

Project ECHO[®] (Extension for Community Health Outcomes)

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At ECHO, our mission is to democratize medical knowledge and get best practice care to underserved people all over the world.

Our goal is to touch the lives of 1 billion people by 2025.

Supported by New Mexico Department of Health, Agency for Health Research and Quality, New Mexico Legislature, the Robert Wood Johnson Foundation, the GE Foundation, Helmsley Charitable Trust, Merck Foundation, BMS foundation, NM Medicaid

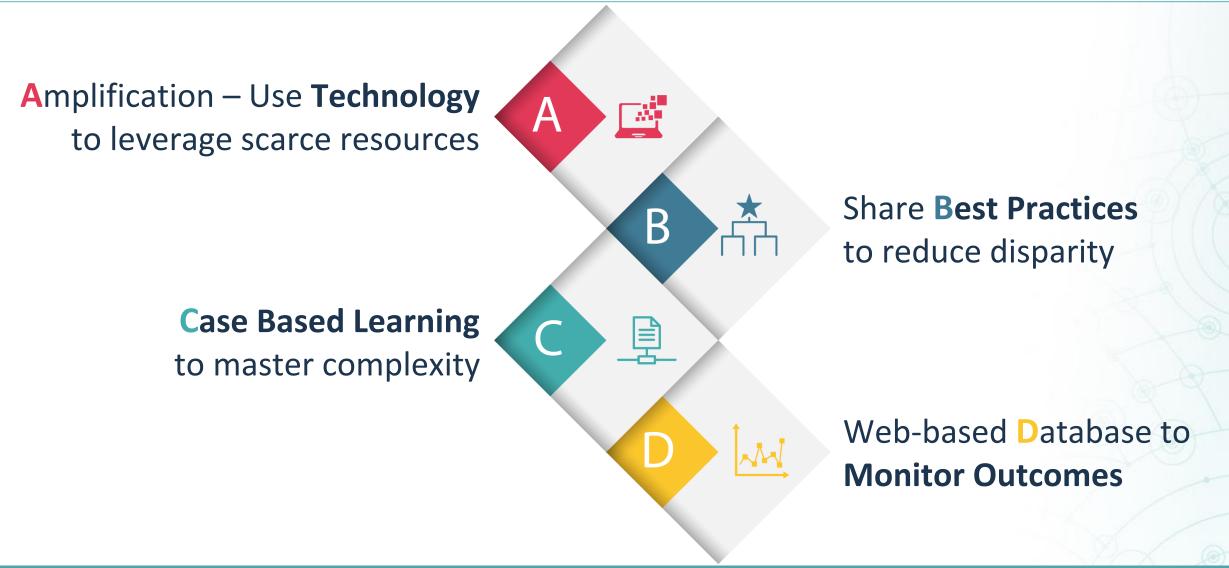




Moving Knowledge Instead of Patients and Providers



The ECHO Model





Benefits to Rural Clinicians

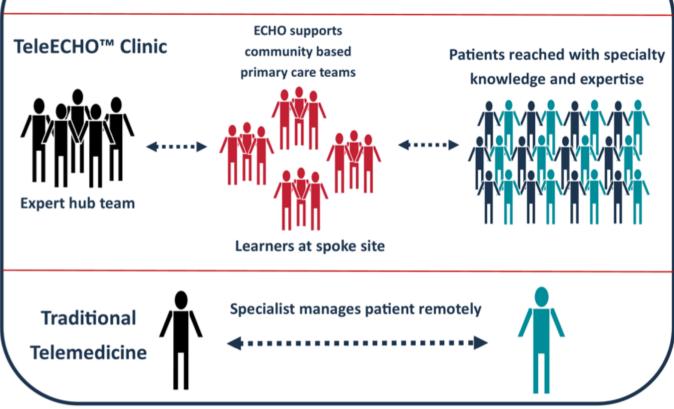
- No cost CMEs and Nursing CEUs
- Professional interaction with colleagues with similar interest
 Less isolation with improved recruitment and retention
- A mix of work and learning
- Access to specialty consultation with GI, hepatology, psychiatry, infectious diseases, addiction specialist, pharmacist, patient educator





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

ECHO vs. Telemedicine



ECHO model is not 'traditional telemedicine'.

Treating Physician retains responsibility for managing patient.



Project ECHO Clinicians HCV Knowledge Skills and Abilities (Self-Efficacy)

scale: 1 = none or no skill at all 7= expert-can teach others

Community Clinicians N=25		<u>ORE</u> pation (SD)	<u>TODAY</u> MEAN (SD)	Paired Difference (p-value) MEAN (SD)	Effect Size for the change
 Ability to identify suitable candidates for treatment for HCV. 	2.8	(1.2)	5.6 (0.8)	2.8 (1.2) (<0.0001)	2.4
 Ability to assess severity of liver disease in patients with HCV. 	3.2	(1.2)	5.5 (0.9)	2.3 (1.1) (< 0.0001)	2.1
 Ability to treat HCV patients and manage side effects. 	2.0	(1.1)	5.2 (0.8)	3.2 (1.2) (<0.0001)	2.6

(continued)

Project ECHO Clinicians

HCV Knowledge Skills and Abilities (Self-Efficacy)

Community Clinicians N=25	<u>BEFORE</u> Participation MEAN (SD)	<u>TODAY</u> MEAN (SD)	Paired Difference (p-value) MEAN (SD)	<u>Effect</u> <u>Size</u> for the change
 Ability to assess and manage psychiatric co- morbidities in patients with hepatitis C. 	2.6 (1.2)	5.1 (1.0)	2.4 (1.3) (<0.0001)	1.9
 Serve as local consultant within my clinic and in my area for HCV questions and issues. 	2.4 (1.2)	5.6 (0.9)	3.3 (1.2) (< 0.0001)	2.8
 Ability to educate and motivate HCV patients. 	3.0 (1.1)	5.7 (0.6)	2.7 (1.1) (<0.0001)	2.4



Project ECHO Clinicians HCV Knowledge Skills and Abilities (Self-Efficacy)

Community Clinicians N=25	<u>BEFORE</u> Participation MEAN (SD)	<u>TODAY</u> MEAN (SD)	Paired Difference (p-value) MEAN (SD)	Effect Size for the change
Overall Competence (average of 9 items)	2.8* (0.9)	5.5* (0.6)	2.7 (0.9) (<0.0001)	2.9

Cronbach's alpha for the BEFORE ratings = 0.92 and Cronbach's alpha for the TODAY ratings = 0.86 indicating a high degree of consistency in the ratings on the 9 items.

Arora S., Kalishman S., Thornton K., et al. Hepatol. 2010;52(3):1124-33.



Clinician Benefits

(Data Source; 6 month Q-5/2008)

Benefits N=35	Not/Minor Benefits	Moderate/Major Benefits
Enhanced knowledge about management and treatment of HCV patients.	3% (1)	97% (34)
Being well-informed about symptoms of HCV patients in treatment.	6% (2)	94% (33)
Achieving competence in caring for HCV patients.	3% (1)	98% (34)



Project ECHO Annual Meeting Survey

	Mean Score (Range 1-5)
Project ECHO [®] has diminished my professional isolation.	4.3
My participation in Project ECHO [®] has enhanced my professional satisfaction.	4.8
Collaboration among agencies in Project ECHO [®] is a benefit to my clinic.	4.9
Project ECHO [®] has expanded access to HCV treatment for patients in our community.	4.9
Access, in general, to specialist expertise and consultation is a major area of need for you and your clinic.	4.9
Access to <u>HCV specialist</u> expertise and consultation is a major area of need for you and your clinic.	4.9



Outcomes of Treatment for Hepatitis C Virus Infection by Primary Care Providers

Results of the HCV Outcomes Study

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



- Study sites
 - Intervention (ECHO)
 - Community-based clinics: 16
 - New Mexico Department of Corrections: 5
 - Control: University of New Mexico (UNM) Liver Clinic



Treatment Outcomes

Outcome	ECHO	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., Murata G., et al. N Eng J Med. 2011;364(23):2199-207.



Conclusions

 Rural primary care Clinicians deliver Hepatitis C care under the aegis of Project ECHO that is as safe and effective as that given in a University clinic.

 Project ECHO improves access to hepatitis C care for New Mexico minorities.



ECHO Model[™] is Cost Effective

- In 60% of Patients treated for HCV the model was cost savings
- Overall Cost per Discounted Quality of Life Year Gained was less than 3500 dollars

• ECHO creates **value** for all stakeholders of the healthcare system: patients, community clinicians, community clinics, communities, specialty care sites, government and 3rd-party payers

Wong J.B., Thornton K., Carroll C., et al. AADLD Presentation #24, Hepatol. 2013;58(S1):330A.

