up-to-date, locally relevant information. They also valued being able to connect with fellow health care providers from around the state, and learn from shared experiences. Table 3 describes sample quotes regarding the actions rural respondents planned to make. These included: disseminating knowledge to colleagues, implementing clinic changes, and improving discussions with patients.

Take-Home Lessons

Through implementing the COVID-19 Response ECHO, OEN is learning important lessons about what health care clinicians need during a public health crisis, especially in small rural practices. Each week we consistently found that participants were hungry for credible, up-to-date and honest information, regardless of their geographic location. Although we could not offer a traditional ECHO program with dialogue, the 700 participants each week still found a way to connect via ideas, stories, experiences, and suggestions, as well as questions, in the chat box. For rural health care providers, in particular, being able to connect virtually with peers from across the state also served to ease feelings of isolation during an incredibly stressful time.

We were initially uncertain if we could create and implement a COVID-19 ECHO program in less than a week. In reviewing our actions from that week, we found 3 key factors were essential to our ability to quickly respond and create this program. First, we already had an established ECHO support system, including a project manager, IT support, and a registration/communication platform. Prior to launching the COVID-19 ECHO program, over 780 unique health professionals, including primary care providers from 225 practices, had participated in previous ECHO programs. Second, OEN's existence within ORPRN further expanded our reach and strengthened the trust Oregon clinicians had with us. Since 2002, ORPRN has worked with 350 primary care practices statewide on diverse technical assistance, quality improvement, and research projects. Finally, OEN had spent 5 years strengthening relationships and building trust with diverse health leaders through our OEN Advisory Board. This Board consists of partners from the Oregon Health Authority, an academic medical center, 6 Coordinated Care Organizations (Medicaid Accountable Care Organizations), and 1 large health system. Having relationships with leaders in state government and across Oregon allowed us to successfully enlist key public health officials

and others to participate in the ECHO program. Overall, having the existing foundation of strong systems and relationships is vital to succeed in rapidly responding to a health crisis.

Summary

Fast-moving public health emergencies necessitate the rapid delivery of high-quality information to health care professionals, including those practicing in rural communities. The Project ECHO model and a modified process was an effective vehicle to meet these urgent needs and reach a large proportion of the state. In order to mount a timely response, however, systems and relationships must already be in place.

References

1. Zarkhin F. Oregon coronavirus case shuts Lake Oswego elementary school. *The Oregonian.* February 28, 2020.
2. Acker L. Gov. Kate Brown declares coronavirus state of emergency, announces 7 new Oregon cases. *The Oregonian.* March 8, 2020.
3. Healy J, Tavernise S, Gebeloff R, Cai W. Coronavirus was slow to spread to rural America. Not anymore. *The New York Times.* April 8, 2020.
4. Peters DJ. *Rural Areas Face Higher and Distinct Risks of Serious COVID-19 Outcomes than Urban Areas.* Ames, IA: Iowa State University, College of Agriculture and Life Sciences; 2020.
5. Johnson KM. *An Older Population Increases Estimated COVID-19 Death Rates in Rural America.* Durham, NH: University of New Hampshire, Carsey School of Public Policy; April 18, 2020.
6. Williams MA, Gelaye B, Broad Leib EM. The covid-19 crisis is going to get much worse when it hits rural areas. *The Washington Post.* April 6, 2020.
7. Arora S, Kalishman S, Dion D, et al. Partnering urban academic medical centers and rural primary care clinicians to provide complex chronic disease care. *Health Affairs.* 2011;30(6):1176-1184.
8. Arora S, Kalishman SG, Thornton KA, et al. Project ECHO: A telementoring network model for continuing professional development. *Journal of Continuing Education in the Health Professions.* 2017;37(4):239-244.
9. Arora S. Project ECHO: democratising knowledge for the elimination of viral hepatitis. *The Lancet Gastroenterology & Hepatology.* 2019;4(2):91-93.
10. About Oregon ECHO Network. 2019. https://www.oregonechonetwork.org/aboutoen. Accessed May 4, 2020.
11. Fagnan LJ, Morris C, Shipman SA, Holub J, King A, Angier H. Characterizing a practice-based research network: Oregon rural practice-based research network (ORPRN) survey tools. *J Am Board Fam Med.* 2007;20(2):204-219.
12. Oregon Rural Practice-based Research Network (ORPRN). 2020. https://www.ohsu.edu/oregon-rural-practice-based-research-network. Accessed May 4, 2020.

13. Oregon: Percentage of population living in a rural area. 2020. https://www.countyhealthrankings.org/app/oregon/2020/measure/factors/58/datasource. Accessed May 4, 2020.
14. Oregon Office of Rural Health Geographic Definitions. 2020. https://www.ohsu.edu/oregon-office-of-rural-health/about-rural-and-frontier-data. Accessed May 4, 2020.

Table 1. Demographics of Rural and Urban COVID-19 Registrants and Participants[a]

	RURAL[b]		URBAN		TOTAL	
	Registrants	Participants	Registrants	Participants	Registrants	Participants
Total Number	304 (28%)	114 (28%)	806 (72%)	299 (72%)	1110 (100%)	413 (100%)
Provide Direct Patient Care	237 (78%)	94 (83%)	616 (76%)	234 (78%)	853 (77%)	328 (79%)
Workplace Takes Medicaid	215 (71%)	84 (73%)	523 (65%)	194 (65%)	738 (67%)	278 (67%)
Primary Care Setting	212 (70%)	89 (78%)	484 (60%)	186 (62%)	696 (63%)	275 (67%)
Physician, Nurse Practitioner NP, Physician Assistant PA	150 (49%)	65 (57%)	455 (57%)	183 (61%)	605 (55%)	248 (60%)
Physician	87	35	318	125	405	160
NP	41	20	91	41	132	61
PA	22	10	46	17	68	27

[a] "Participants" refers to those who attended at least 1 session and completed a post-session evaluation.
[b] Rural designations are based on ZIP Codes and drawn from the Oregon Office of Rural Health Geographic Definitions. Rural is defined as "any geographic areas in Oregon 10 or more miles from the centroid of a population center of 40,000 people or more." Frontier is "any county with 6 or fewer people per square mile."[14] We grouped rural and frontier ZIP Codes into one "Rural" category.

Table 2. Examples of What *Rural* Participants Said They Liked Best About the ECHO Sessions

"Wide variety of information shared (especially on chat board)." – Physician
"That it was put together quickly for a very pressing need." – Physician
"Collaboration, listening to other health care providers in the midst of this pandemic." – Nurse
"Timely information on the COVID situation, ability to hear from those around the state." – Nurse
"Hearing from the doctor who is quarantining in his basement. Very calm and informative presentation." – Physician
"Hearing perspectives from active clinicians." – Pharmacist

Table 3. Examples of Changes *Rural* Participants Planned to Make to Their Practice Following the ECHO Sessions

"Increased knowledge about COVID-19 to share with patients and coworkers." – Pharmacist
"It helped us clarify our clinic's needs: 1. Options for people to process our swabs, 2. Getting tent/structure outside of clinic established for triaging respiratory patients, 3. Prioritize telehealth utilization." – Physician Assistant
"Utilization of the PPE guidelines as discussed, integration of key testing, incubation, transmission information regarding COVID-19 into clinical practice." – Nurse
"I will make sure that I am introducing myself followed by credentials and confirm patient's name and DOB at beginning of each virtual visit." – Nurse Practitioner
"Remembering to review advanced directives with patients and complete POLST for older adults without one." – Nurse Practitioner
"Implementing an outside canopy for patients with respiratory complaints." – Nurse Practitioner