

 UNIVERSITY OF NEW MEXICO HEALTH SCIENCES CENTER
SCHOOL OF MEDICINE
DEPARTMENT OF
INTERNAL MEDICINE



Extension for Community Healthcare Outcomes

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MISSION

The mission of Project ECHO is to expand the capacity to provide best practice care for common and complex diseases in underserved areas and to monitor outcomes.

Supported by NM Dept of Health, New Mexico Medicaid, Agency for Health Research and Quality HIT grant 1 UC1 HS015135-04, and MRISP, R24HS16510-02 and the New Mexico Legislature, Robert Wood Johnson Foundation

HEPATITIS C IN NEW MEXICO

~ More than 28,000 Patients

~ 2300 prisoners diagnosed in corrections system (expected number is greater than 2400) - None treated

~ Highest rate of chronic liver disease/cirrhosis deaths in the nation

HEPATITIS C TREATMENT

Good News:

Curable in 45-70% of cases

Bad News:

Severe side effects – anemia (100%), neutropenia >35%, depression >25%

No Primary Care Physicians Treating HCV

GOALS of ECHO

- ~ **Develop capacity to safely and effectively treat Hepatitis C in all areas of New Mexico and to monitor outcomes**
- ~ **Develop a model to treat complex diseases in rural locations and developing countries**

PARTNERS

- ~ **University of New Mexico School of Medicine
Dept of Medicine, Telemedicine and CME**
- ~ **NM Department of Corrections**
- ~ **NM State Health Department**
- ~ **Indian Health Service**
- ~ **Community Clinicians with interest in Hepatitis C
and Primary Care Association**

METHOD

- ~ **Use Technology (multipoint vide-conferencing and internet) to leverage scarce healthcare resources**
- ~ **Disease Management Model focused on improving outcomes by reducing variation in processes of care and sharing “best practices”**
- ~ **Case based learning: Co-management of patients with UNMHSC specialists (Learning by Doing)**
- ~ **HIPAA compliant web based database to monitor outcomes**

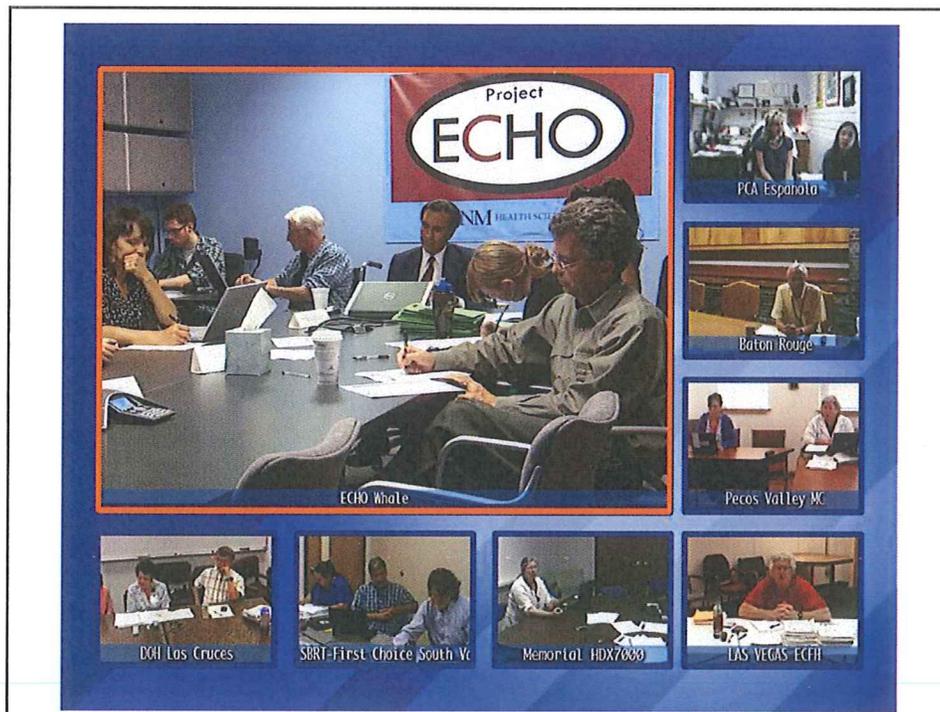
Arora S, Geppert CM, Kalishman S, et al: Acad Med. 2007 Feb;82(2): 154-60.

STEPS

- ~ **Train physicians, nurses, pharmacists, educators in Hepatitis C**
- ~ **Train to use web based software - “ihealth”**
- ~ **Conduct telemedicine clinics – “Knowledge Network”**
- ~ **Initiate co-management – “Learning loops”**
- ~ **Collect data and assess effectiveness of programs**

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





How well has model worked for Hepatitis C ?