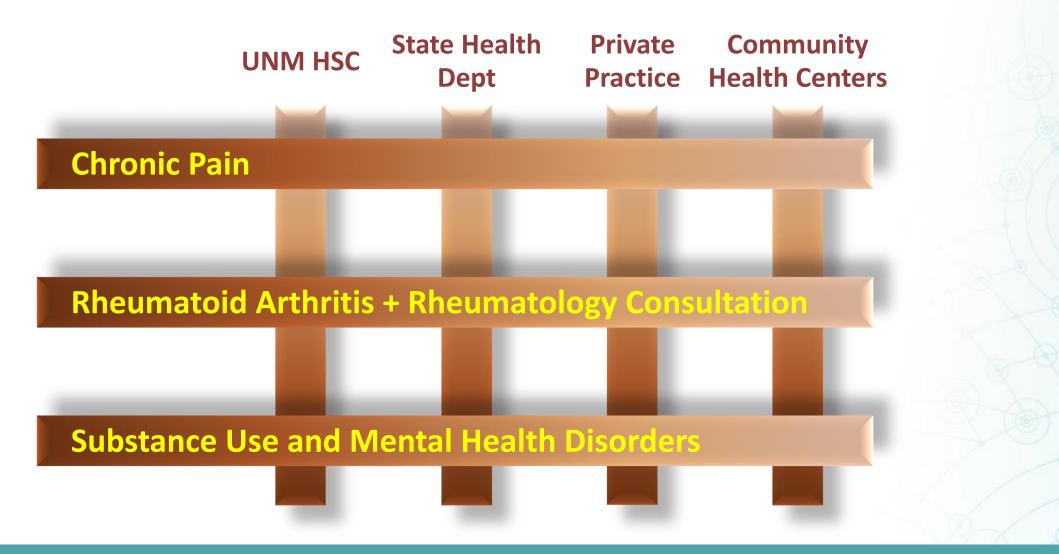


Disease Selection

- Common diseases
- Management is complex
- Evolving treatments and medicines
- High societal impact (health and economic)
- Serious outcomes of untreated disease
- Improved outcomes with disease management



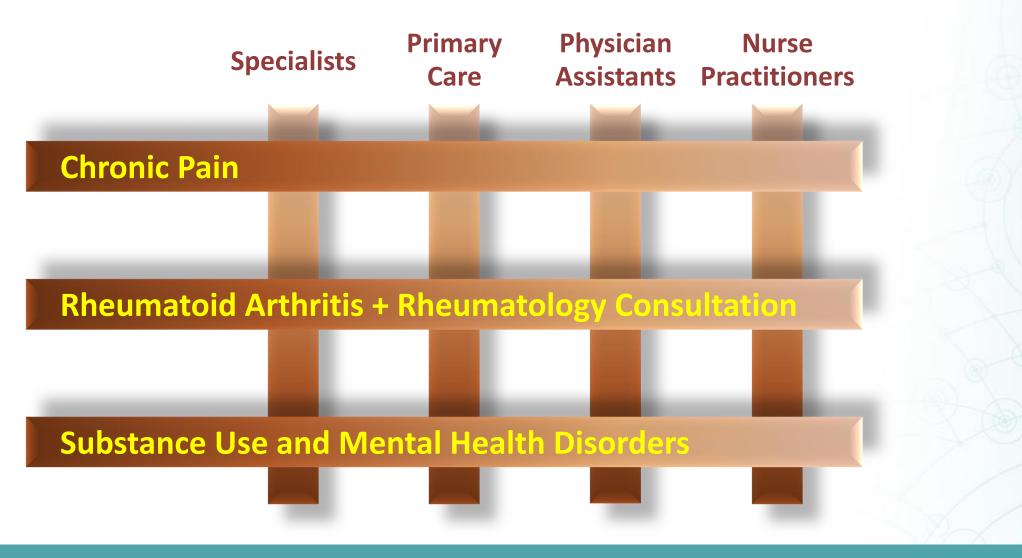
Bridge Building Pareto's Principle





Force Multiplier

Use Existing Community Clinicians





Successful Expansion into Multiple Diseases

MON	TUE	WED	THURS	FRI
<u>Rheumatology</u>	<u>HBV</u>	<u>Community Health</u> <u>Workers</u>	CDC Good Health and Wellness in	Opioid Addiction
Bankhurst	• Thornton	• CHW Team	Indian Country • Struminger	• Komaromy
<u>Tuberculosis</u>	<u>Bone Health</u>	Endocrinology & <u>Diabetes</u>	<u>Chronic Pain and</u> <u>Opioid</u> <u>Management</u>	<u>Nurse Practitioner/</u> <u>Certified Midwife</u> <u>Primary Care</u>
 Burgos 	 Lewiecki 	• <u>Bouchonville</u>	• Comerci	• Van Roper
<u>Cardiology</u> • Achrekar,	<u>Crisis Intervention</u> <u>for Community</u>	Miners' Wellness	Prison Peer Education Program	Integrated Addictions and
Anderson & Yatskowitz	Policing Agencies • Duhigg	• Sood	 Thornton 	<u>Psychiatry (IAP)</u> • Komaromy
<u>Reproductive</u> <u>Health</u>	Seizures and Spells	<u>Hepatitis C (HCV)</u>	HIV/HCV Corrections	<u>Antimicrobial</u> <u>Stewardship</u>
• Singh	• Imerman	• Arora	 Iandiorio & Thornton 	• Brett, Irizarry & Mercier

ProjectViews of Participating Providers, Health Workers, And EducatorsECHO:I = Strongly Disagree, 5 = Strongly Agree

Benefit	Mean
Through the Project ECHO telehealth clinics, I am learning best-practice care in chronic disease.	4.68
I am connected with peers in the ECHO telehealth clinic whose opinion I respect for professional advice and consultation.	4.55
I learn with guidance from Project ECHO academic specialists in chronic disease management whose knowledge and skills I respect.	4.73
I am connected to and respected by the academic specialists in the ECHO telehealth clinic in which I participate.	4.4
I am developing my clinical expertise through participation in Project ECHO.	4.48
After gaining expertise in the clinical diseases addressed in Project ECHO, I am comfortable teaching others what I have learned.	4.33

Arora S., Kalishman S., Dion D., et al. *Health Aff (Millwood)*. 2011;30(6):1176-84.



Project ECHO:

Participants' Views of Patient Benefits

I = Strongly Disagree, 5 = Strongly Agree

Patient Benefit	Mean
My participation in Project ECHO benefits patients under my care whom I co-manage with ECHO specialists.	4.45
The patients under my care whom I co-manage with ECHO specialists receive best-practice care.	4.43
My participation in Project ECHO benefits the patients under my care whom I do not co- manage with ECHO specialists.	4.19
I apply what I have learned about best practices through Project ECHO to all of my patients with similar chronic diseases.	4.45
I feel comfortable applying the principles I learned from Project ECHO to other patients in my practice with similar chronic disease, independently, without presenting them on the network.	4.23

Arora S., Kalishman S., Dion D., et al. Health Aff (Millwood). 2011;30(6):1176-84.



ECHO-AGE

Beth Israel Deaconess Boston

- 2:1 Matched Cohort Study
- 11 nursing homes received ECHO intervention. Matched with 22 controls
- Residents in ECHO Age facilities were 75% less likely to be physically restrained
- Residents were 17% less likely to be prescribed antipsychotics

Gordon S.E., Dufour A.B., Monti S.M., et al. J Am Med Dir Assoc. 2016;17(6):553-6.



