ECHO During COVID-19



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ECHO Pain Telementoring

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Just the Facts

- At least 50 Million People in the US suffer from Chronic Pain
- In 2018, 164.8 Million people (> aged 12) were substance users in at least one month:
 - 139.8 Million drank alcohol, 58.8 Million used a tobacco product, 31.9 Million used an illicit substance
- 2 Million People in US have an Opioid Use Disorder
- 10 Million People in the US misuse opioid analgesics
- In 2018, there were 48,344 recorded suicides, up from 42,826 in 2014
- 13.8 percent (approx. 42 million) of US population suffers from loneliness

IOM, Relieving Pain in America, 2011

National Pain Strategy

McGinty EE, et al. Psychological distress and loneliness by US adults in 2018 an April 2020. JAMA 2020. CDC, NCHS. Data Brief 362. Increase in Suicide Mortality in the US, 1999-2018



ECHO moves knowledge, not people





Project ECHO



People need access to specialty care for complex conditions



Not enough specialists to treat everyone



ECHO trains primary care clinicians to provide specialty care services

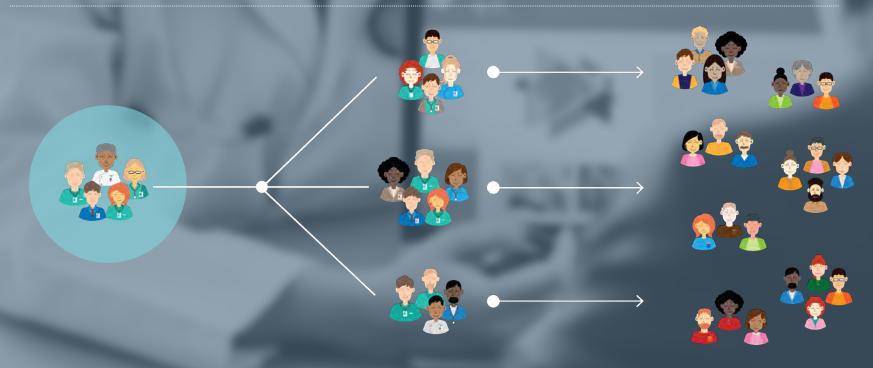


Patients get the right care, in the right place, at the right time

The ECHO model builds capacity

Creates connection between specialist teams of doctors and primary care

To benefit many patients in many communities





















Arora S., Thornton K., Murata G., et al. N Eng J Med. 2011;364(23):2199-207.





What we learned: ECHO works

- Patient cure rates equal to those of UNM specialists
- Patients stay in communities treated by people they know and trust
- Many more people getting treatment



Patient Viral Response				
Outcome	ЕСНО	UNMH	P-value	
	n = 261	n = 146		
Minority	68%	49%	p < 0.01	
SVR* (Cure) Genotype 1	50%	46%	ns	
SVR* (Cure) Genotype 2/3	70%	71%	ns	
*SVR = sustained viral response Arora S. Thornton K., Murate G., et al. N Eng J Med. 2011; 364(23): 2199-207			4(23): 2199-207	



Diverse audiences seeing results



People in rural and underserved communities:

getting the right care at the right time in their own communities



Community providers:

do more to help patients, learn new skills, reduce professional isolation and increase job satisfaction



Specialists:

extend their expertise to help more patients, learn directly from community practice



Federally qualified health centers:

support their mission, improved quality and efficiency of care, increase provider retention, keep care in the community



Broader health care system:

expand access using existing workforce, improved quality and efficiency of care, wide dissemination of best practices

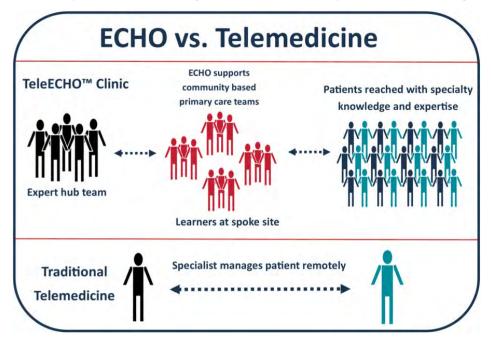


- Antimicrobial Stewardship
- Autism
- Behavioral Health
- Bone Health
- Cancer
- Cardiology
- Chronic Lung Disease
- Chronic Pain
- Crisis Intervention
- Diabetes and Endocrinology
- Education
- Geriatrics
- Good Health and Wellness in Indian Country
- Hepatitis