500 HCV Telehealth Clinics have been conducted
>5000 case presentations of patients in HCV
disease management program

CMEs/CEs issued:

27,000 CME/CE hours at no cost in 19 different
conditions

**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	BEFORE Participation MEAN (SD)	TODAY MEAN (SD)	Paired Difference MEAN (SD) (p-value)	Effect Size for the Change
1. 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
2. Ability to assess severity of liver disease in patients with Hepatitis C.	3.2 (1.2)	5.5 (0.9)	2.3 (1.1) (< 0.0001)	2.1
3. 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

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

Community Clinicians N=25	BEFORE Participation MEAN (SD)	TODAY MEAN (SD)	Paired Difference MEAN/SD (p-value)	Effect Size for the Change
4. 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
5. 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
6. 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	BEFORE Participation MEAN (SD)	TODAY MEAN (SD)	Paired Difference MEAN/SD (p-value)	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, Dion D et al. Hepatology. 2010 Sept;52(3):1124-33

Clinician Benefits (Data Source: 6 Month Q- 5/2008)

Benefits N=35	Not/Minor benefit	Moderate/Major benefit
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

N=17	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 to in general to specialist expertise and consultation is a major area of need for you and your clinic	4.9
Access to HCV specialist expertise and consultation is a major area of need for you and your clinic	4.9

The Hepatitis C Trial

Principal Endpoint

- ❖ Sustained viral response (SVR)- Cure of Virus: no detectable virus 6 months after completion of treatment

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

NEJM : 364: 23, June 9-2011, Arora S, Thornton K, Murata G

Conclusions

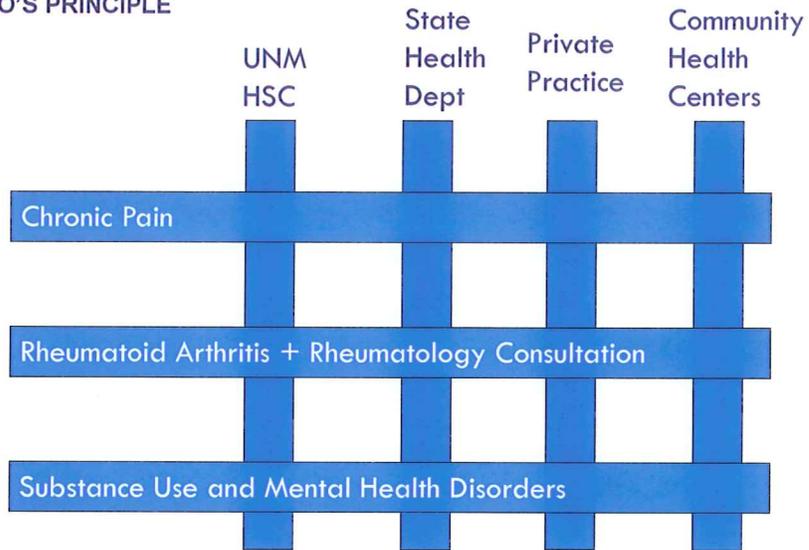
- ❖ Rural primary care Clinicians deliver hepatitis C care under the aegis of Project ECHO that is as safe and effective as that given in a University clinic
- ❖ Project ECHO improves access to hepatitis C care for New Mexico minorities