Geriatric Mental Health ECHO University of Rochester NY

- University of Rochester experts in geriatric psychiatry help train and mentor primary care clinicians in NY
- Since 2014, 500 clinicians have participated in their ECHO project funded by AHRQ
- There was a 20 % reduction in ED visits
- 24 % reduction in overall costs

https://www.ahrq.gov/news/newsroom/case-studies/201703.html



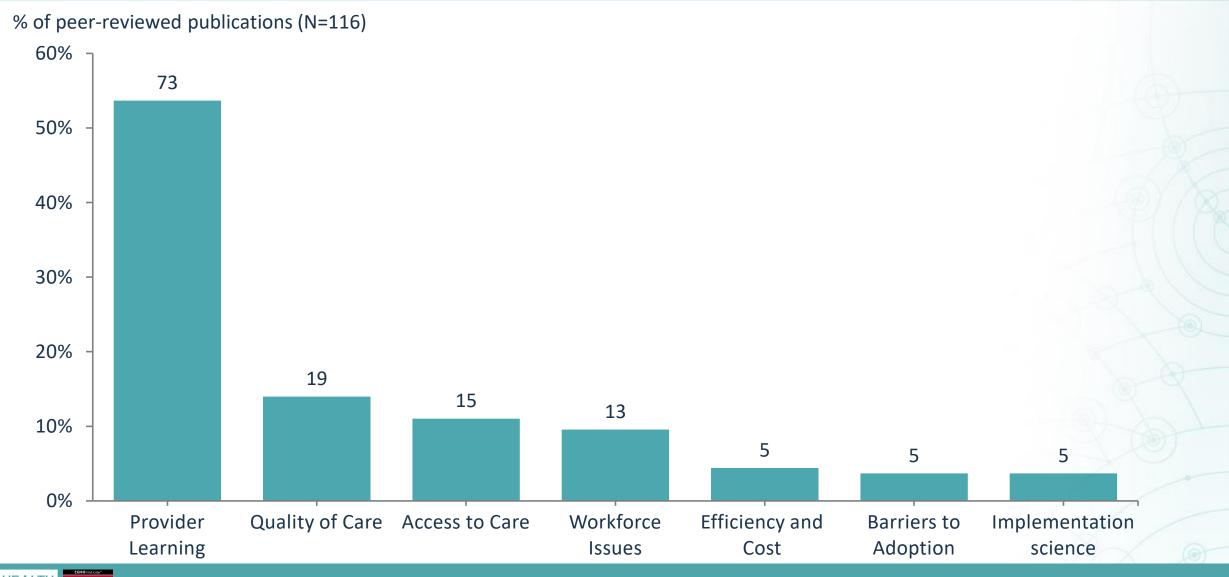
VA SCAN-ECHO for Liver Disease University of Michigan

513 patients who had a liver SCAN-ECHO visit were found within the cohort. Patients who had completed a virtual SCAN-ECHO visit were more likely younger, rural, with more significant liver disease, and evidence for cirrhosis. Propensity adjusted mortality rates using Cox Proportional Hazard Model showed that a SCAN-ECHO visit was associated with a hazard ratio of 0.54 (95% CI 0.36-0.81, p = 0.003) compared to no visit.

Virtual Consultations through the Veterans Administration SCAN-ECHO Project Improves Survival for Veterans with Liver Disease Su. GL, Glass L, et al; Hepatology . 2018 May 5. doi: 10.1002/hep.30074



Peer Reviewed Publications n=116

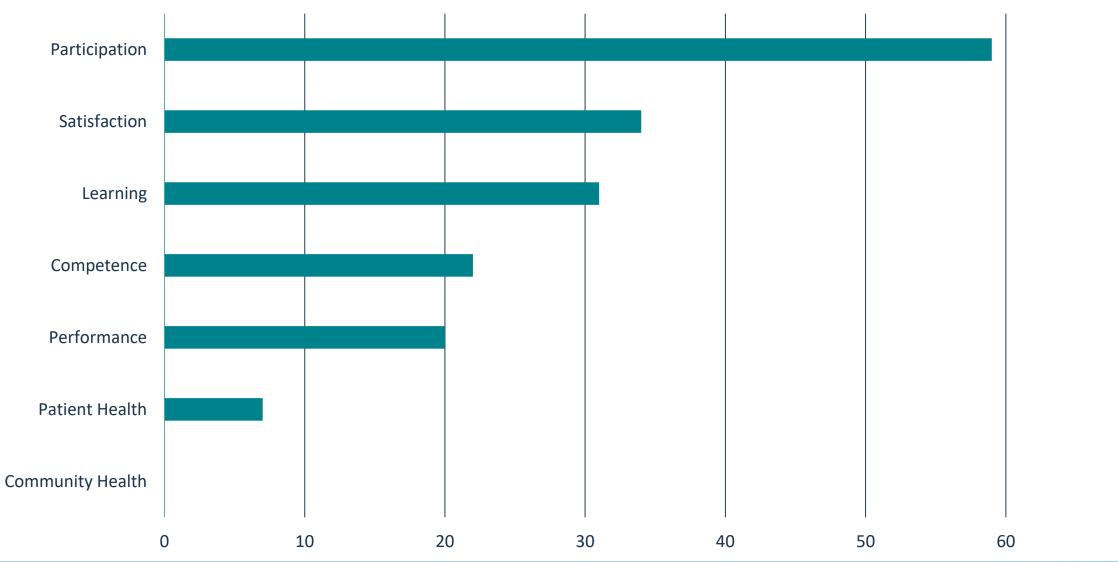


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ECHO

CIENCES

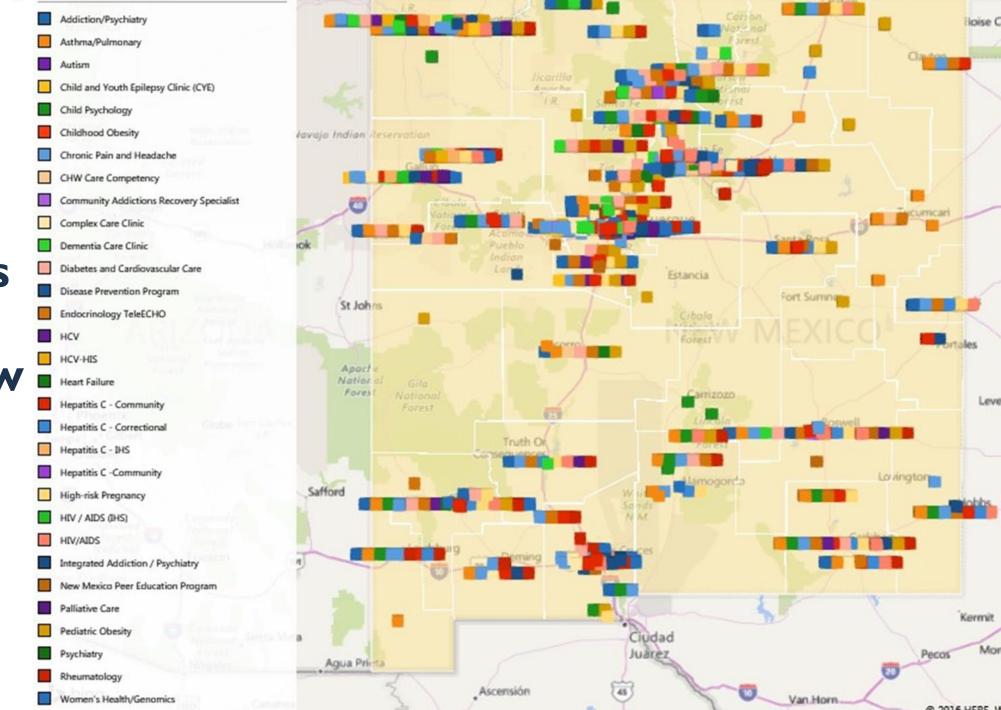
ECHO Publications by Moore's Outcome Levels





