

UCLA

American Indian Culture and Research Journal

Title

COVID-19 Telehealth for Indian Country: Tribal Response to an Emerging Pandemic

Permalink

<https://escholarship.org/uc/item/4qk125h5>

Journal

American Indian Culture and Research Journal , 44(3)

ISSN

0161-6463

Authors

Stephens, David
Wu, Alexander
Vinson, Eric
[et al.](#)

Publication Date

2020-06-01

DOI

10.17953/aicrj.44.3.stephens_etal

Copyright Information

This work is made available under the terms of a Creative Commons Attribution-NonCommercial License, available at <https://creativecommons.org/licenses/by-nc/4.0/>

Peer reviewed

COVID-19 Telehealth for Indian Country: Tribal Response to an Emerging Pandemic

David Stephens, Alexander Wu, Eric Vinson, Megan Woodbury, Celeste Davis, Brigg Reilley, Jorge Mera, and Jessica Leston

Novel Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) is a highly contagious pathogen that has quickly spread from a single country to the entire globe. The outcomes of Coronavirus Disease 2019 (COVID-19) are still being studied, but certain risk factors have been well established as markers of disease progression. Advanced age and underlying health conditions greatly increase the risk of SARS-COV-2 hospitalization and mortality.¹ Although largely rural and far from dense metropolitan centers, Indian country—a term for lands under tribal governance across the United States—has elevated incidence rates of SARS-COV-2.² Health disparities in several chronic diseases, in addition to social and environmental factors,

As clinic director of the ECHO Project, serving the forty-three tribes of the Northwest Portland Area Indian Health Board (NPAIHB) and focusing on the development and implementation of technology-based health interventions, DAVID STEPHENS manages a telehealth service for clinicians serving American Indian and Alaska Native people (IndianCountryECHO.org). ALEXANDER WU served as a Centers for Disease Control assignee to the NPAIHB and is a senior advisor in epidemiology on the US COVID-19 Response Team at Resolve to Save Lives, an initiative of Vital Strategies. ERIC VINSON (Cherokee Nation) is project manager with the Tribal ECHO and Opioid Response Projects at NPAIHB. MEGAN WOODBURY is an ECHO Project Coordinator for COVID and multiple other teleECHO clinics at NPAIHB. CELESTE DAVIS (Chickasaw Nation) is the program director for Environmental Public Health for NPAIHB. BRIGG REILLEY is an epidemiologist with the HIV/Hepatitis C Virus Program, NPAIHB. JORGE MERA is the director of Infectious Diseases for Cherokee National Health Services and a lead faculty member on the COVID ECHO. JESSICA LESTON (Tsimshian) is the director for Clinical Programs at NPAIHB and a co-founder of the NPAIHB ECHO.

put Indian country at high risk of a repeat of the devastating fatalities caused by diseases brought by settlers in past centuries. That these health disparities exist is in large part due to federal and state government systems and policies affecting the history of tribal nations since colonization.

Compounding the potential impact of SARS-CoV-2, the foremost provider of healthcare to American Indian and Alaska Native communities, the Indian Health Service (IHS), has long been underfunded compared to the average per-person expenditure of the US healthcare system.³ The IHS has well-documented shortages of medical staff and outdated healthcare facilities.⁴ These shortcomings represent not only a breach of the treaties between the US government and tribal nations, but actually result in fatalities. The lack of resources in health systems serving tribal nations are associated with a range of health disparities, which in turn is an important contributing factor in tribal communities' worse outcomes from SARS-COV-2.⁵

In 2017, the Northwest Portland Area Indian Health Board (NPAIHB) established a telehealth program, known as Extensions for Community Healthcare Outcomes (ECHO), or teleECHO. Using proven adult learning techniques and interactive video technology, teleECHO connects groups of community clinicians (doctors, nurses, pharmacists) and public health professionals to specialists and experts in the field. The teleECHO sessions use case-based learning to provide medical mentorship and help local clinicians treat complex medical conditions in their own community, rather than transferring a patient to higher levels of care, which can be hundreds of miles away and often unfeasible. Many key studies have proven that the ECHO model is effective.⁶

The NPAIHB started ECHO for treatment of hepatitis C virus (HCV) in 2017. It has provided more than a thousand medical consults for clinicians in Indian country and played a key role in expanding HCV treatment services at the primary-care level in several states.⁷ The success of the program led NPAIHB to widen the scope of teleECHO sessions to substance use disorder, pre-exposure prophylaxis for HIV, diabetes, gender-affirming care, and others. In March 2020, NPAIHB shifted some of its teleECHO resources to COVID-19. This report describes the implementation of the COVID-19 teleECHO program from March through June, 2020.