DISEASE SELECTION

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

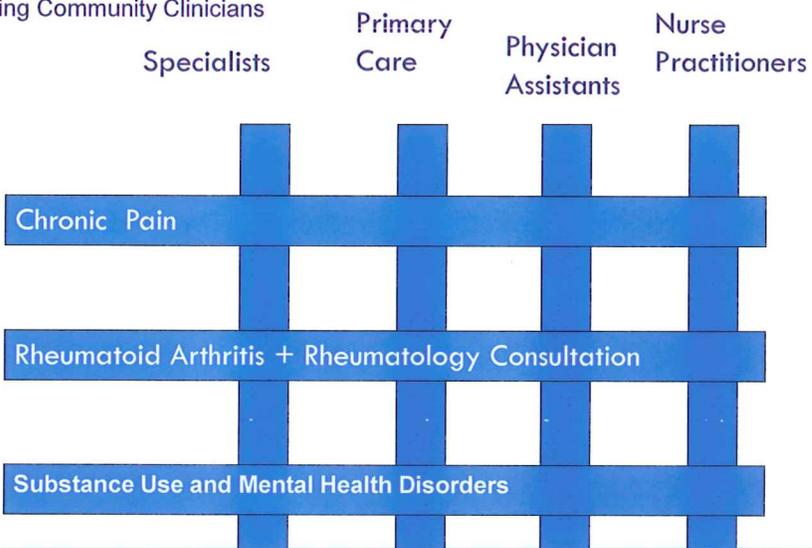
BUILDING BRIDGES

PARETO'S PRINCIPLE



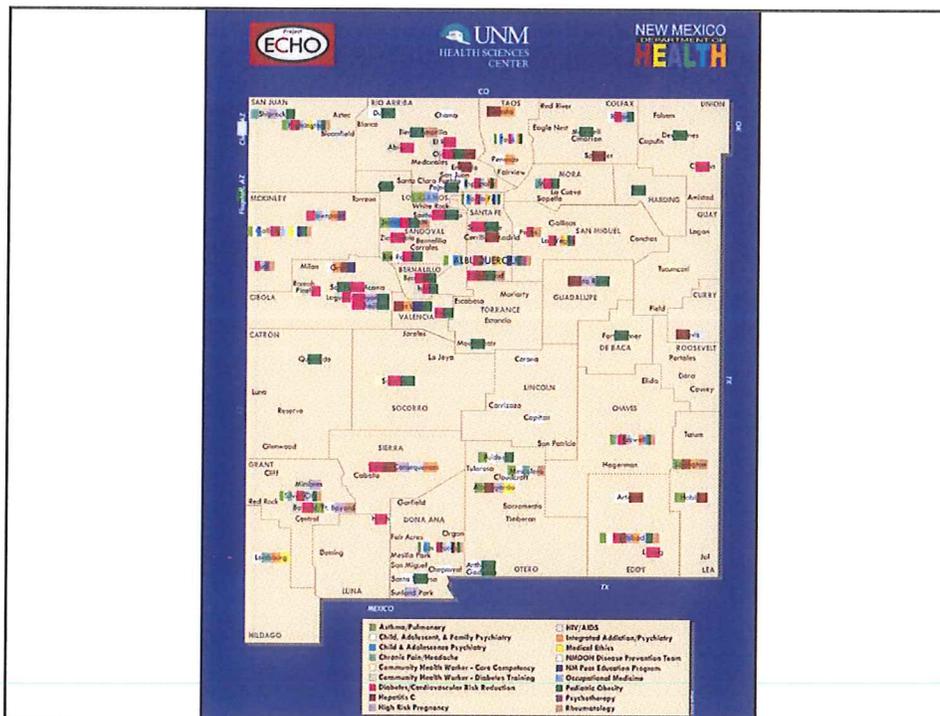
FORCE MULTIPLIER

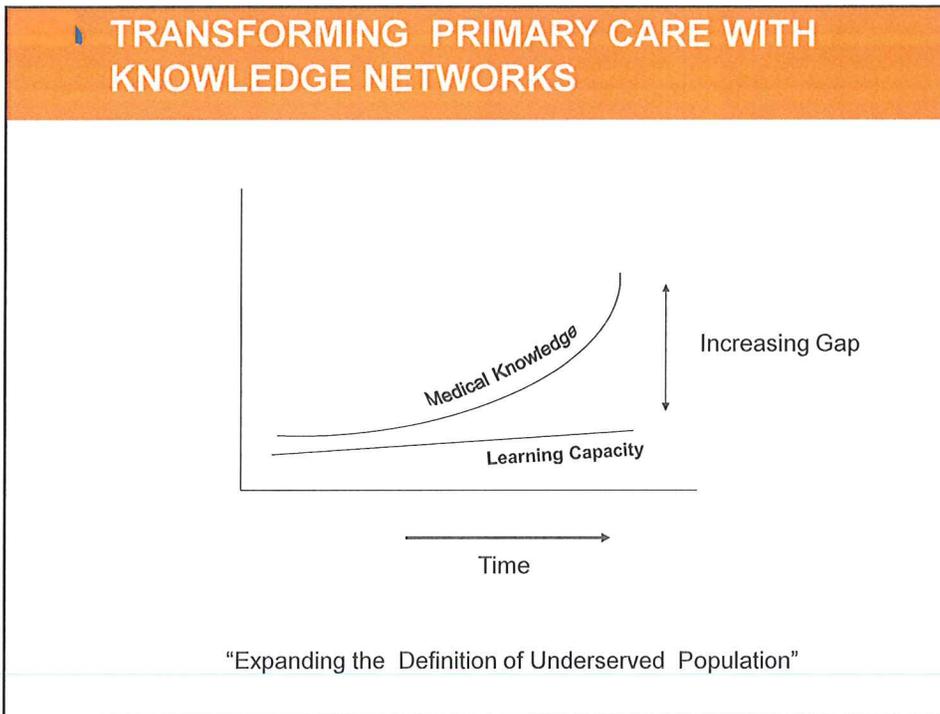
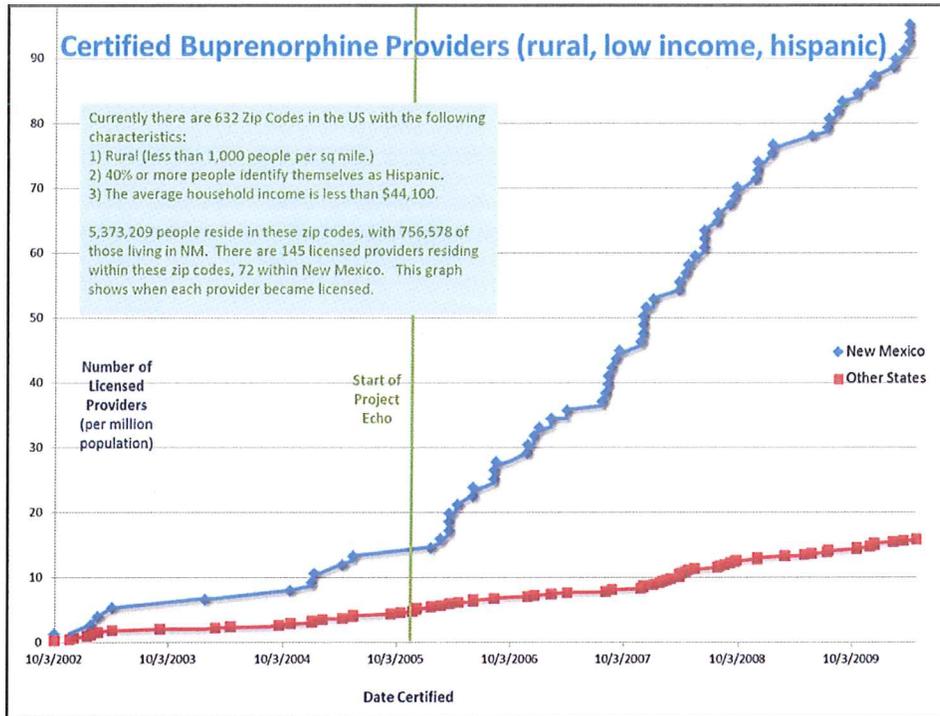
Use Existing Community Clinicians