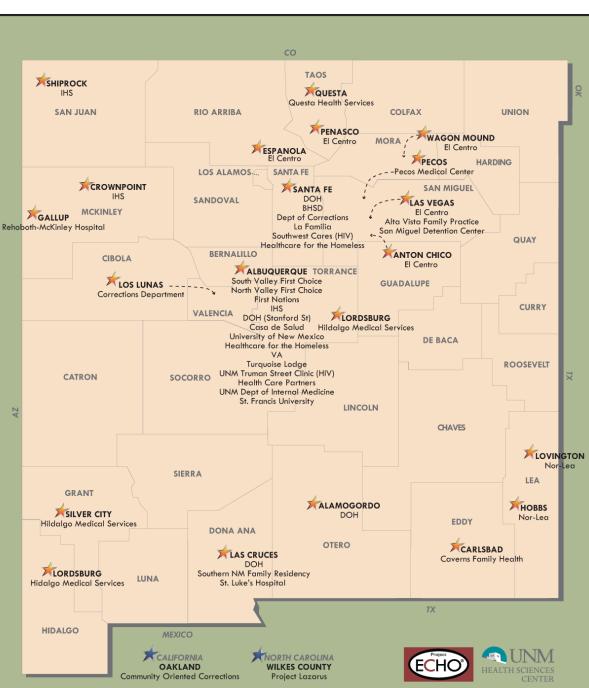
70



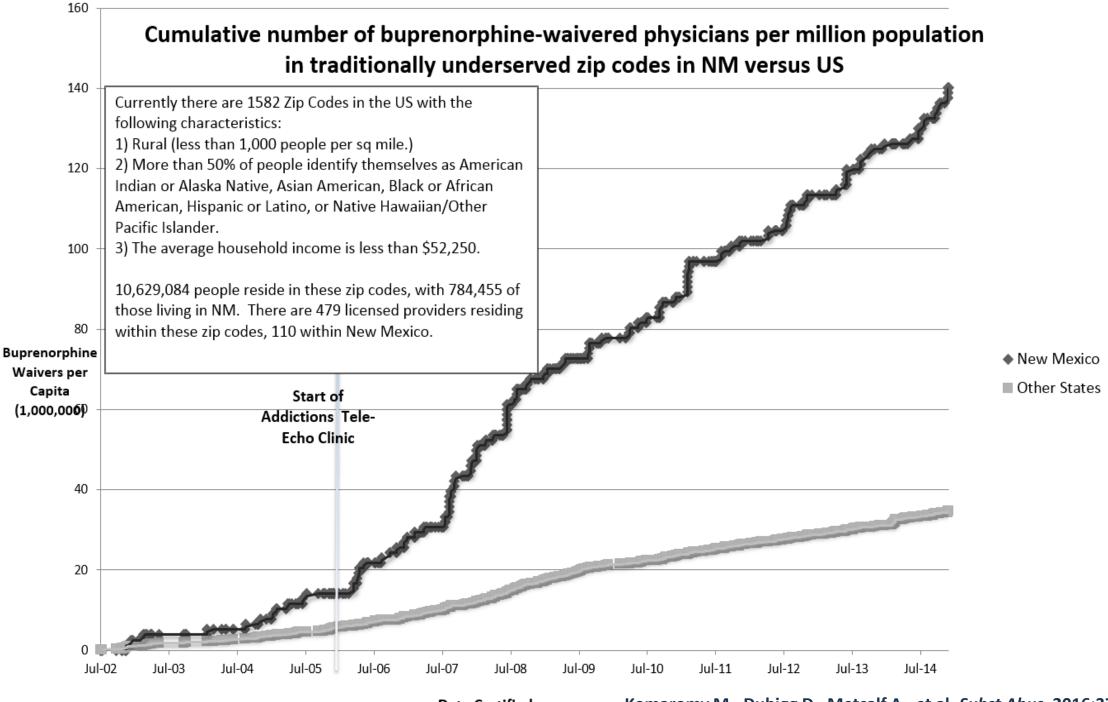


ECHO Hubs and Spokes: State of New Mexico

IAP CLINIC PARTICIPATION SITES

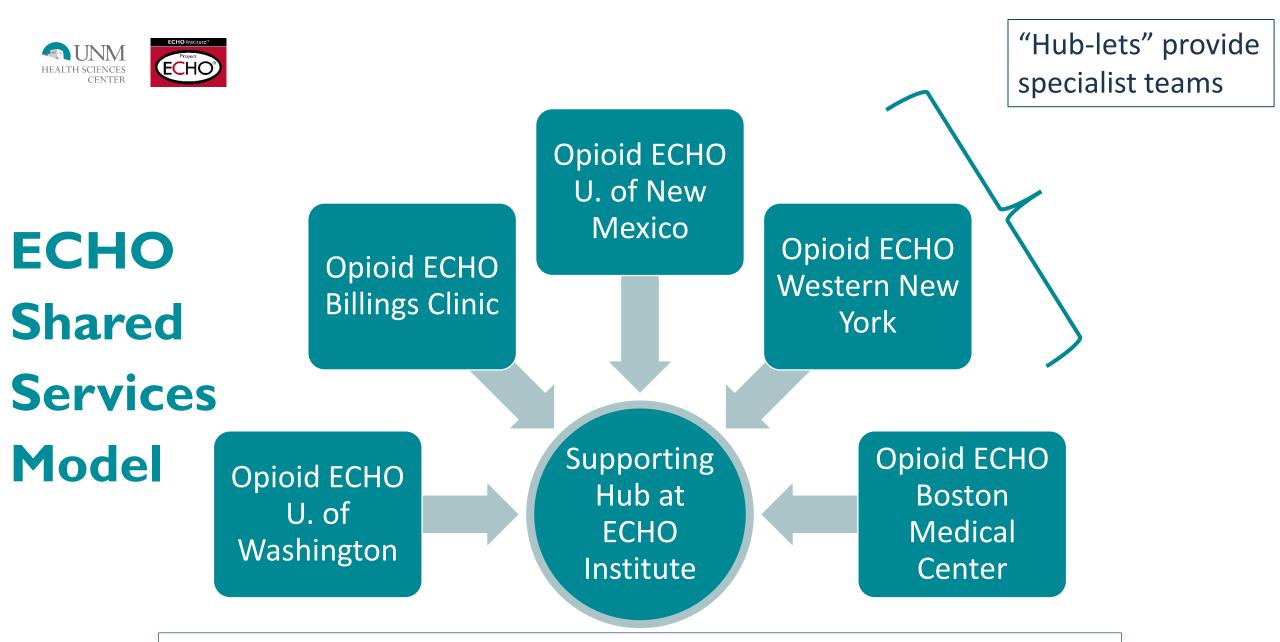






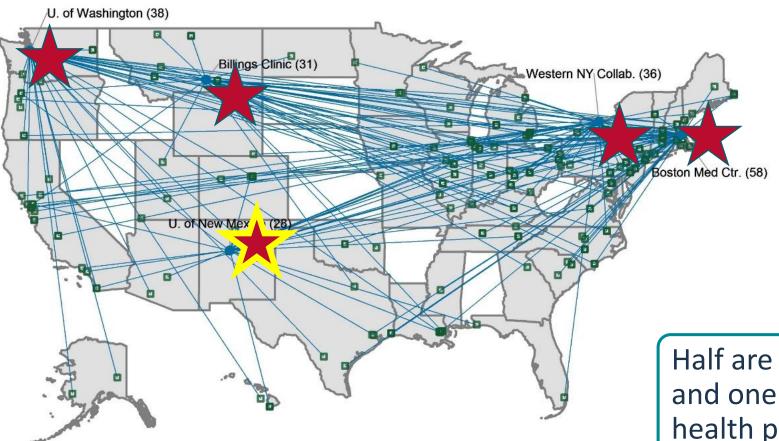
Date Certified

Komaromy M., Duhigg D., Metcalf A., et al. Subst Abus. 2016;37(1):20-4.



Supporting hub leads development of curriculum and provides IT, evaluation, and admin support, and participant recruitment for all hubs

