Pain Management Tele-mentoring for Remote Providers: Project ECHO

Joanna G Katzman, MD, MSPH
Director University of New Mexico Pain Center and Project ECHO Pain

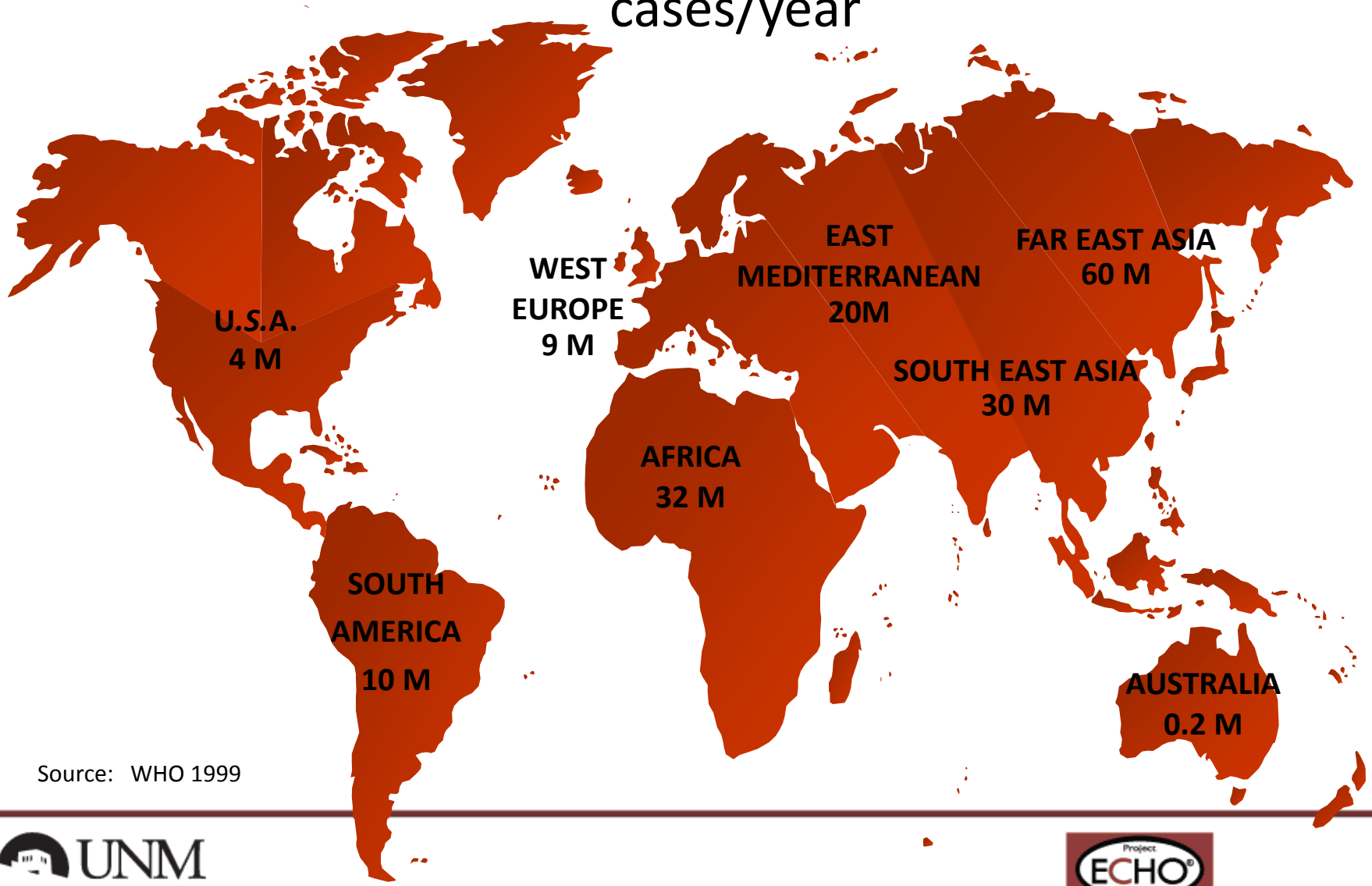
Conflict of Interest- Nothing to Disclose

Project ECHO® (Extension for Community Health Care Outcomes)

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

Supported by N.M. Dept. of Health, Agency for Health Research and Quality HIT Grant 1 UC1 HS015135-04, New Mexico Legislature, and the Robert Wood Johnson Foundation.