Successful Expansion Into Multiple Areas

	Mon	Tue	Wed	Thurs	Fri
8-10 AM	Hepatitis C Arora Thornton	Cardiac Risk Reduction Clinic Colleran	Asthma Harkins	Prevention of Teenage Suicide- Kriechman	Palliative Care Devon Neale
10-12 AM	Rheumatology- Bankhurst	Chronic Pain- Katzman	Substance Abuse- Komaromy	High Risk Pregnancy Curet	Complex Care Devon Neale Joanna Katzman
2-4 PM	HIV – Michelle Iandorio and Karla Thornton	Geriatrics/De mentia Carla Herman	Prison Peer Educator Program	Childhood Obesity Mcgrath	Antibiotic Stewardship Susan Kellie







Potential Benefits to Health System

- ~ Quality and Safety- Rapid Learning –Reduce Variation in Care
- ~ Access for Rural and Underserved Patients: Reduce Disparities
- ~ Workforce Training and Force Multiplier: De-monopolize Knowledge
- ~ Improving Professional Satisfaction/ Retention
- ~ Supporting the Medical Home Model
- ~ Cost Effective Care- Avoid Excessive Testing and Travel
- ~ Prevent Cost of Untreated Disease (eg: Liver Transplant or Dialysis)
- ~ Integration of Public Health into Treatment Paradigm



Replication Sites

- ~ University of Washington
 - ~Hepatitis C
 - ~Chronic Pain
 - ~Substance Use Disorders
 - ~ HIV
- ~ University of Chicago
 - ~Difficult to treat Hypertension
- ~ Beth Israel Deaconess Boston- Hepatitis C
- ~ University of Utah- Hepatitis C
- ~ University of Nevada- Diabetes
- ~ University of South Florida- HIV
- ~VHA
 - ~Chronic Pain
 - ~Diabetes
 - ~Congestive Heart Failure
 - ~Hepatitis C
- ~Department of Defense-Chronic Pain
- ~Brazil- Viral Hepatitis (In Dialogue with Ireland, Uruguay and Chile)
- ~India
 - ~Viral Hepatitis
 - ~HIV
 - ~Autism
 - ~Poisonings

Awards for ECHO Team

- Applications sought for Disruptive Innovations in Healthcare (Ashoka and RWJF)– New Models that would change healthcare nationally and globally (2007)
- Project ECHO selected one of three winners amongst 307 Applications from 27 countries
- ehealth Initiative award (2008)
- Computerworld Award (2008)
- US Long Distance Education Award (2008)
- Ashoka Foundation Award for Social Entrepreneurship (2009)
- Best Practice Award from US Long Distance Education Association (2010)
- Center of Excellence in Pain Management (APS)
- CMMI Grant (2012)

Use of multipoint videoconferencing, best practice protocols, co-management of patients with case based learning (the ECHO model) is a robust method to safely and effectively treat common and complex diseases in rural and underserved areas and to monitor outcomes.

Supported by NM Dept of Health, New Mexico Medicaid, Agency for Health Research and Quality HIT grant 1 UC1 HS015135-04, and MRISP, R24HS16510-02 and the New Mexico Legislature, Robert Wood Johnson Foundation



New Grant from Center for Medicare and Medicaid Innovation (CMMI)

- ~ Explosion in Healthcare Costs in the US
- ~ 1% Medicaid Patients Responsible for 22% of Healthcare Costs
- ~ 5% Medicaid Patients Account for 57% of Costs
- ~ High Rates of Diagnosis of Chronic Pain, Substance Use, Mental Health Disorders, Diabetes
- ~ Significant Costs Attributable to:
 - ~ Avoidable Emergency Room Visits
 - ~ Preventable Hospital Admissions and ICU care
 - ~ Lack of Coordination Between Multiple Specialists
 - ~ Inadequate Access to Primary Care Physicians
 - ~ Lack of Support Team in Primary Care Clinics
 - ~ Medical Errors
 - ~ Poly Pharmacy and Potential Drug Interactions
 - ~ Inadequate Expertise in Substance Abuse and Mental Health



Complex Disease ECHO – CMMI Grant

- ~ Partnership with State Medicaid Office, Molina, Presbyterian Health Plan, Lovelace and Blue Cross Blue Shield, Federal Qualified Health Centers
- ~ Improve Quality of Care and Reduce Cost for 5000 High Cost Medicaid Beneficiaries in New Mexico, Washington State
- ~ To Enhance Primary Care Capacity to Diagnose and Provide Best Practice Care to All Members at the Top 5-10% of Risk for Future Expenditure
- ~ Partner With Managed Care Organizations to Develop a New Payment Methodology for the Care of the Complex Patients
- ~ Partner with Primary Care Organizations (FQHCs and Other Community Clinics to Develop an “Outpatient Intensivist” Model