HRSA-funded National Opioid ECHO Program



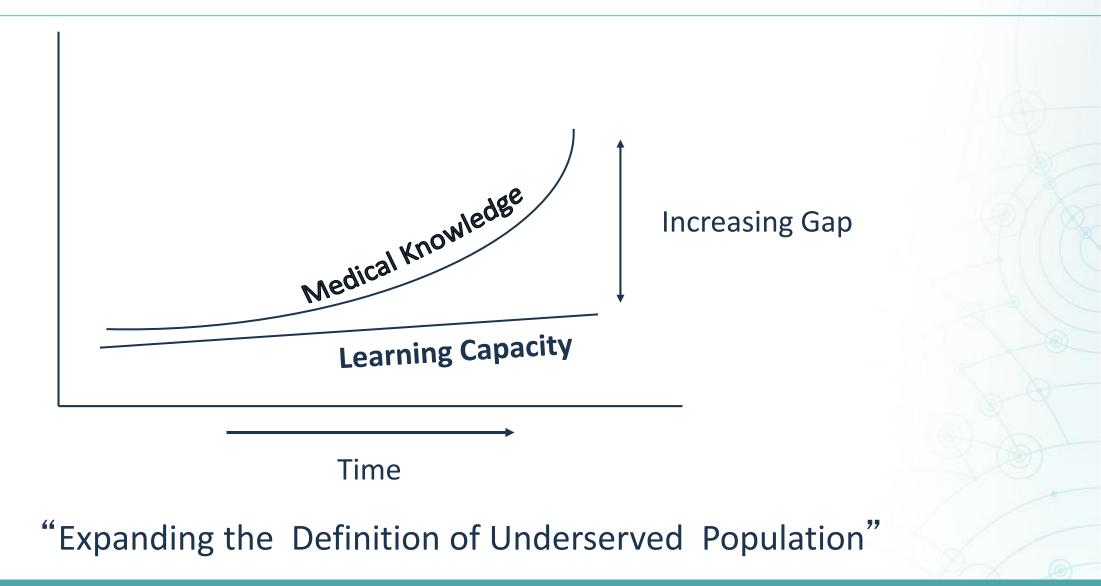
PARTICIPATION Year one

- 355 participants from
- 147 HRSA-funded health centers

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



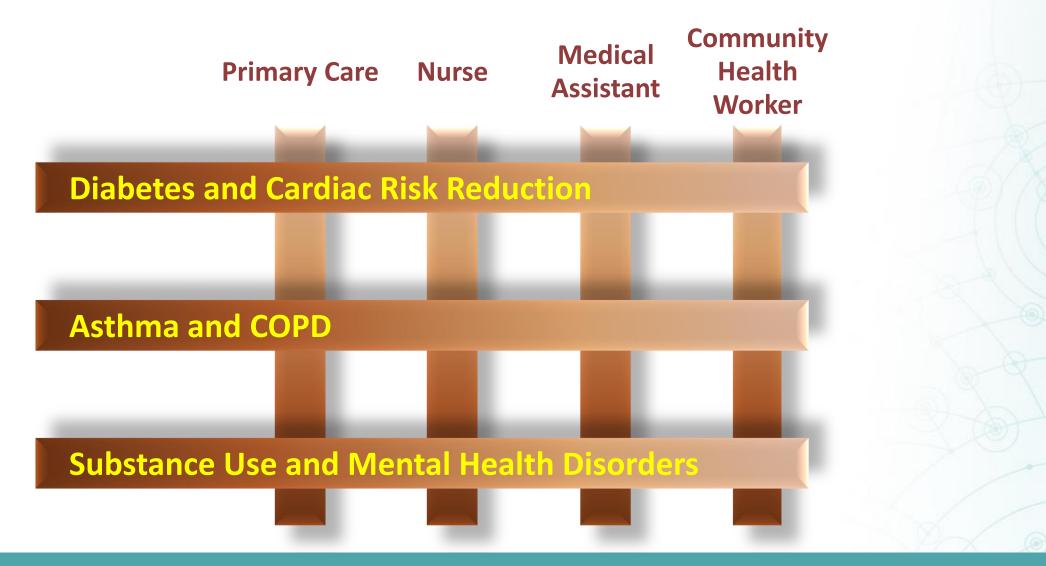
What The Mind Does Not Know The Eye Cannot See





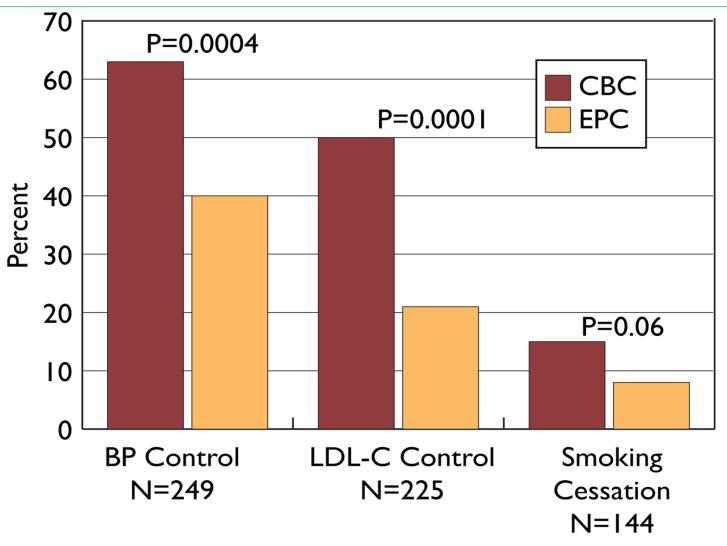
Force Multiplier

Chronic Disease Management is a Team Sport

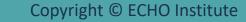




Community Based Care for Cardiac Risk Factor Reduction was more Effective than Enhanced Primary Care



Becker, D.M., Yanek, L.R., Johnson W.R., et al. Circulation. 2005;111:1298-1304.





Why is a CHW Intervention Effective?

- Live in Community
- Understand culture
- Appreciate economic limitations of patient and know community resources available to patient
- Often know family and can engage other social resources for patient
- Spend more time with patient



ECHO CHW Training Multiple Tracks

- CHW Specialist Training
 - **CREW:** Diabetes, Obesity, Hypertension, Cholesterol, Smoking Cessation, Exercise Physiology
 - CARS: Substance Use Disorders
 - ECHO Care™: Complex Multiple Diagnoses
 - Obesity Prevention: Diet, Exercise, Motivational Interviewing

Prison Peer Educator Training



Diabetes Specialty CHW Program

- Narrow Focus Deep Knowledge
- Standardized Curriculum
 - 3 Day Onsite
 - •Webcam/Weekly Video Based Clinics
 - Diet
 - Exercise
 - Smoking Cessation
 - Motivational Interviewing
 - Gentle Nudges
 - Finger Stick
 - Foot Exam

Ongoing support via knowledge networks

Part of Disease Management Team



Community Health Workers in Prison The New Mexico Peer Education Program Pilot training cohort, CNMCF Level II, July 27-30, 2009



First day of peer educator training Photo consents on file with Project ECHO[®] and CNMCF



Graduation Ceremony of First Cohort The New Mexico Peer Education Program: Pilot training cohort, CNMCF Level II, July 27-30, 2009



Graduation as Peer Educators

Photo consents on file with Project ECHO® and CNMCF



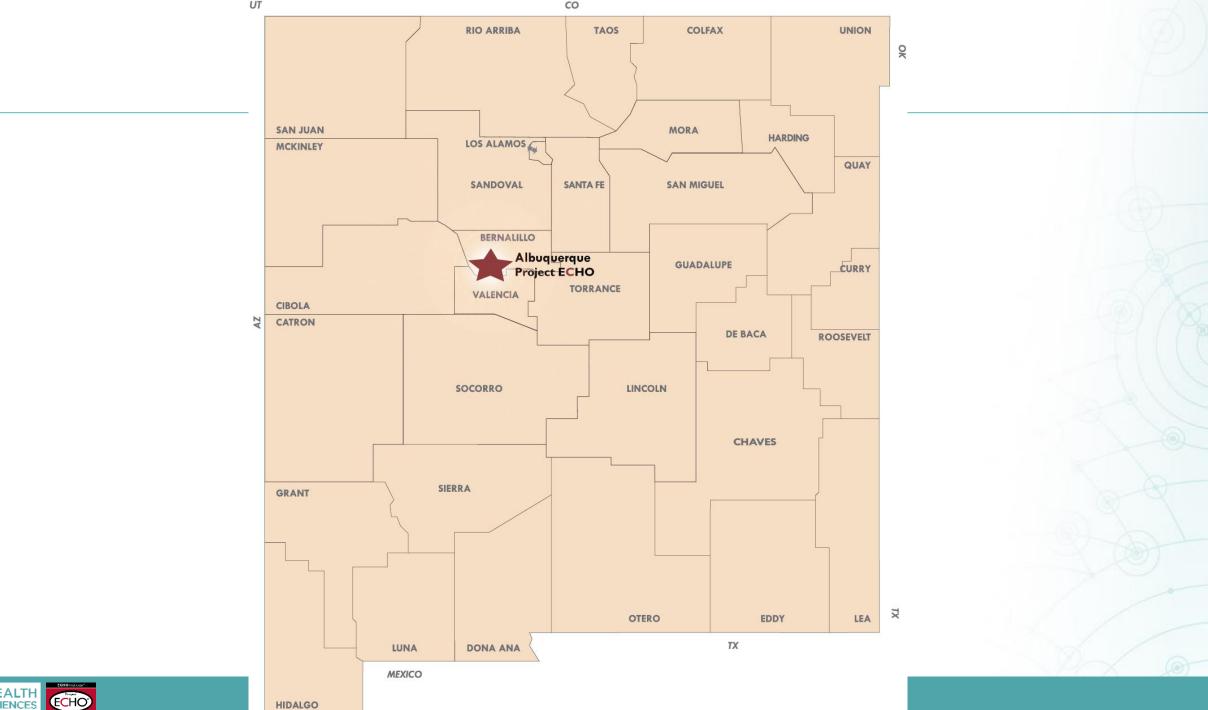
Potential Benefits of the ECHO Model

- Quality and Safety
- Rapid Learning and bestpractice dissemination
- Reduce variations in care
- Access for Rural and Underserved Patients, reduced disparities
- Workforce Training and Force Multiplier