- High-Risk Pregnancy
- HIV/AIDS
- Infectious Disease
- Integrated Addictions & Psychiatry
- Laboratory Medicine
- LGBT Health
- Opioid Use Disorder
- Palliative Care
- Pediatrics
- Prison Peer Education
- Quality Improvement
- Rheumatology
- Sexually Transmitted Diseases
- Trauma-Informed Care
- Tuberculosis



Project ECHO® is a lifelong learning and guided practice model that revolutionizes medical education and exponentially increases workforce capacity to provide best practice specialty care and reduce health disparities through its hub-and-spoke knowledge sharing networks



ECHO model is not 'traditional telemedicine'

The treating provider retains responsibility for managing their patient.

ECHO Pain and Opioid Management



ECHO Pain Curriculum 2018-2019

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SCHEDULE	TOPIC
	1. Opioids, Overdoses and Addiction: The US Crisis
07/05/18	Holiday – No Clinic
07/12/18	Opioid Prescribing Trends in New Mexico
	Epidemiology of the Opioid and Overdose Co-Epidemics in New
07/19/18	Mexico
07/26/18	Illegal Drug Use in New Mexico: Substances, Trafficking, Trends
	2. Chronic Pain Basics
08/02/18	Opioid Use Disorders and Pain
08/09/18	Lumbar Interpretation Pearls
08/16/18	Pain Self-Management Strategies
	3. Addiction and Misc. Pain Topics
08/23/18	Introduction to Addiction
08/30/18	Opioid Substance Use Disorder
09/06/18	Basic Pain
09/13/18	Painful Rheumatological Conditions
09/20/18	Fibromyalgia
	4. Hands - On Skills
09/27/18	Chiropractic Exam
10/04/18	Myofascial Exam
10/11/18	Trigger Point Injection Workshop
10/18/18	Community Workshop – No Clinic
10/25/18	Taping Methods
11/01/18	Physical Therapy Exam
11/08/18	Neurological Exam

ECHO Pain Curriculum 2018-2019

	5. Native American Health and Wellness
11/15/18	Pain and Native American Culture
11/22/18	Holiday – No Clinic
11/29/18	Historical Trauma and Chronic Pain
12/06/18	Native American Healing
12/13/18	Substance Use Disorder in Native American Communities
12/20/18	Native American Palliative Pain Care
	6. Chronic Pain and Substance Use Disorders Across the Lifespan
12/27/18	Holiday – No Clinic
01/03/19	Pain and Addiction During Pregnancy
01/10/19	Pediatric Pain
01/17/19	Adolescent Addictions
01/24/19	Geriatric Pain
01/31/19	Medication Assisted Treatments
	7. Pain, Psychiatry, and Substance Use Disorders
02/07/19	Buprenorphine and Benzodiazepines in a Primary Care Session
02/14/19	Opioid and Substance Management in the Setting of Depression and Suicidality
02/21/19	Office Based Screening Tools for Depression, Anxiety, and Substance Use Disorder in the Chronic Pain Patient
02/28/19	Depression, Anxiety, and Chronic Pain
03/07/19	The Role of Trauma in Chronic Pain
03/14/19	Spring Break Week - No Clinic

8. Pharmacotherapy of Medications Used for Pain, Psychiatry and Substance Use Disorders
Pharmacology I
Pharmacology II
Naloxone Co-Prescribing with Opioids
Use of Opioids for Palliative Pain Care
Pharmacotherapy of Psychotropics: What to Watch For!
Interventional Pain Management
9. Integrative Pain Care
What is Best Practices for Integrated Pain Care?
Dietary Supplements for Migraine Headache Prevention
Acupuncture Best Practices
Pathophysiology of Taping
10. Emerging Treatments
New Migraine Treatments
Botox for Chronic Migraine
Medical Cannabis
Buprenorphine for Pain Treatment
Herbal Medications