METHODS

The Hub and the Session

The teleECHO sessions comprise a single “hub” with many spokes, connected virtually via video-conferencing technology. The hub is a team of relevant specialists and information technology support. The COVID-19 hub included a medical epidemiologist, a Centers for Disease Control and Prevention Epidemic Intelligence service officer, an environmental public health program director, and an infectious disease specialist. Depending upon the subject matter being presented, the specialists were supported by two moderators, two information technology support staff, and topical specialists. These positions were all remote due to stay-at-home work policies and staff were linked via a widely available video-conferencing platform (Zoom).

The teleECHO sessions followed a flexible outline of short presentations (approximately 10–15 minutes each) summarizing the latest and most relevant information on epidemiology, surveillance, research, policy, and practice—with significant time for questions and discussion. In the week prior to launch, NPAlHB emailed invitations to the COVID-19 teleECHO to the entire mailing list of participants of previous teleECHO sessions and trainings that had been entered into its database since its inception.

In addition to questions during the live teleECHO session, participants were able to submit questions in advance via online survey (SurveyMonkey), and text messaging (Mobile Commons). One of the moderators constantly monitored questions from participants in the chat function of the Zoom teleECHO platform. For questions submitted in advance, specialists would answer during the teleECHO session for all to hear. Recordings of the answers were also sent to the questioners, along with applicable resources. During teleECHO sessions, the learning community of primary care providers, public health professionals, and specialists actively engaged in submitting questions via the chat function and specialists would respond to them in the last fifteen to thirty minutes of the session.

Beyond the Session

To allow for additional discussion and questions, NPAlHB added an opt-in text service for the COVID-19 teleECHO. The text service sent three messages per week on emerging topics, with a link for more information and opportunity for engagement. As evidence of the toll of pandemic response on the mental health of clinicians mounted, the Sunday messages focused on self-care and support. In addition, the Indian country ECHO website added a COVID-19 section with resource pages, as well as prominent placement on its landing page. This was a central resource for participants from Tribal and Urban Indian (I/T/U) health facilities to link to the next teleECHO session, see archived recordings of recent presentations, and access core medical and community-facing educational resources.

The hub team provided continuing education (CE) credit during each teleECHO session. These credits are required annually for all US clinicians to ensure they stay current with medical developments in their fields. For rural clinicians, CE can be especially difficult to attain. The continuing education unit (CEU) form includes a small set of standardized evaluation questions for medical, nursing, and pharmacy credit. To make participation in teleECHO sessions as seamless as possible, no registration was required. However, optional registration was encouraged for each teleECHO sessions via a link during the teleECHO session. The registration form recorded participants' names, email addresses, and locations.

RESULTS

The NPAlHB launched the COVID-19 teleECHO for Indian country on March 18, 2020. From March 18 to June 30, the program completed twenty-eight sessions, with a cumulative attendance of 4,579 persons (mean=164 attendees per session).

These compare with a usual teleECHO attendance of about twelve to twenty for other sessions hosted by NPAIHB—an estimated tenfold increase over baseline numbers. According to registration data, 354 unique attendees completed 1,403 registrations, with the majority of participants from the Pacific Northwest, notably Oregon (29.7%) and Washington (19.3%). However, the wide reach of preexisting networks recruited participants from thirty-three states as well as Guam and Canada (table 1).