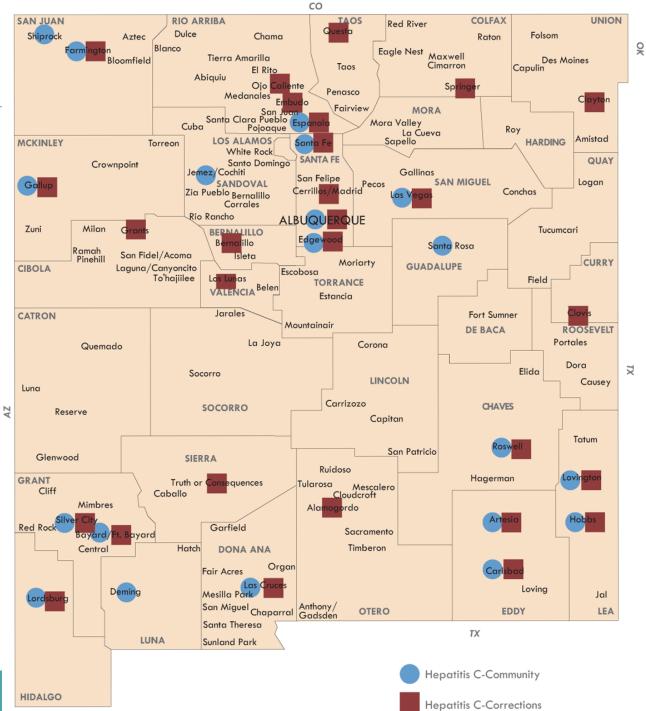
- Improving Professional Satisfaction/Retention
- Supporting the Medical Home Model
- Cost Effective Care- Avoid Excessive Testing and Travel
- Prevent Cost of Untreated Disease (e.g.: liver transplant or dialysis)
- Integration of Public Health into treatment paradigm

Democratize Knowledge



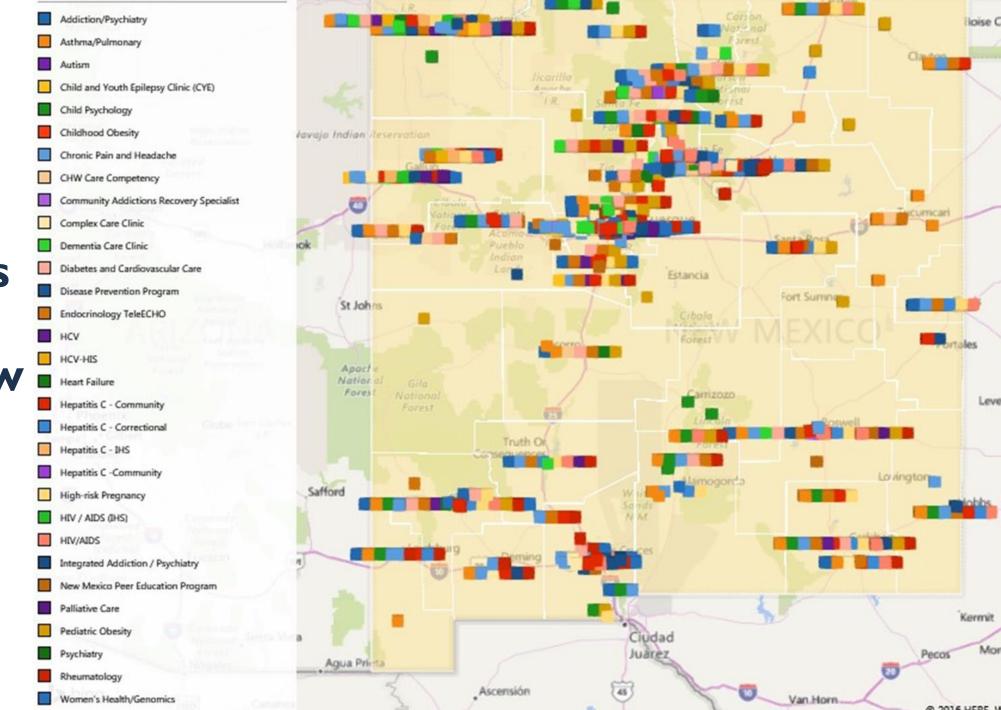




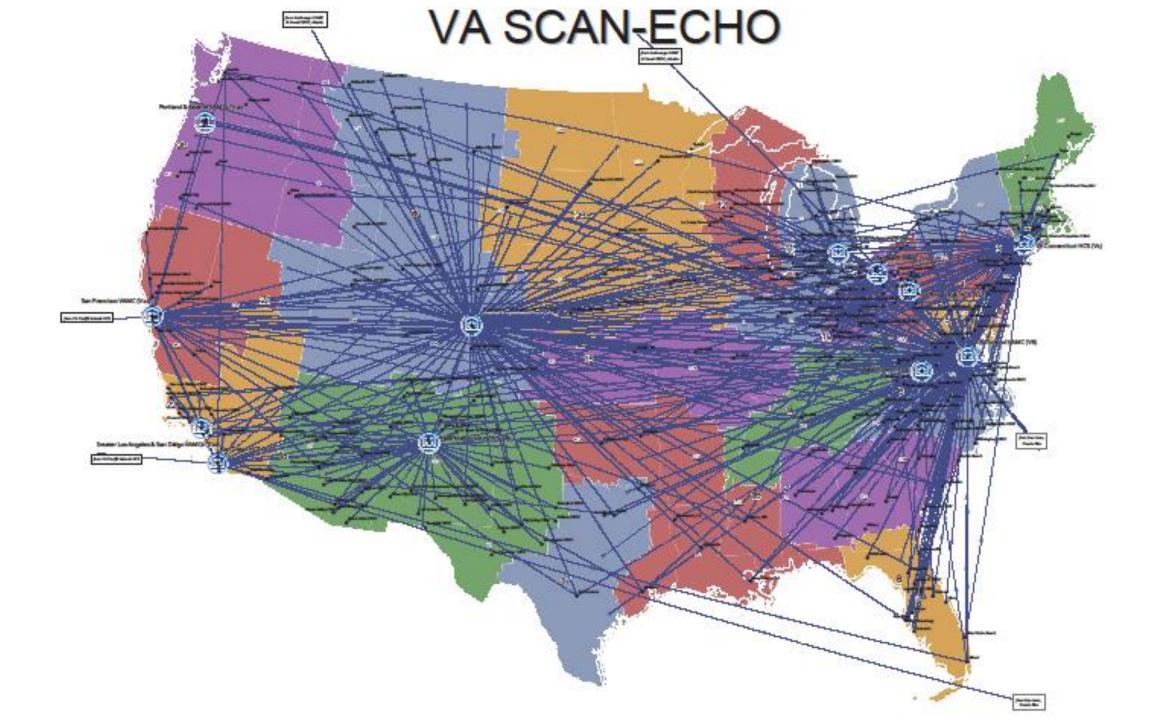




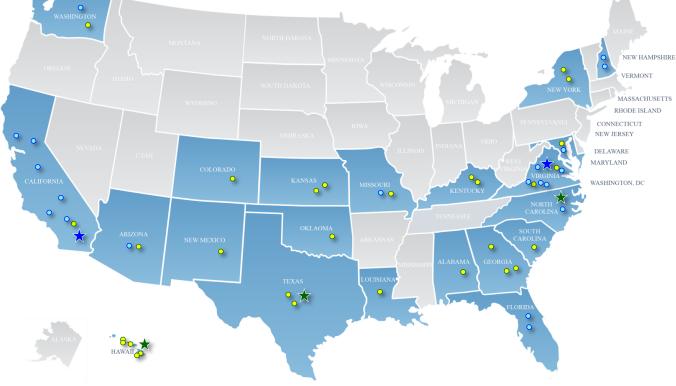




ECHO Hubs and Spokes: State of New Mexico



Army and Navy Pain Management ECHO Clinics





U.S.ARMY

* Army ECHO Hubs: Regional Health Command-Europe (RHC-E) – Landstuhl, Germany | Regional Health Command-Central (RHC-C)-Joint Base San Antonio-Brook Army Medical Center - TX | Regional Health Command-Pacific (RHC-P)-Tripler Army Medical Center - HI | Regional Health Command-Atlantic (RHC-A) - Ft. Bragg, NC