Tools: ECHO Pain and Opioid Management

Education of primary care providers and other allied health professionals in pain management & safe opioid prescribing

- Weekly teleECHO program is delivered through Zoom- a videoconferencing platform (allows for demonstration of hands-on skills)
- Curriculum- didactics and demonstrations that build upon each other
- Case-based learning
- Workplace learning multi-disciplinary team learning
- Mini-residency, 2-day trainings
- No cost CME
- ECHO Chronic Pain and Opioid Management curriculum is offered many times throughout the year and fulfills the New Mexico requirements for CME

Comprehensive Integrative Pain Skills Demonstrated: ECHO Pain

- Chiropractic Care
- Physical Therapy and other rehabilitation therapies
- Acupuncture
- Myofascial Pain Techniques, including TPI, DN and massage
- Nutrition
- Behavioral Interventions (CBT, ISTDP, ACT, Biofeedback, Trauma-Informed Care)
- Native American Medicine
- Kinesiological Taping Methods



Important Pain Skills Taught: ECHO Pain

- Neurological Examination
- Orthopedic Examination
- Myofascial Examination
- Patient-Centered Interview
- Controlled Substance Agreement
- Motivational Interviewing Techniques

ECHO Pain and Opioid Management: Replication in North America

- University of New Mexico- at the ECHO Institute ECHO Pain and Opioid Management; Opioid ECHO; Integrated Addiction
- Veteran's Administration (SCAN-ECHO Pain)
- Army Pain ECHO / Navy Pain ECHO
- Indian Health Service (Pain and Opioid Management)
- Public Health Service Opioid Rapid Response
- Centers for Disease Prevention and Control- Chronic Pain ECHO
- Over 100 ECHO Pain and Opioid Management hubs in the U.S. and globally



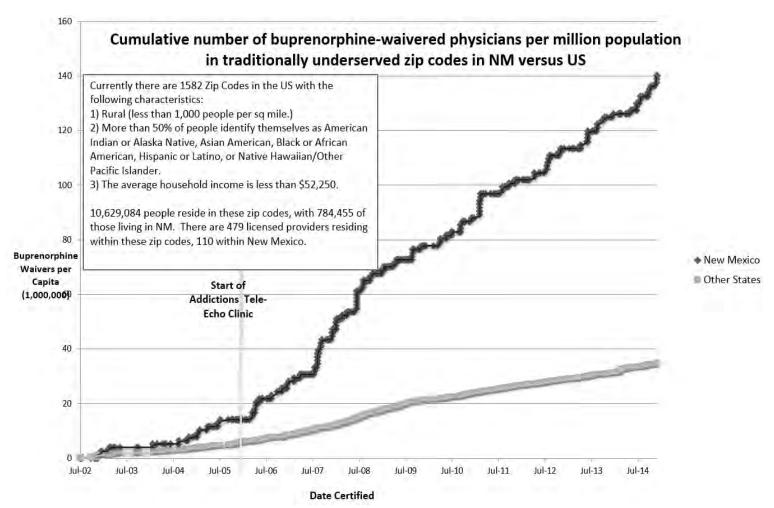
Army and Navy Pain Management TeleECHO Clinics 5 Army Hubs, 2 Navy Hubs





Outcomes: ECHO Pain Reduces Opioid Prescribing

Figure 3: Percent Change for Selected Outcome Measures Comparison Group ECHO Pain Group Percent Change Opioid RX per Patient per Year Change MME per Patient per Year 2013 2014 2016 2013 2015 2016 Start Start Study Study from from Years Relative to ECHO Pain Start (0) Years Relative to ECHO Pain Start (0) Baseline Comparison = 363.95 Baseline Comparison = 0.86 Baseline ECHO Pain = 171.57 Baseline ECHO Pain = 0.31 Percent Change Co-Prescribed Days of Opioids and Percent Change Co-Prescribed Days of Opioids and Benzodiazepines per Patient per Year Benzodiazepines per Opioid User per Year 2014 2016 2016 Study entage from Study 60 40 -0.5 0.5 -0.5 0.5 Years Relative to ECHO Pain Start (0) Years Relative to ECHO Pain Start (0) Baseline Comparison = 0.54 Baseline Comparison = 1.01 Baseline ECHO Pain = 0.36 Baseline ECHO Pain = 2.65