TABLE 1
PARTICIPANTS, COVID TELEECHO, MARCH–JUNE 2020

Region	Users (% by volume)
Pacific (CA, OR, ID, WA, NV)	54.8 (770)
Southern Plains (OK, TX)	10.5 (148)
Southwest (AZ, NM, CO, UT)	10.5 (147)
Great Plains West (MT, ND, SD, IA, WY)	8.9 (125)
Alaska	8.1 (114)
Great Plains East (MI, WI, MN)	4.1 (57)
East (ME, FL, NY, SC, LA, NC, TN)	2.6 (36)
Other (HI, Canada, Guam)	0.4 (6)
Total	100% (1403)

Web-based resources also had an important role. Recorded presentations were viewed 1,445 times. Users made a total of 22,683 visits to www.IndianCountryECHO.org (fig. 1), and maintained a monthly visit number more than three times the baseline average. Phone services and other software offered interactive options with the teleECHO hub and faculty fielded hundreds of additional questions. A total of 399

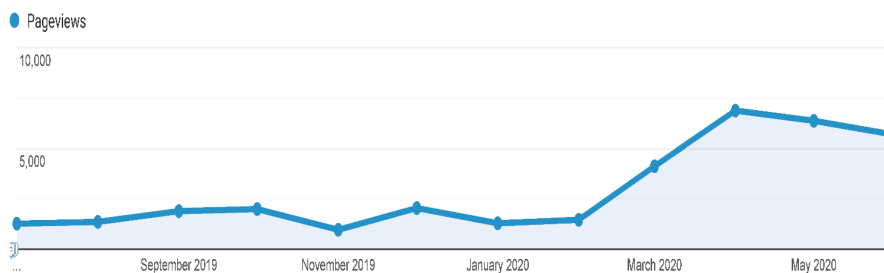


FIGURE 1. Pageviews, www.Indiancountryrecho.org, Sept 2018–June 2019

unique persons subscribed to the text-based messaging service and received 289 questions. Participants submitted an additional 563 questions through other platforms (SurveyMonkey, chat, email, and live ECHO session) that were answered by specialists.

Clinicians attending ECHO have the option of submitting for annual CE credit. This feature was highly used by attendees of all professional licensures: the COVID-19 teleECHO provided 851 CE credits, of whom 708 completed an evaluation. The primary professional licensures were physicians (33.6%), registered nurses (22.3%), and pharmacists (12.9%). A combined total of 99 percent of evaluations indicated attendees were “Satisfied” or “Very Satisfied,” with a majority “Very Satisfied” (60%). Similarly, 93 percent reported an increase in knowledge from the session. A majority of attendees stated they were likely to make changes to their practice or suggest practice changes to colleagues (table 2).

TABLE 2
EVALUATION QUESTIONS ON CHANGES TO CLINICAL PRACTICE BASED ON
CONTENT OF TELEECHO SESSIONS, CONTINUING EDUCATION CREDITS,
MARCH–JUNE 2020 (N=527)

	Will you change your practice	Will you suggest changes to colleagues	Did you increase your knowledge
Yes	63%	65%	93%
Already implemented the clinical practice	18%	22%	N/A
Not applicable to my role (e.g. policymaker or not frontline clinician)	16%	13%	N/A
No	3%	0%	7%

The faculty in each teleECHO presented the most recent and relevant medical developments and answered questions from frontline providers. Priorities early in the pandemic centered on personal safety and infection control, and evolved to wider challenges such as moving medical visits to telemedicine, reconfiguring health facilities, testing, treatment, vaccine development, and special populations. The twice-weekly teleECHOs were able to keep pace with the many modifications to prevention and medical guidelines. Importantly, because these sessions were created by a tribal organization specifically for I/T/U and American Indian and Alaska Native communities, they were able to address many practical questions when national recommendations did not align with on-the-ground realities. For example, for residents of multigenerational homes, or essential workers who must use public transport, social distancing or stay-at-home recommendations may be problematic. By sharing experiences, specialists and peers offered guidance and support on the difficulties specific to Indian country.