· Fort Meade

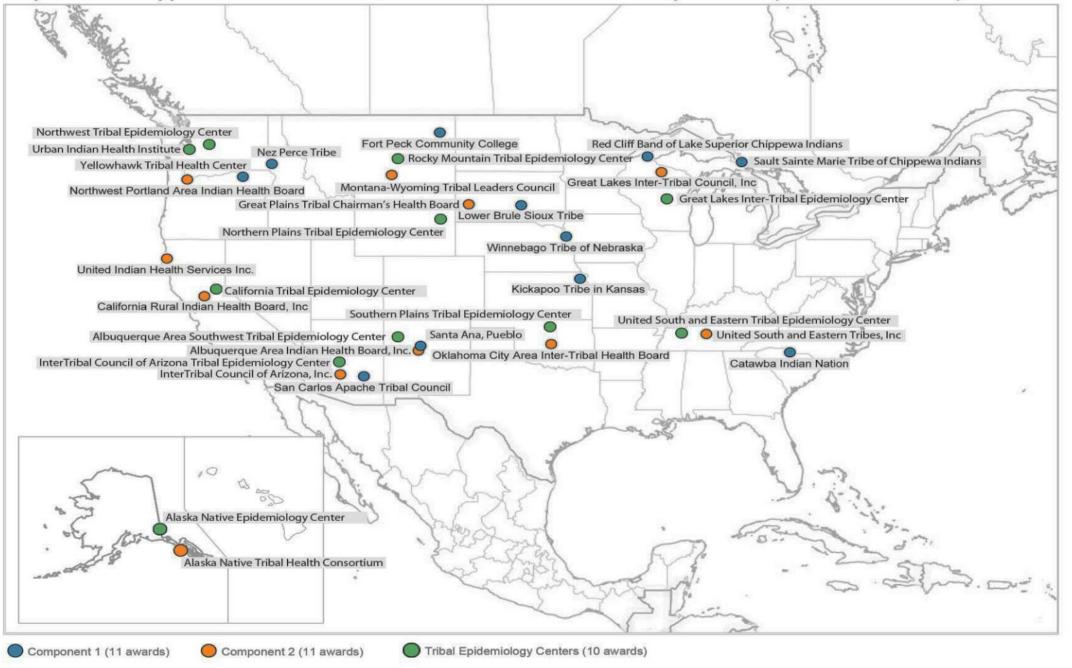
0	Belgium:	0	South Korea:
	Brussels		 Camp Casey
	 Supreme Headquarters 		 Camp Humphreys
	Allied Powers Europe		 Camp Carroll
	(SHAPE)		 Camp Walker
0	Germany:		Brian Allgood Army Communit
	Grafenwoehr		Hospital/ 121st Combat Suppo
	Hohenfels		Hospital
	 Katterbach 	0	Alabama:
	· Landstuhl Regional Medical		 Redstone Arsenal
	Center (LRMC)/FHC	0	Arizona:
	LRMC/IMC		 Fort Huachuca
	Stuttgart	0	California:
	Wiesbaden		Fort Irwin
	Vilseck	0	Colorado:
0	Italy:		 Colorado Springs
	Livorno	0	Georgia:
	Vicenza		Fort Gordon
0	Japan:		Fort Benning
	Camp Zama		Ft. Stewart

 Hawaii: Schofield Barracks (Family 	Missouri: Fort Leonard Wood
Medicine and Troop Medica	
Clinic)	White Sands Missile Range
Adult Medicine Patient	New York:
Centered Medical Home	 Fort Drum
(PCMH) Tripler	West Point
 Family Medicine PCMH Trip 	ler Oklahoma:
Warrior Ohana PCMH	Fort Sill
VA Pain Clinic	South Carolina:
Kansas:	 Fort Jackson
 Fort Leavenworth 	O Texas:
 Fort Riley 	Fort Bliss
• Kentucky:	 Fort Hood
Fort Knox	• Virginia:
 Fort Campbell 	 Joint Base Langley-Eustis
O Louisiana:	Fort Lee
Fort Polk	• Washington:
Maryland:	 Madigan Army Medical Center

★ Navy ECHO Hubs: Navy Medicine East (NME)- Naval Medical Center (NMC) Portsmouth, VA Navy Medicine West (NMW)- Naval Medical Center San Diego (NMCSD), CA							
0	Arizona: • NHYuma California:	0	New Hampshire: • BHC Portsmouth NH • Navy Safe Harbor				
-	NMCSD Naval Training Center NHLemoore NH Twentynine Palms NH Camp Pendleton Naval Air Facility EI Centro Naval Air Station North Island	0	Virginia: • NMC Portsmouth (Case Management, Pain Clinic, Physiatry, Internal Medicine) • BHC Oceana • TriCare Prime Clinic (TPC)				
0	Florida: • Naval Hospital (NH) Jacksonville • Naval Air Station Jacksonville		Chesapeake • TPC Virginia Beach • 633rd Medical Group-Langley				
0	Maryland: • NHC Pax River						
	Missouri: • Behavioral Health Clinic (BHC) Boone						
0	North Carolina: • NH Camp LeJeune						



Comprehensive Approach to Good Health and Wellness in Indian Country Awards (DP14-1421PPHF14) **/22 awards



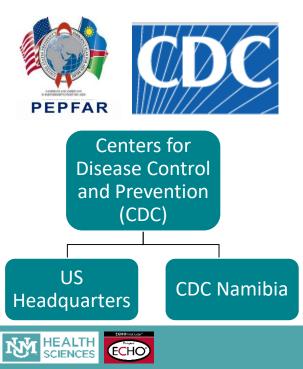
**These awards are financed solely by Prevention and Public Health Funds.



ECHO Consortium and Partners



Republic of Namibia Ministry of Health and Social Services





Elizabeth Glaser Pediatric AIDS Foundation

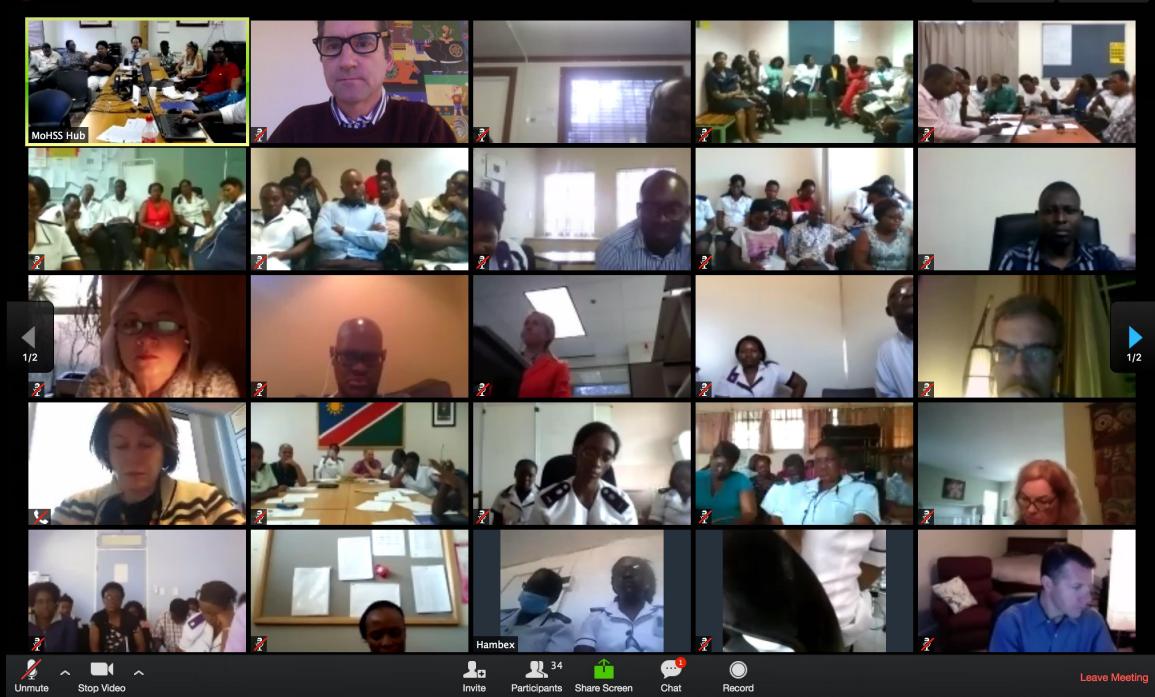
EGPAF

I-TECH International Training & Education Center for Health

International Training & Education Center for Health Namibia SCHOOL of MEDICINE

The University of New Mexico



















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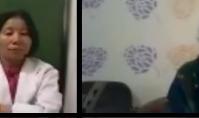




