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EDUCATION & TRAINING SECTION

How Hands-On Pain Skills Intensive Trainings Complement ECHO Pain and Opioid Management Programs: A Program Evaluation with the Indian Health Service

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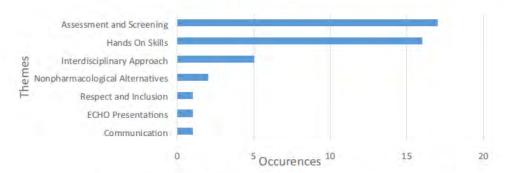




Source: Indian Health Service (U.S.). Training Staff/Contact Us [Internet]. N.d. [Accessed June 14, 2019]. Available from: https://www.ihs.gov/foodhandler/staff/.

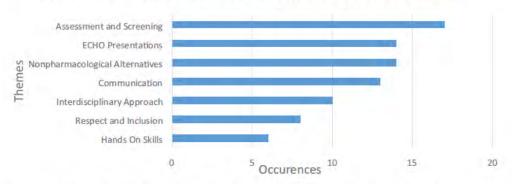
Figure 2. Indian Health Service-ECHO Pain program components and timeline.

Q1. Before you participated in this training, what pain management skills do you feel you were you lacking?



(*Albuquerque and Spokane combined: 26 responses coded; multiple themes possible per response.)

Q2. As a result of this training, do you feel you have acquired more skills in....?



(* Albuquerque and Spokane combined: 71 responses coded; multiple themes possible per response.)

Figure 3. Themes in clinician focus group responses regarding skills and practice changes.

Table 1. Self-reported clinician confidence scores from continuing medical education surveys

None or No skill	Vague skill	Slight skill	Average skill	Competent	Very competent	Expert, teach others
П						

Curriculum Title	No. of Sessions	No. of Completed CME Surveys	Mean (7-Point Likert Scale)
Eliciting the Pain Story/Communication Skills	2	25	5.60
Neurological Exam Skills	2	25	5.32
Myofascial Exam Skills*	1	11	4.64
Mindfulness-Based Stress Reduction Skills*	1	9	5.6
Musculoskeletal Exam Skills	2	25	4.72
ECHO Presentation Skills	2	26	5.50
Safe Opioid Prescribing*	1	11	5.36

CME = continuing medical education.

^{*}Module only offered in Albuquerque, not Spokane.

Curriculum for the U.S. Public Health Service Commission Corp

Session	Торіс
1	Epidemics of Chronic Pain, Substance Use Disorder, Mental Health and Suicide in US
2	Taking a Patient Centered Pain & Psychosocial HistoryMotivational Interviewing as a Framework Assessing Patients
3	Assessing the Chronic Pain Patient using Functional Goals
4	Screening for Opioid Use Disorder, Substance Use Disorders and Understanding Risk Factors (Trauma)
5	Referral to Treatment including MAT—Using Motivational Interviewing to Enhance Readiness
6	Safety Issues: Street drugs, Prescription of Naloxone, Safe Storage, blood borne infections
7	Managing Challenging Patient Behaviors: Addressing Anger, Manipulation, and Anxiety
8	Identifying Chronic Pain

9	Identifying Depression/Suicide Risk
10	Sleep/Pain and Mental Health
11	What not to do with your Chronic Pain or Opioid Use Disorder Patients and WHY:
12	Best Practices Non-Pharmacologic Chronic Pain Management (PT, Behavioral Health, Integrative Approaches- such as acupuncture, culturally appropriate approaches, etc.)
13	Best Practices Pharmacologic Chronic Pain Management (Neuropathic Medications, SNRIs, Non- Benzodiazepine Muscle Relaxants, etc.)
14	How to De-prescribe Opioid Analgesics
15	How to De-prescribe Benzodiazepines
16	How Project ECHO can help you as a resource in your community