COVID-19 teleECHO evaluation results show services had a far wider reach in terms of numbers and geography compared to usual ECHO sessions. Clinicians made

extensive use of teleECHO sessions and the ancillary options for getting information and asking questions, and collectively this service has been a core feature of the emergency response to COVID-19 across much of Indian country. The sessions were highly rated and had a direct impact on health policy and medical care. As a vehicle for rapidly responding to clinical education needs of the member tribes, the teleECHO sessions have been rolled into the NPAIHB Incident Command System structure under Operations–Clinical Support.

RECOMMENDATIONS

A TeleECHO program in response to a public health emergency requires prior relationships with clinicians and the healthcare system. The fact that this service was specific to Indian country, and had been providing teleECHOs for years, was key in its rapid and successful rollout. The Indian country ECHO program was already well known as a leading provider of teleECHO services. While there are hundreds of ECHO programs nationwide, a Tribal Health Board directs the NPAIHB ECHO to specifically serve Indian country. These sessions provide guidance within a relevant cultural context, as well as take into account the limitations of rural primary health care in terms of available tests, imaging, and budgetary resources. The format allows field-based innovations and improvements to be quickly identified and shared within a network that has many of the same systems, such as facility-level medical policies and electronic health records.

A teleECHO program should facilitate multiple avenues of communication to directly respond to clinical needs and be as accessible as possible. These teleECHO sessions provided supportive and accessible guidance on a wide range of medical issues, ranging from individual safety and treatment to societal level health prevention policies. The full range of Indian country ECHO services—teleECHO sessions, a webpage centralizing teleECHO resources, and text messaging—has been a successful set of services for Indian country that is a pillar of the NPAIHB ECHO: relationships and mutual trust. Medical knowledge is dynamic and evolving in a pandemic, and ECHO has been an important venue to provide reliable and relevant evidence-based information in a timely fashion to our frontline health system personnel.

The COVID-19 teleECHO format is likely best for larger-scale emergencies or medical developments that need to be shared quickly and widely. The larger COVID-19 teleECHO format scaled quickly and reached a high number of clinicians and regions rapidly with a small hub team, but it reduced the clinical dialogue amongst participants and the hub. This collaboration is an important part of a community of practice to support direct care for complex medical conditions in rural settings. A larger teleECHO format also required moderation of questions and multiple channels of communication to ensure participants can convey questions and knowledge to the hub team. However, the COVID-19 teleECHO has provided valuable experience for future public health crises on prioritizing content that is reliable and relevant, as well as obtaining timely feedback from direct-care I/T/U providers.

We believe having a well-established teleECHO network is not only a core clinical support service outside of a pandemic, but a key element of preparation for larger-scale health emergencies. To provide the consistency and planning needed to best respond to the priorities identified by providers and communities, tribal ECHO programs need stable, mandatory, multiyear funding rather than a collection of short-term grants.

Moving forward, the COVID-19 teleECHO program will be important for recruitment of medical providers to participate in ECHOs that address other health topics. The COVID-19 teleECHO program is thought to have provided a first and highly favorable ECHO experience for many clinicians, which, as COVID-19 wanes, can lead to involvement in other ECHOs. Alternatively, if COVID-19 continues to be a priority for a longer term, additional clinics or recruitment may need to be added to create a smaller, regionally focused teleECHO network. This option would require more hub and faculty support, or replication by other tribally led organizations. At least one other tribal epicenter has initiated a regional COVID-19 ECHO.

In sum, the Indian country teleECHO services have been well suited to fulfill an essential emergency function with national reach and scale. Support of tribal and federal clinicians and policymakers by both specialists and peers on key topics can be important and effective. These support mechanisms can be national or regional, depending on the clinical demand and specialist capacity, and its usage should be a regular part of enhancing knowledge and reducing professional isolation. Relationships built between all ECHO participants have been based on trust, mutual respect, and a desire to improve the health and wellness of American Indian and Alaska Native people and communities.