ECHO Funding

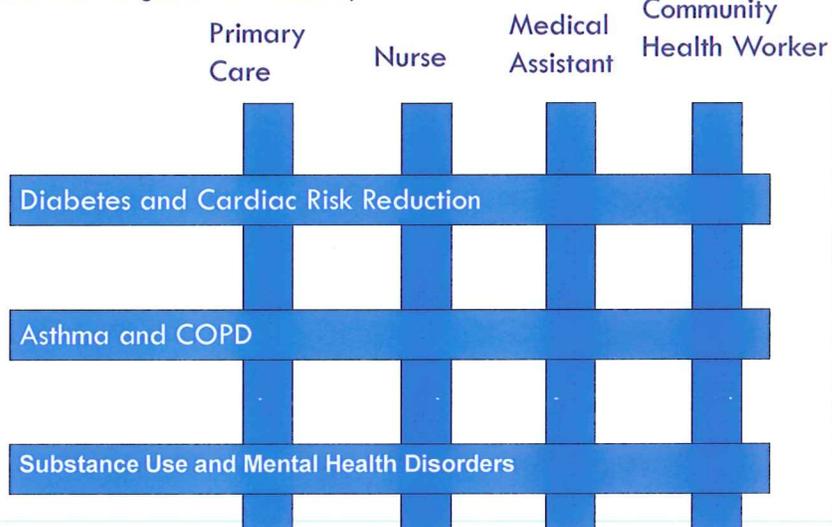
Legislative appropriation to ECHO in 2008 was 2.5 million dollars per year of annual recurring support

After recession in 2009 funding has declined to 840 thousand per year

Restoration of ECHO funding is a good investment to improve quality of care and reduce cost in New Mexico

FORCE MULTIPLIER

Chronic Disease Management is a Team Sport





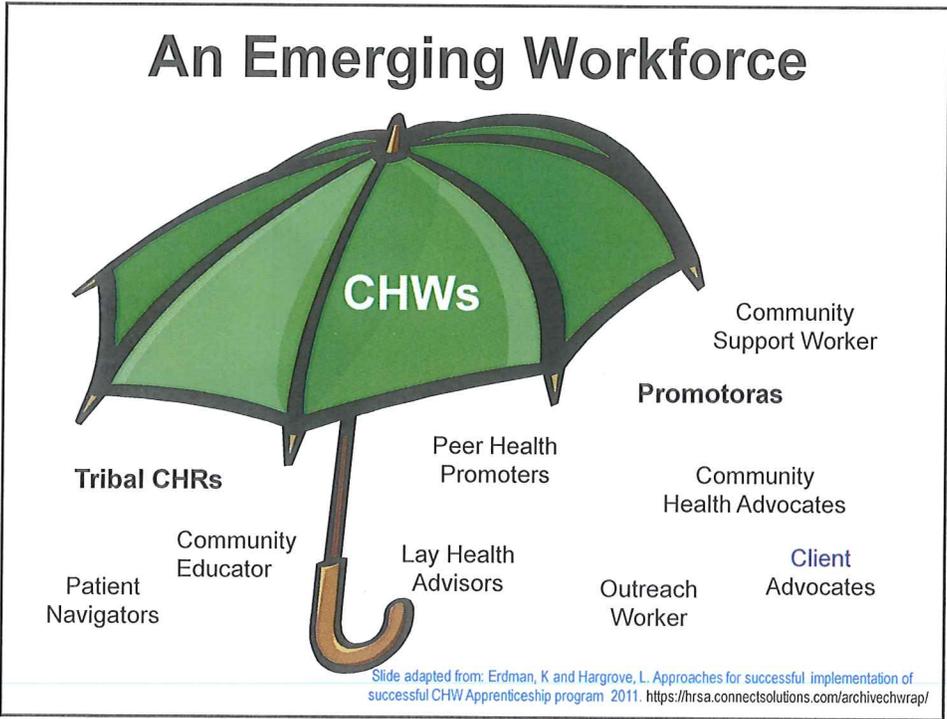
Project ECHO's CHW Initiatives:

Using the ECHO model to leverage limited resources to expand and empower the healthcare team.

As NM faces growing health care challenges, CHWs are an important part of the answer...



Who are CHWs?





CHWs are uniquely equipped

They normally reside in the communities they serve, and share the same language, ethnic, cultural, and educational background.



Slide adapted from: Strangis, M. Implementing CHW interventions in Minnesota. 2011



CHW primary focus is on social aspects of care

- T** * Providing culturally-responsive, cost effective health information
- R** * Teaching & supporting families to learn the knowledge/skills needed to manage treatment & prevent disease
- U** * Linking communities to health/social service systems of care and helping them to navigate the systems
- S**
- T** * Advocating for services to meet community needs
- * Empowering individuals and communities to advocate for their health



ECHO CHW training initiatives

We developed ECHO CHW training models for several health and medical conditions based on the needs of providers and underserved communities around NM.

The models were created and implemented with input from experienced CHWs, serving as ECHO Community Faculty.

Our Initiatives include:

- Diabetes Specialist Training (and Retinal Screening Project) - CREW
- Addictions Specialist Training - CARS
- Prison Peer Education Training - PEP
- Complex Care Intensivist Training - in development



What is the ECHO CHW training model and how is it DIFFERENT?

- No cost to participants (no tuition, travel reimbursement, free IT support)
- Three modes of delivery:
 1. Face-to-face training, allowing for hands-on training and practice of skills
 2. Weekly teleconferences (with participants on both video and phone), which include
 - presenting and discussing patient cases
 - resource sharing, networking and strategic didactic presentations by experts
 - participant learning loops
 3. Video modules for material that doesn't require much interactive Q & A
- Extensive evaluation



NOT a train-the-trainer model

We are NOT training for a specific intervention protocol. Rather, we have created a highly rigorous training with **broad applicability**.