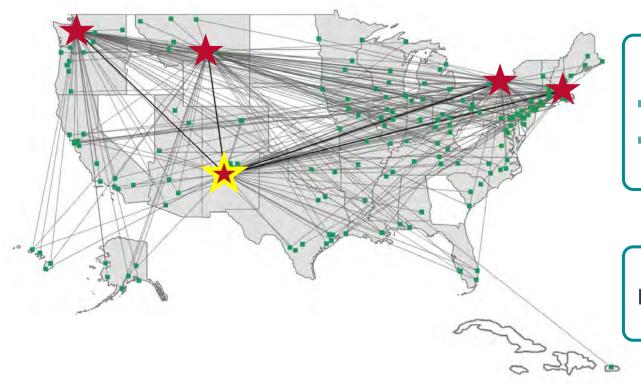
ORRT Case

horse several time in his 20's and 30's, and never fully recovered. Patient works as a pharmacist clinician in his tribal clinic and has suffered from low back pain especially after standing up for very long periods of time at work each day. Despite occupation as a pharmacist, he is not interested in medications for himself but interested in integrative, non-pharmacological approaches for his low back pain. Past Medical History: Past Surgical None Married, smokes tobacco, drinks alcohol 3-4 nights per week (2-3 beers), no other illicit substances	Case 12: Best Practices Non-Pharmacologic Chronic Pain Management			
Age: 57yo Height: 78 Weight: 192 BMI: 22.2 History of presenting illness: pharmacist clinician in his tribal clinic and has suffered from low back pain especially after standing up for very long periods of time at work each day. Despite occupation as a pharmacist, he is not interested in medications for himself but interested in integrative, non-pharmacological approaches for his low back pain. Past Medical History: Past Surgical None History: Married, smokes tobacco, drinks alcohol 3-4 nights per week (2-3 beers), no other illicit substances	Presenter: Joann	Presenter: Joanna Katzman		
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History of presenting illness: Solution 1	Age: 57yo	Gender: Male		
horse several time in his 20's and 30's, and never fully recovered. Patient works as a pharmacist clinician in his tribal clinic and has suffered from low back pain especially after standing up for very long periods of time at work each day. Despite occupation as a pharmacist, he is not interested in medications for himself but interested in integrative, non-pharmacological approaches for his low back pain. Past Medical History: Past Surgical None Married, smokes tobacco, drinks alcohol 3-4 nights per week (2-3 beers), no other illicit substances	Height: 78	Weight: 192 BMI: 22.2		
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after standing up for very long periods of time at work each day. Despite occupation as a pharmacist, he is not interested in medications for himself but interested in integrative, non-pharmacological approaches for his low back pain. Past Medical Hypertension, Non-insulin Dependent Diabetes, gastro-esophageal reflux disease History: Past Surgical None History: Relevant social Married, smokes tobacco, drinks alcohol 3-4 nights per week (2-3 beers), no other illicit substances	presenting	horse several time in his 20's and 30's, and never fully recovered. Patient works as a		
as a pharmacist, he is not interested in medications for himself but interested in integrative, non-pharmacological approaches for his low back pain. Past Medical Hypertension, Non-insulin Dependent Diabetes, gastro-esophageal reflux disease History: None History: Relevant social history: Married, smokes tobacco, drinks alcohol 3-4 nights per week (2-3 beers), no other illicit substances	illness:	pharmacist clinician in his tribal clinic and has suffered from low back pain especially		
Past Medical Hypertension, Non-insulin Dependent Diabetes, gastro-esophageal reflux disease History: Past Surgical None History: Relevant social Married, smokes tobacco, drinks alcohol 3-4 nights per week (2-3 beers), no other illicit substances		after standing up for very long periods of time at work each day. Despite occupation		
Past Medical History: Past Surgical History: Relevant social history: Married, smokes tobacco, drinks alcohol 3-4 nights per week (2-3 beers), no other illicit substances		as a pharmacist, he is not interested in medications for himself but interested in		
History: Past Surgical None History: Relevant social Married, smokes tobacco, drinks alcohol 3-4 nights per week (2-3 beers), no other illicit substances		integrative, non-pharmacological approaches for his low back pain.		
Past Surgical None History: Relevant social Married, smokes tobacco, drinks alcohol 3-4 nights per week (2-3 beers), no other illicit substances	Past Medical	Hypertension, Non-insulin Dependent Diabetes, gastro-esophageal reflux disease		
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Relevant social Married, smokes tobacco, drinks alcohol 3-4 nights per week (2-3 beers), no other illicit substances	Past Surgical	None		
history: illicit substances	History:			
The state of the s	Relevant social	Married, smokes tobacco, drinks alcohol 3-4 nights per week (2-3 beers), no other		
Physical Afebrille VSS CN-II-XII- intact Motor- intact Sensation- intact Cerebellar- intact	history:	illicit substances		
ritysicai ritact, vss, civ ii zii intact, wotor intact, sensation intact, cerebenar intact,	Physical	Afebrile, VSS, CN- II-XII- intact, Motor- intact, Sensation- intact, Cerebellar- intact,		
Examination gait- WNL	Examination	gait- WNL		
Musculoskeletal- positive evidence of <u>paraspinous</u> muscle tenderness in thoracic an lumbar spine, straight leg raise – negative, no evidence of spinal sensory level, Patrick's sign- positive bilaterally				