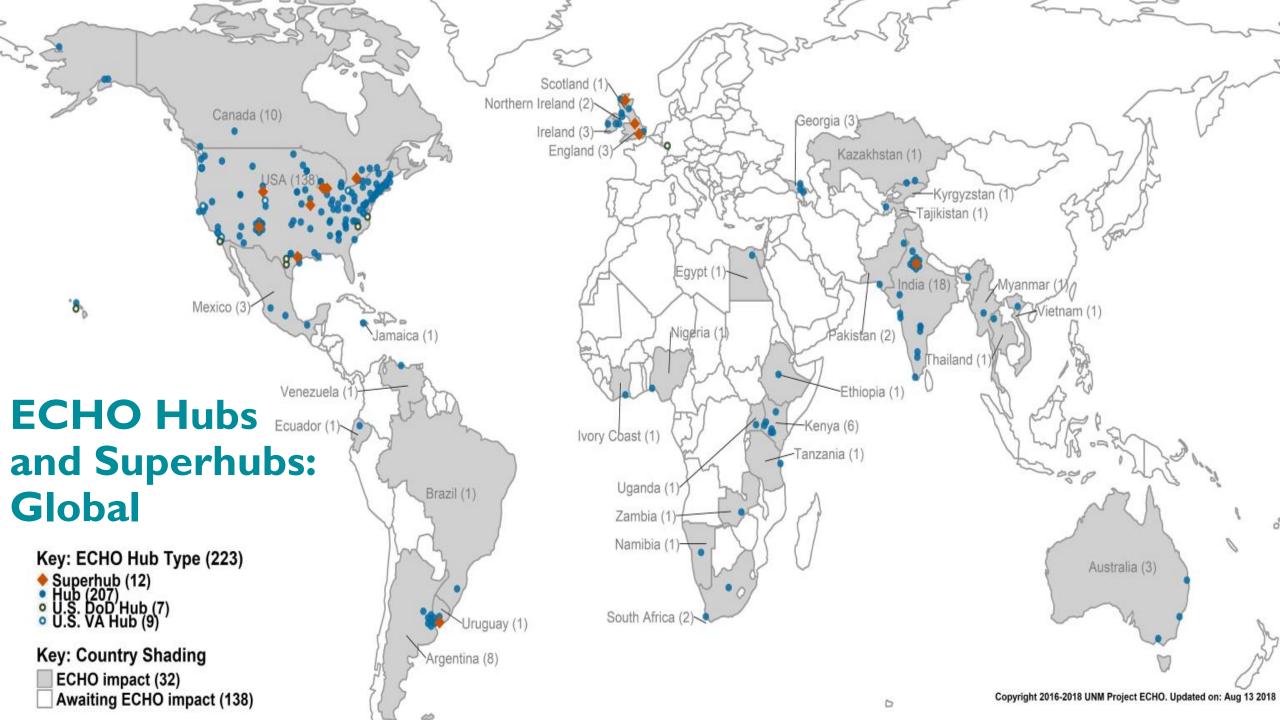












Cancer: Significant gains, persistent disparities

- While U.S. cancer death rates have declined overall between 1999-2015, stark disparities persist:
 - Cancer death rate for African-Americans is 25 percent higher than for whites
 - Hispanic and Latino patients are more likely to be diagnosed with cancer at later, more dangerous stages of the disease
- A recent study in the journal *Cancer* (August 20, 2018) shows that these disparities particularly affect children:
 - Of 32,000 childhood cancer patient data analyzed, black children were 38-95% more likely to die of nine cancers studied, and Hispanic children were 31-65% more likely to die
 - Socioeconomic status as well as race/ethnicity is a factor, demonstrating that kids living in highpoverty, under-resourced neighborhoods have greater cancer risk

Sources: "Why are Black and Latino Kids More Likely to Die of Certain Cancers?" August 20, 2018 (www.npr.org); Kehm R, Spector G, Poynter J, et al. "Does Socioeconomic Status Account for Racial and Ethnic Disparities in Childhood Cancer Survival?" *Cancer*, August 20, 2018 (epub ahead of print); NIH National Cancer Institute Surveillance, Epidemiology, and End Results Program (https://seer.cancer.gov)



Uses of ECHO in Cancer

- 1. Prevention: Smoking Cessation, HPV vaccination, HCV Treatment, HBV Vaccination and Treatment, sun safety and skin cancer prevention
- 2. Screening and Early Detection: Dermatology, Breast, Cervical, Colorectal Cancer, Oral and Lung Cancer
- 3. Pathology Best Practices
- 4. Cancer Care Navigation
- 5. Updates in Treatment: Getting the science to the community
- 6. Tumor Boards
- 7. Precision Medicine and Cancer Genomics
- 8. Pain and Toxicity Management
- 9. Survivorship
- 10. Palliative Care
- 11. Population Health: Effective Community Cancer Intervention and Prevention Program Management



The "ECHO Act" (Expanding Capacity for Health Outcomes Act) Passed House/Senate by unanimous vote, November-December 2016 Signed into law by President Barack Obama, December 2016

Asks the Secretary of Health and Human Services to study the impact of Project ECHO on:

Mental and substance use disorders, chronic diseases and conditions, prenatal and maternal health, pediatric care, pain management, and palliative care

Implementation of public health programs, including those related toWorkforcedisease prevention, infectious disease outbreaks, and public health
surveillance

Health care workforce issues, such as specialty care shortages andPublic Healthprimary care workforce recruitment, retention, and support for lifelonglearning

Rural andDelivery of health care services in rural areas, frontier areas, healthUnderservedprofessional shortage areas, and medically underserved areas, and toPopulationsmedically underserved populations and Native Americans







Schatz (D)
 Co-sponsors



California Matsui(D) CALIFORNIA REPUBLIC



Louisiana Sen. Bill Cassidy (R)





- Sen. Martin Heinrich (D)
- Sen. Tom Udall (D)
- Rep. Michelle Lujan Grisham (D)



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Minnesota Sen. Al Franken (D)



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Sen. Roger Wicker (R)





ECHO

HEALTH SCIENCES

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- Washington
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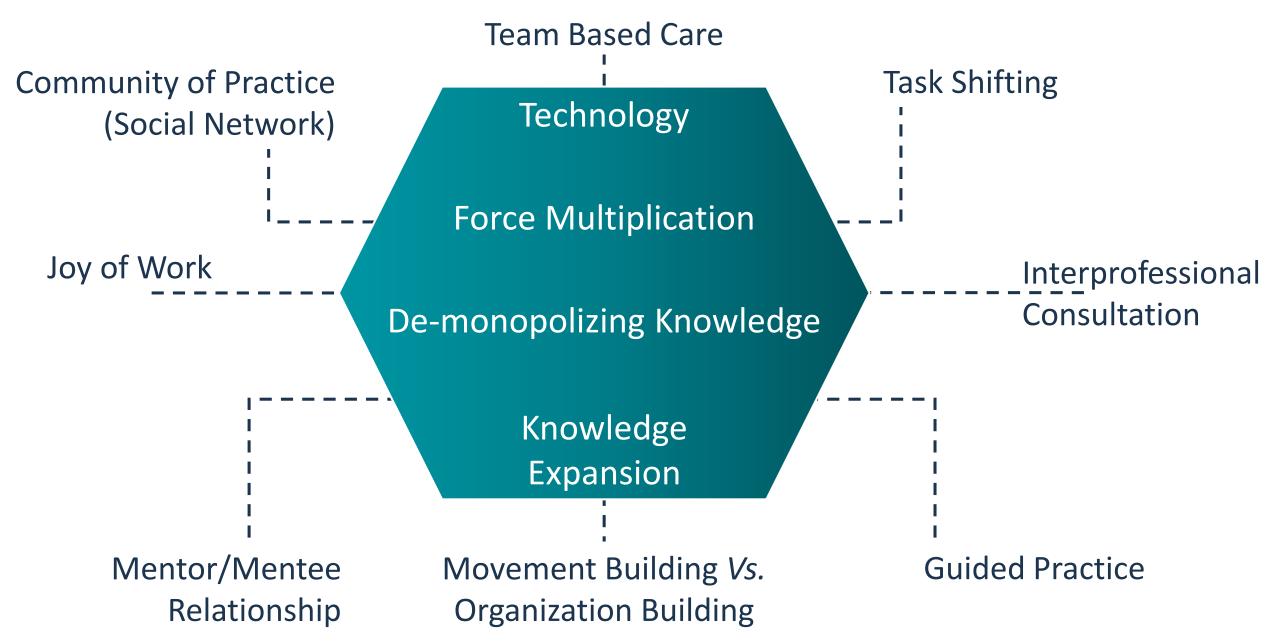
Virginia Sen. Mark Warner (D)



Wyoming Sen. John Barrasso (R)



HEALTH SCIENCES What Makes ECHOWork?



ECHO Programs Included in 3 HSC Priority Initiatives