Hepatitis C: A Global Health Problem
Over 170 Million Carriers Worldwide, 3-4 MM new cases/year



Source: WHO 1999

OBJECTIVES: At the end of the presentation you should be able to:

1. Differentiate TeleECHO™ from traditional telemedicine.
2. Describe the impact of the ECHO Model™ on clinician knowledge, skills and practice.
3. Describe how the Hub/Spoke design builds interprofessional teams who can improve patient care for those with common and complex diseases, including pain and addictions.
4. Consider the need to develop an ECHO Pain and Addictions program in your region as a means to meet the public health challenges identified in the DoD and IOM reports.

HEALTHCARE DILEMMA

- How can a specialist better manage thousands of patients who live hundreds of miles from his office?
- How can specialty care reach underserved minorities?
- How can this be accomplished without adding to the workforce?
- How can this be accomplished with existing infrastructure?

Hepatitis C in New Mexico

- Estimated number is greater than 28,000
- In 2004 less than 5% had been treated
  - 2,300 prisoners were HCV positive (~40% of those entering the corrections system), none were treated
- Highest rate of chronic liver disease/cirrhosis deaths in the nation; 25% higher incidence than the next highest state
- Ten times more prevalent than HIV

Hepatitis C Treatment

- Good News
- Curable in 45-81% of cases
- Bad News
- Severe side effects:
  - anemia (100%)
  - neutropenia >35%
  - depression >25%
- No Primary Care Physicians treating HCV

Goals of Project ECHO®

- **Develop capacity to safely and effectively treat HCV in all areas of New Mexico and to monitor outcomes**

- **Develop a model to treat complex diseases in rural locations and developing countries**

Methods

- Use Technology (multipoint videoconferencing 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, mid-level providers, nurses, pharmacists, educators in HCV
- Train to use web based software — “iHealth”
- Conduct telemedicine clinics — “Knowledge Network”
- Initiate co-management — “Learning Loops”
- Collect data and monitor outcomes centrally
- Assess cost and 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
- Obtain HCV certification
- Access to specialty consultation with GI, hepatology, psychiatry, infectious diseases, addiction specialist, pharmacist, patient educator