ORRT Case, cont.

Current	Lisinopril 10 mg gd
medications:	Metformin 500 mg bid
	Esomeprazole (Nexium) 20 mg gd
UDS:	N/A
Tests/Imaging:	N/A
PDMP:	N/A
CSA signed?	N/A
Screenings:	GAD-7 9 PHQ-9 6 Suicidality n/a
Patient's	 To work each day with reduced pain (to a 4/10).
functional	To be able to stand at work for 30 minutes without having to sit down.
goals:	To be able to talk a nature walk with his wife on the weekends.
Assessment	Consider
and Plan	1. Physical therapy
	2. Pool Therapy
	3. Trigger Point Injections
	4. Traditional Healing
	5. Behavioral Health (Mindfulness Based Stress Reduction, Biofeedback, Yoga, etc)
	6. Chiropractic Medicine
	7. Acupuncture

HRSA-funded National Opioid ECHO Program

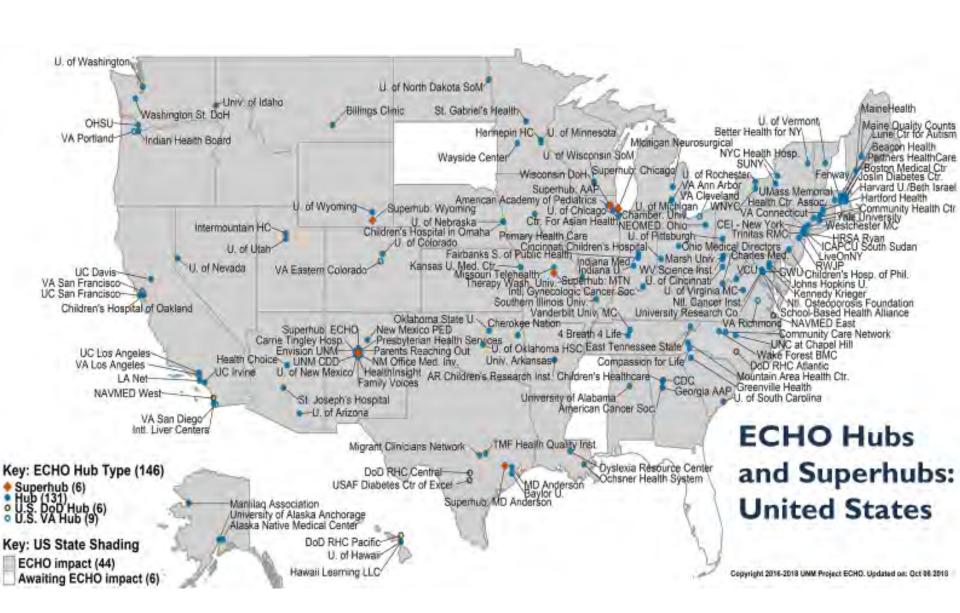


PARTICIPATION

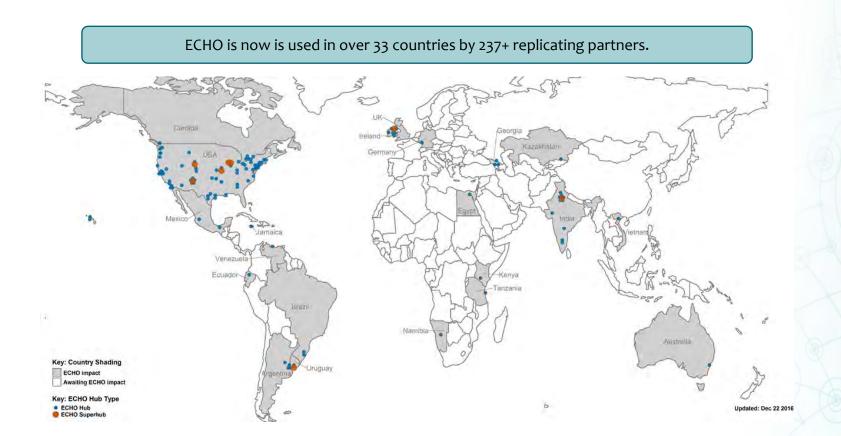
- 429 participants from
- 192 HRSA-funded health centers

Nearly half are medical providers, and one third are behavioral health providers

7 Chronic Pain Hubs in VA Healthcare System VA SCAN-ECHO



ECHO Partners Worldwide



The ECHO Model Potential Benefits Potential Challenges

- Quality and Safety/Reduce Variations in Care
- Rapid Learning and bestpractice dissemination
- Improving Professional Satisfaction/Retention
- Cost Effective Care- Avoid Excessive Testing and Travel/Prevent Cost of Untreated Disease
- Access for Rural and Underserved Patients

- Clinician Time
- Leadership Buy-In
- Financing Strategies- ECHO Act
- Broadband Infrastructure, especially in rural communities



ECHO Act Expanding Capacity for Health Outcomes Act