NOTES

1. Paul Weiss and David R. Murdoch, "Clinical Course and Mortality Risk of Severe COVID-19," *The Lancet* 395, no. 10229 (2020): 1014–15, [https://doi.org/10.1016/S0140-6736\(20\)30633-4](https://doi.org/10.1016/S0140-6736(20)30633-4); Loris Roncon, Marco Zuin, Gianluca Rigatelli, and Giovanni Zuliani, "Diabetic Patients with SARS-COV-2 Infection Are at Higher Risk of ICU Admission and Poor Short-term Outcome," *Journal of Clinical Virology* 127, no.104354 (2020), <https://doi.org/10.1016/j.jcv.2020.104354>.
2. Laura L. Williamson, Todd S. Harwell, Todd M. Koch, Stacey L. Anderson, Magdalena K. Scott, James S. Murphy, Greg S. Holzman, and Helen F. Tesfai, "COVID-19 Incidence and Mortality among American Indian/Alaska Native and White Persons—Montana, March 13–November 30, 2020," *Morbidity and Mortality Weekly Report* 70, no. 14 (2021): 510–13, <https://doi.org/10.15585/mmwr.mm7014a2>.
3. US Indian Health Service, "IHS Profile," <https://www.ihs.gov/newsroom/factsheets/ihsprofile/>.
4. US Government Accountability Office Report to Congressional Requesters, "Indian Health Service: Agency Faces Ongoing Challenges Filling Provider Vacancies," August 15, 2018, GAO-18-580, <https://www.gao.gov/assets/gao-18-580.pdf>; US Commission on Civil Rights, "Broken Promises: Continuing Federal Funding Shortfall for Native Americans," Briefing Report, December 2018, <https://www.usccr.gov/pubs/2018/12-20-Broken-Promises.pdf>.
5. Sarah M. Hatcher, Christine Agnew-Brune, Mark Anderson, Laura D. Zambrano, Charles E. Rose, Melissa A. Jim, Amy Baugher, Grace S. Liu, Sadhna V. Patel, Mary E. Evans, Talia Pindyck,

Christine L. Dubray, Jeanette J. Rainey, Jessica Chen, Claire Sadowski, Kathryn Winglee, Ana Penman-Aguilar, Amruta Dixit, Eudora Claw, Carolyn Parshall, Ellen Provost, Aurimar Ayala, German Gonzalez, Jamie Ritchey, Jonathan Davis, Victoria Warren-Mears, Sujata Joshi, Thomas Weiser, Abigail Echo-Hawk, Adrian Dominguez, Amy Poel, Christy Duke, Imani Ransby, Andria Apostolou, and Jeffrey McCollum, "COVID-19 among American Indian and Alaska Native Persons—23 States, January 31–July 3, 2020," *Morbidity and Mortality Weekly Report* 69, no. 34 (2020): 1166–69, <https://www.cdc.gov/mmwr/volumes/69/wr/mm6934e1.htm>.

6. Sanjeev Arora and Karla Thornton, "Novel Models of Hepatitis C Virus Care Delivery: Telemedicine, Project ECHO, and Integrative Care," *Clinical Liver Disease* 16, no. 1 (2020): 5–7, <https://doi.org/10.1002/cld.912>; Talia Pindyck, Summers Kalishman, Lainey Flatow-Trujillo, and Karla Thornton, "Treating hepatitis C in American Indians/Alaskan Natives: A Survey of Project ECHO® (Extension for Community Healthcare Outcomes) Utilization by Indian Health Service Providers," *SAGE Open Medicine* 3, 2050312115612805 (2015): 1–5, <https://doi.org/10.1177/2050312115612805>.

7. Jessica Leston, David Stephens, Matthew Miller, Brad Moran, Paulina Deming, and Jorge Mera, "Telehealth and Hepatitis C Treatment for Indigenous Communities in the United States," *Revista Panamericana de Salud Pública* 44 (2020): e13, <https://doi.org/10.26633/RPSP.2020.13>; David Stephens, Jessica Leston, Norah A. Terrault, Keri Gailloux, Jorge Mera, Whitney Essex, and Brigg Reilly, "An Evaluation of Hepatitis C Virus Telehealth Services Serving Tribal Communities: Patterns of Usage, Evolving Needs, and Barriers," *Journal of Public Health Management and Practice* 25, no. p S97-S100 (2019): S97–100, <https://doi.org/10.1097/PHH.0000000000001061>.