This allows these diabetes-specialists to serve within a wide variety of contexts (clinics, diabetes or heart-health programs, home visits, elder-care or assisted living centers, etc.), perform a wide variety of roles, and move within roles in their employment and improve their employment opportunities.



More sustainable for CHW, employer and training organization

- ~ **“Light-footprint” training modality, using ECHO principles such as technology to overcome barriers and maintain low cost.**
- ~ **Does not require participants to leave their communities, families or jobs for an extensive training periods.**
- ~ **Emphasis on team approach.**
- ~ **Highly replicable and sustainable across the globe.**
- ~ **Ongoing participation in the sessions after completion of training.**



Directly relevant and applicable to CHWs' lives and work

- Knowledge Loops – CHWs participate in didactic and case-based learning, and then share and network with one another, reducing isolation and sharing culturally-appropriate solutions.
- Adult-learning methodologies – we use and teach interactive, appropriate, sensitive approaches that have **STICKING POWER!**



This isn't "one and done"

- Quality-assurance and ongoing learning provided by weekly teleconferences during and following training period.
- We provide basic certification and added "*endorsements*" in specific skills they have mastered.



We are in for the long term

- ❑ This allows us to be responsive the needs and interests of our trainees, and we have adapted our training model accordingly.
- ❑ In response to participant requests, we have increased the rigor of our trainings and now do extensive skills training and evaluation:
 - Skills taught in 30-minute small group (2-3 individuals) stations, with emphasis on “observe it, understand it, practice it and explain it.”
 - Pre/post-testing adapted from clinical evaluation of medical students, with one-on-one patient interaction scenarios and check-lists.



ECHO Diabetes-Specialist Training Results

❑ **94 CHWs/CHRs/Promotores trained:**

- 54% Native American
- 35% Hispanic
- 10% White/Caucasian
- 1% Black/ African-American

❑ **32 New Mexico Communities reached:**

Including a majority of the CHW/CHRs from Las Clinicas del Norte, HMS/La Vida, Zuni Pueblo, Santo Domingo/Kewa Pueblo and El Centro



ECHO Diabetes-Specialist Training Results

- **Cohort 1: Pre/post Survey Results**

	Baseline	Completion of 6-month training	Significance (p-value)
mDKT % correct	57	71	0.0002
DCS CS (scale 1-5)	3.30	4.40	0.0001
DCS NCS (scale 1-5)	3.62	4.29	0.0002
DAS (scale 1-5)	4.10	4.39	.04

Participants completed three pre/post surveys: the Michigan Diabetes Research and Training Center (MDRTC) Diabetes Attitude Survey (DAS); a Diabetes Knowledge Test (mDKT), a modified version of the MDRTC Diabetes Knowledge Test; and a Diabetes Confidence Survey (DCS), divided into clinical and non-clinical subsets.



ECHO Diabetes-Specialist Training Results

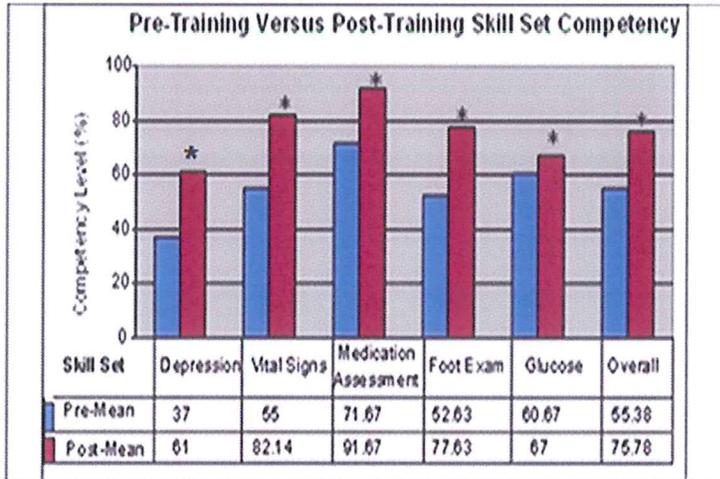
- **Cohort 3: Pre/post Skills Testing Results**

Tests for Significance:

Overall means for each skill set, Pre vs. Post

Skill Set	Pre Mean	Post Mean	N	Difference			P-value	Effect Size
				Mean	SD	Wilcoxon S		
Depression*	40.91	74.68	11	33.77	22.15	31.5	0.0029	1.52
Blood Pressure	62.39	90.60	13	28.21	21.81	10.5	0.2422	1.29
Medication Assessment	50.26	76.92	13	26.67	19.91	42.5	0.0012	1.34
Foot Exam	67.31	91.54	13	24.23	21.30	45.5	0.0002	1.14
Blood Glucose**	60.99	84.62	13	23.63	31.73	39.0	0.0005	0.74
Lifestyle	37.18	98.72	13	61.54	22.73	29.0	0.0190	2.71
BMI & Waist Circumference	55.55	83.81	14	28.26	8.25	45.5	0.0002	1.29
Overall	40.91	74.68	11	33.77	22.15	52.5	0.0001	1.52