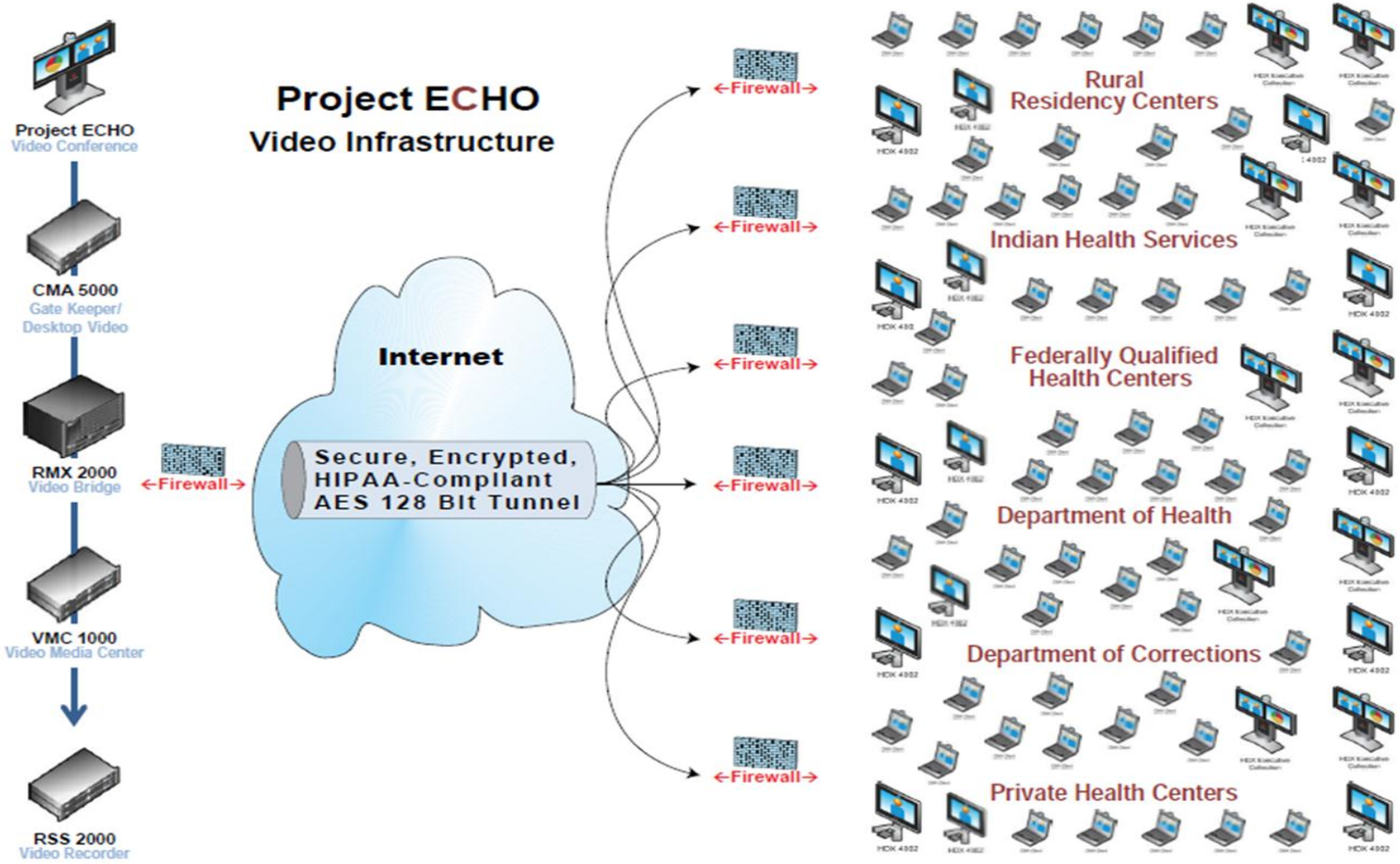
NEJM : 364: 23, June 9-2011, Arora S, Thornton K, Murata G

UNM HEALTH SCIENCES CENTER

Project ECHO®

EXTENSION FOR COMMUNITY HEALTHCARE OUTCOMES

TeleECHO® Clinic Architecture



How well has model worked for Hepatitis C?

- 500 HCV TeleECHO Clinics have been conducted
- >5,000 patients entered HCV disease management program

CME's/CE's issued:

- 6000 hours of CME for HCV
- Total CME hours 27,000 at no cost in 13 different areas

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 (p-value) MEAN (SD)	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 HCV.	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

(continued)

Project ECHO® Clinicians

HCV Knowledge Skills and Abilities (Self-Efficacy)

Community Clinicians N=25	BEFORE Participation MEAN (SD)	TODAY MEAN (SD)	Paired Difference (p-value) MEAN (SD)	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 (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, 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 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

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, 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

T h e

Hepatitis C Trial

OBJECTIVES

- To train primary care clinicians in rural areas and prisons to deliver Hepatitis C treatment to rural populations of New Mexico
- To show that such care is as safe and effective as that give in a university clinic
- To show that Project ECHO® improves access to Hepatitis C care for minorities

Participants

- Study sites
  - Intervention (ECHO)
    - Community-based clinics: 16
    - New Mexico Department of Corrections: 5
  - Control: University of New Mexico (UNM) Liver Clinic
- Subjects meeting inclusion / exclusion criteria
  - Community cases seen by primary care physicians
  - Consecutive University patients

PRINCIPAL ENDPOINT

- Sustained Viral Response (SVR): 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