- Required studies and reports examining the use of, and opportunities to use, technology-enabled collaborative learning and capacity building models to improve programs of the Department of Health and Human Services, and for other purposes
- Technology-Enabled Collaborative Learning and Capacity Building model:
 - Means a distance health education model that connects specialists with multiple other health care professionals through simultaneous interactive videoconferencing for the purpose of facilitating case-based learning, disseminating best practices, and evaluating outcomes



Co-sponsors



Louisiana

· Sen. Bill Cassidy (R)



West Virginia

· Sen. Capito (R)



Maine

- · Sen. Collins (R)
- · Sen. King (I)



Mississippi

· Sen. Hyde Smith (R)



Alaska

Murkowski (R)



New Mexico

- · Sen. Martin Heinrich (D)
- · Sen. Tom Udall (D)



Virginia

Keane
 (D)



Hawaii

Schatz (D)

ECHO Act of 2019

House

- Energy and Commerce Committee have written their own draft of the bill
- Currently in communication with Senate HELP Committee

Next steps:

 Once there is a reconciliation between the House and Senate versions of the bill we expect the Bill to be introduced in the Energy and Commerce committee.

Letter from Congress to HHS

- Sent September 26, 2019 to HHS
- Bipartisan, signed by 44 members of the House and Senate

The letter requests that HHS issue guidance to states on financing strategies currently available through Medicaid that could be used to support models like Project ECHO. They also request that HHS similarly explore existing authorities that could be used under Medicare.