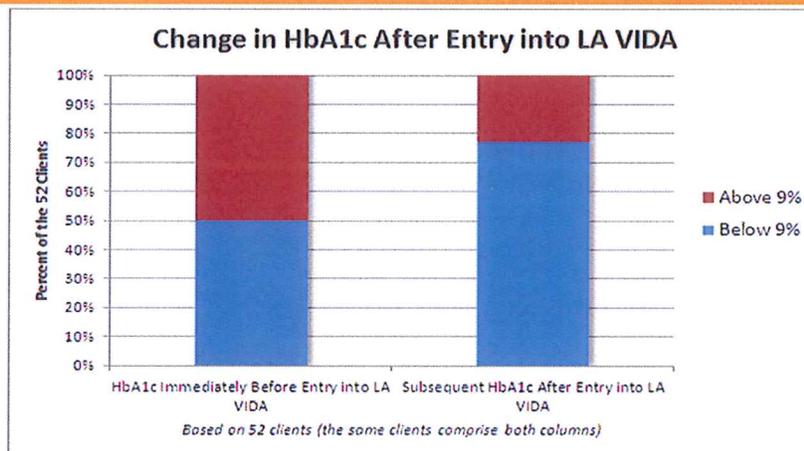
Skills were scored as "Unable to perform without assist" ; "Required assistance" ; "Proficient".



*p<0.001 prevs posttesting



Data from HMS La Vida (CHW program for diabetes)





CHW Integration into the Care Team

CHW Supervisors: Results from survey analysis

11) Think about how attending the ECHO™ Diabetes-Specialist Training has affected the integration of the CHWs that you supervise with the diabetes care team at your organization. Please rate the extent to which the CHWs you supervise have been an integral part of the diabetes care team BEFORE the training and CURRENTLY.

Not at all	Slightly	Moderately	Mostly	Fully
1	2	3	4	5

Measure	Pre Mean	Post Mean	N	Difference			P-value	Effect Size (d) [†]
				Mean	SD	Student's t		
Mean	2.44	3.87	16	1.44	0.81	7.06	<0.0001	1.78

Interpretation: There was a statistically significant improvement in rating of integration into the Diabetes Care Team from Before to Currently of almost 1.5 points ($t = 7.06, p < 0.0001$) for a large effect size ($d = 1.78$).

Impact of Diabetes Across USA: EVERY 24 HOURS

- New Cases – 4,100
- Deaths – 810
- Amputations – 230
- Kidney Failure – 120
- Blindness - 55



Derived from NIDDK, National Diabetes Statistics fact sheet. HHS, NIH, 2005.



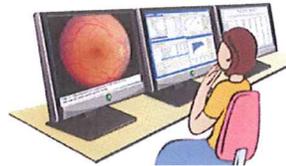
ECHO-VisionQuest Retinopathy Screening – CHWs in action



Patient

CHW is doing the imaging

Screening Center



Reports with results get sent back to medical point-of-contact



Retinal Screening program results to date – CHWs in action

Total screened	1165		
With DM	41%		
No finding	636	55%	
Inadequates	179	15%	
Findings	350	30%	

Total findings	350	30%	
Level A (Emergent)	23	2%	
Level B (3-4 months)	94	8%	
Level C (6 months)	118	10%	
Level D (1 year referral)	115	10%	

Community Addictions Recovery Specialist (CARS) Program



The Community Addictions Recovery Specialist (CARS) Program is part of Project ECHO's Integrated Addictions and Psychiatry (IAP) Program

GOAL: to expand access and improve outcomes of treatment for addictions in New Mexico.

OBJECTIVE: to train and mentor Community Health Workers to provide health education, clinical support, and referrals and resources for patients in recovery or seeking treatment for addictions.



CARS certification from Project ECHO requires:

- Participation in a 2-day face-to-face training
- Participation in weekly TeleECHO clinics for a 3-month period following the training
- Completion of required "practicum work" during the 3-month period following the training



CARS training curriculum includes:

- Overview of Drug Use in New Mexico
- Understanding Addiction - including current research on brain chemistry and addiction
- Communication & Motivational Interviewing Skills
- Medication-Assisted Treatments for Opiates and Alcohol
- Psychosocial Support and Counseling
- Mental Health Issues and Stigma
- Harm Reduction
- The role of the paraprofessional in addictions treatment
- Project ECHO™ model - including training on use of teleconferencing equipment

Prisoner Health is Community Health

The New Mexico Peer
Education Project (NM PEP)



Prisoner Health is Community Health

The New Mexico Peer Education Project
(NM PEP)

- Developed by Project ECHO™ thru the University of New Mexico, Department of Internal Medicine
- Adapted from *Wall Talk*, a successful prison-based peer education program focusing on HIV in the Texas prisons
- Collaboration with the New Mexico Corrections Department and the New Mexico Department of Health
- Pilot Program launched July 2009





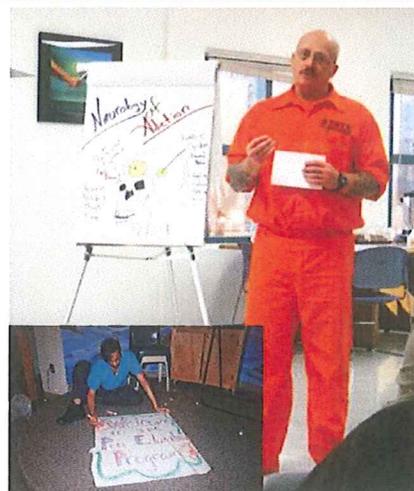
What does the NM PEP model include?