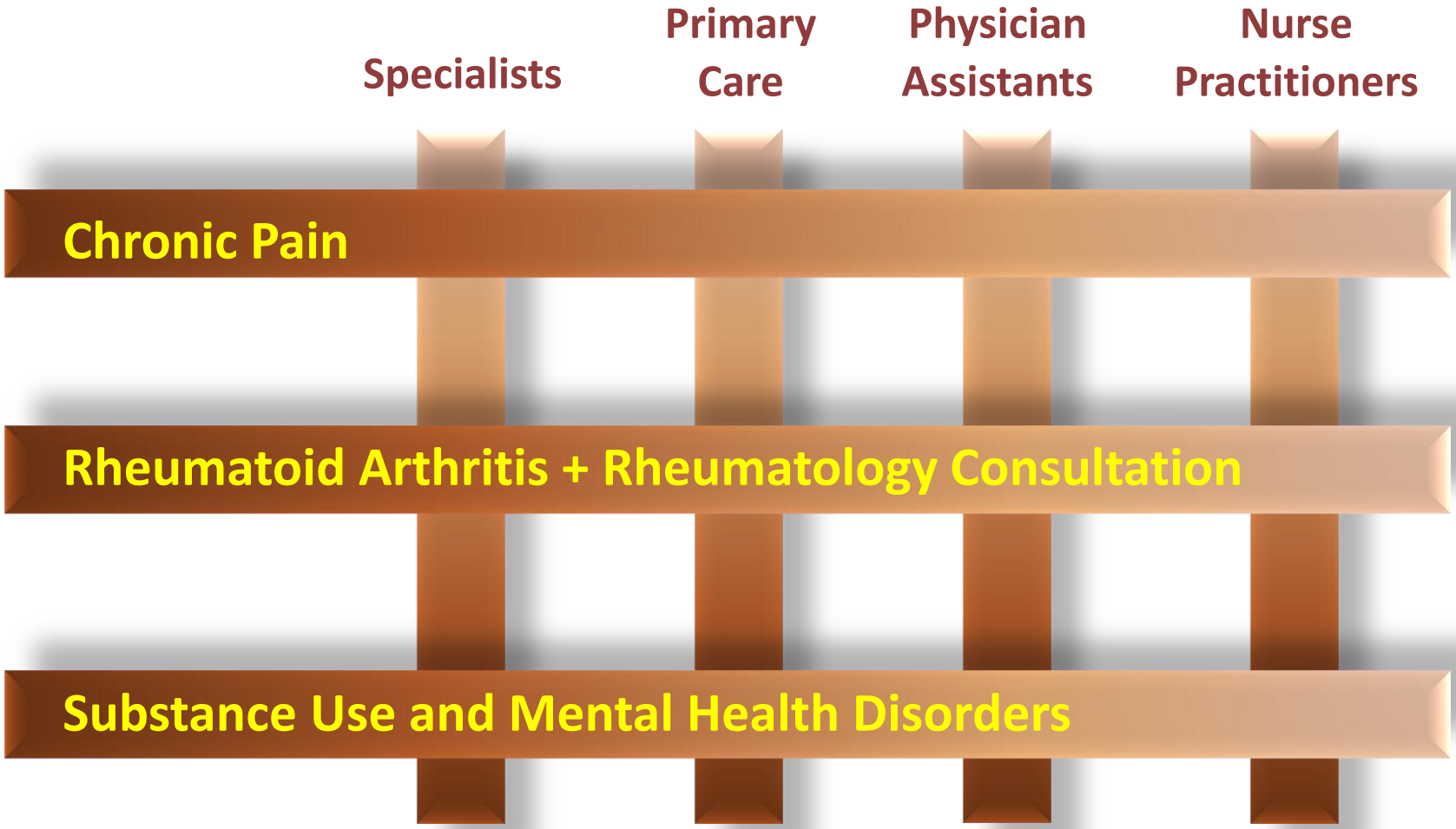
- Rural primary care Clinicians deliver hepatitis C care under the aegis of Project ECHO® that is as safe and effective as that given in a University clinic.
- Project ECHO® improves access to hepatitis C care for New Mexico minorities.