Next step: Working with CMS to support their response to this congressional request

https://www.tomudall.senate.gov/news/press-releases/new-mexico-delegation-leads-bipartisan-bicameral-effort-to-expand-telehealth-care-in-underserved-communities-through-medicare-and-medicaid



References

Shelley, BM, Katzman, J, Comerci, G, Duhigg, D, Olivas, C, Kalishman, S, Monette, R, Britt, M, Flatow-Trujillo, L, Arora, S. **ECHO Pain Curriculum: Balancing Mandated Continuing Education with the Needs of Rural Health Care Practitioners**. Journal of Continuing Education in the Health Profession: July 2017 doi: 10.1097/CEH.00000000000165

Fowler RC, Katzman J, Comerci, G, et al. **Mock ECHO: A Simulation-Based Medical Education Method**. Teaching and Learning in Medicine. 2018 Apr 16:1-10. Doi:10.1080/10401334.2018.1442719

Arora S, Kalishman S, Thornton K, Komaromy M, Katzman J, Struminger, B, Rayburn WF. **Project ECHO (Project Extension for Community Healthcare Outcomes): A National and Global Model for Continuing Professional Development**. 2016 Summer, J Contin Educ Health Prof Suppl 1:S48-9 Doi: 10. 1097/CEH.000000000000000000

Katzman J, Fore C, Bhatt S, Greenberg N, Griffin Salvador, J, Comerci, GC, Camarata C, Marr L, Monette R, Arora S, Bradford A, Taylor D, Dillow J, Karol S. **Evaluation of American Indian Health Service Training in Pain Management and Opioid Substance Use Disorder**, AJPH. 2016 May e1-e3 Doi:10.2 105/AJPH.2016.303193

Katzman J, Galloway K, Olivas C, McCoy-Stafford K, Duhigg D, Comerci G, Kalishman S, Buckenmaier CC 3rd, McGhee L, Joltes K, Bradford A, Shelley B, Hernandez J, Arora S. **Expanding Healthcare Access through Education, Dissemination and Implementation of the ECHO model**, Mil Med. 2016 Mar:181 (3):227-35.

Katzman J, and Geppert CM, Integrative Case Management: The Importance of Collaboration and The Project ECHO example, Chapter 40, Integrative Pain Management, eds Robert A Bonakdar and Andrew W. Sukiennik, Feb 26, 2016, Weil Integrative Library.



References cont.

Katzman J, Comerci G, Landen M, Loring, L, Jenkusky SM, Arora S, Kalishman S, Marr L, Camarata C, Duhigg D, Dillow, J, Koshkin E, Taylor DE, and Geppert CM. Rules and Values: A Coordinated and Educational Approach to the Public Health Crises of Chronic Pain and Addiction, Am J Public Health, 2014, Aug;104(8):1356-62

Arora S, Thornton K, Komaromy M, Kalishman S, Katzman J, and Duhigg D. **Demonopolizing Medical Knowledge**, Acad Med, 2014, 89 (1):30-2

Katzman, J, Comerci G, Boyle J, Duhigg D, Shelley B, Olivas, C, Daitz B, Carroll C, Som D, Monette R, Kalishman and Arora S, Innovative Telementoring for Pain Management: Project ECHO Pain, Journal of Continuing Ed Health Prof. Jul 2014, 34(1), 68-75.

Katzman J, Making Connections: Using TeleHealth to Improve the Diagnosis and Treatment of Complex Regional Pain Syndrome, an Under-recognized Neuroinflammatory Disorder, J Neuroimmune Pharmacol. June 2013, 8(3): 483-93

Arora, S, Kalishman, S, Dion, D, Som D, Thornton, K, Bankhurst, A, Boyle, J, Harkins, M, Moseley, K, Murata, G, Komaromy, M, Katzman, J, Colleran, K, Deming, P and Yutzy, S, **Partnering Urban Academic Medical Centers And Rural Primary Care**Clinicians To Provide Complex Chronic Disease Care, Health Affairs, June 2011, 30 (6), 1176-1183

Arora, S., Kalishman, S., Thornton, K., Dion, D., Murata, G., Deming, P., Parish, B., Brown, J., Komaromy, M., Colleran, K., Bankhurst, A., Katzman, J., Harkins, M., et al. **Expanding Access to HCV Treatment- Extension for Community Healthcare Outcomes (ECHO) Project: Disruptive Innovation in Specialty Care Hematology**, 2010, June 3, 1-10.