- Ⓞ 40-hour intensive training led by Project ECHO™ staff
- Ⓞ Monthly site visit with Project ECHO™ staff to increase skills and knowledge
- Ⓞ 1 ½-hour monthly video-conferences
- Ⓞ Continuing education credits from UNM/Project ECHO™



What is a NM PEP Peer Educator?

- ❑ Inmates who have successfully completed an intensive 40-hour training on specific health topics and facilitation skills.
- ❑ These inmates then conduct interactive health education workshops for their peers.





NM PEP Training Curriculum Topics

- Key Health Topics
 - Hepatitis C, Substance Use and Addiction, Sexually Transmitted Infections, HIV/AIDS, Staph/MRSA, Diabetes
- Harm Reduction
- Motivational Interviewing and Behavior Change
- Exploration of health related behaviors and values
- Skill building in public speaking and facilitation

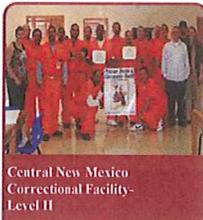
Prisoner Health is Community Health



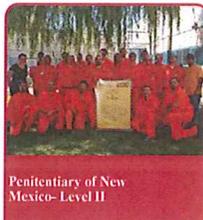
The New Mexico Peer Education Project



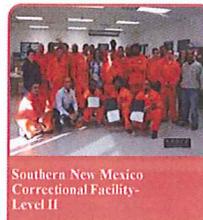
NM PEP: Current Locations



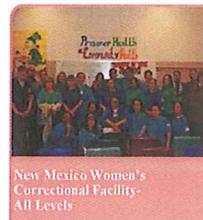
Central New Mexico Correctional Facility - Level II



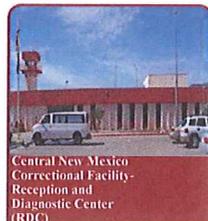
Penitentiary of New Mexico - Level II



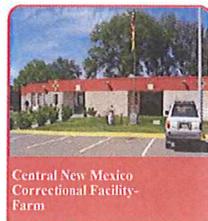
Southern New Mexico Correctional Facility - Level II



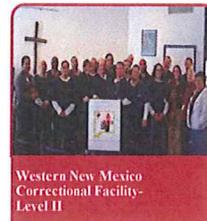
New Mexico Women's Correctional Facility - All Levels



Central New Mexico Correctional Facility - Reception and Diagnostic Center (RDC)



Central New Mexico Correctional Facility - Farm

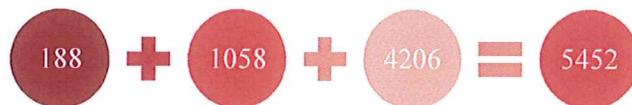


Western New Mexico Correctional Facility - Level II

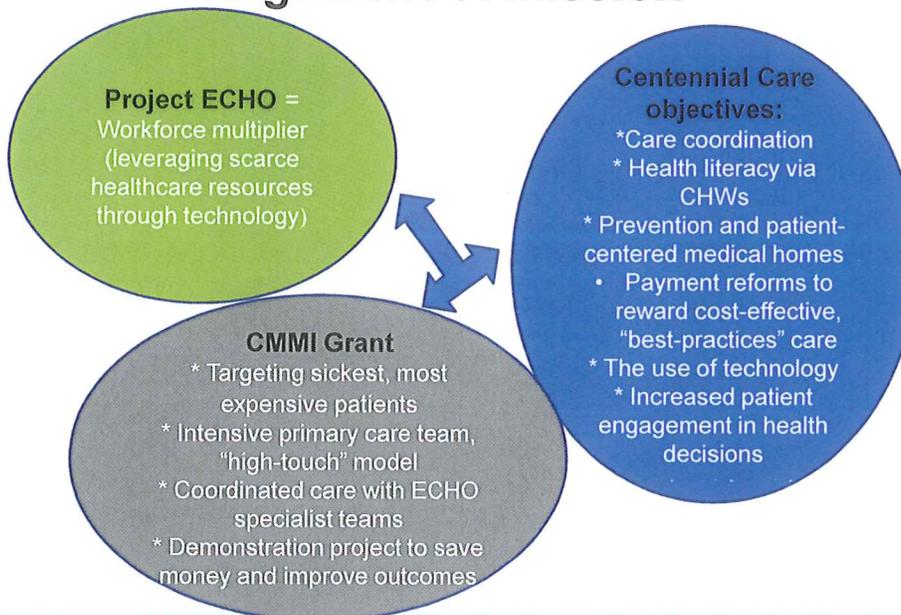


NM PEP Statistics: Since 2007

- 188 peer educators trained
- 1058 inmates attended 10-hour health classes led by peer educators
- 4,206 recently incarcerated individuals received the 1½-hour class led by peer educators
- Total: 5452 inmates have received health education thru NM PEP



Alignment of mission





ECHO Funding

Legislative appropriation to ECHO in 2008 was 2.5 million dollars per year of annual recurring support.

After recession in 2009 funding has declined to 840 thousand per year.

Restoration of ECHO funding is a good investment to improve quality of care and reduce cost in New Mexico.