Disease Selection

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

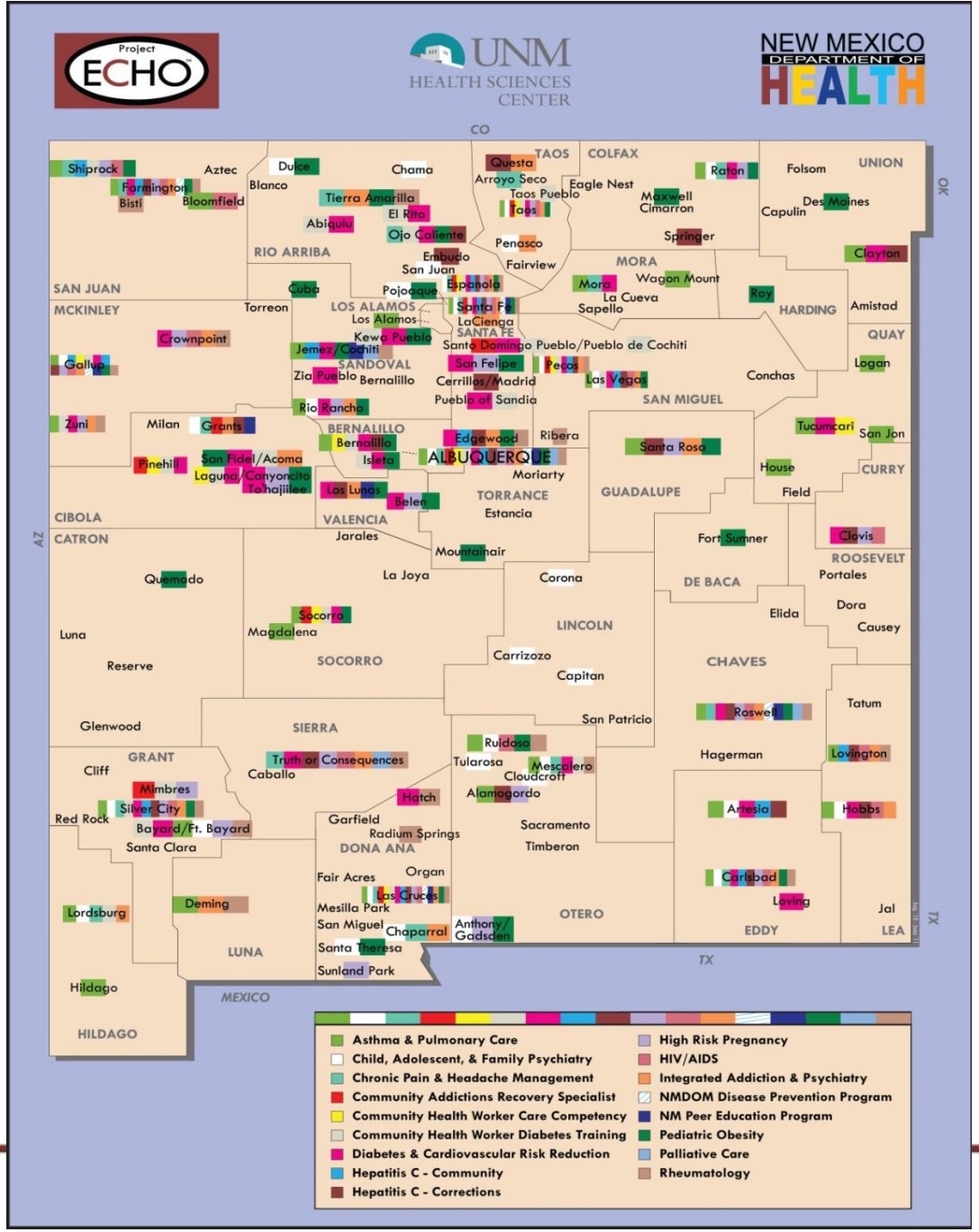
Force Multiplier

Use Existing Community Clinicians

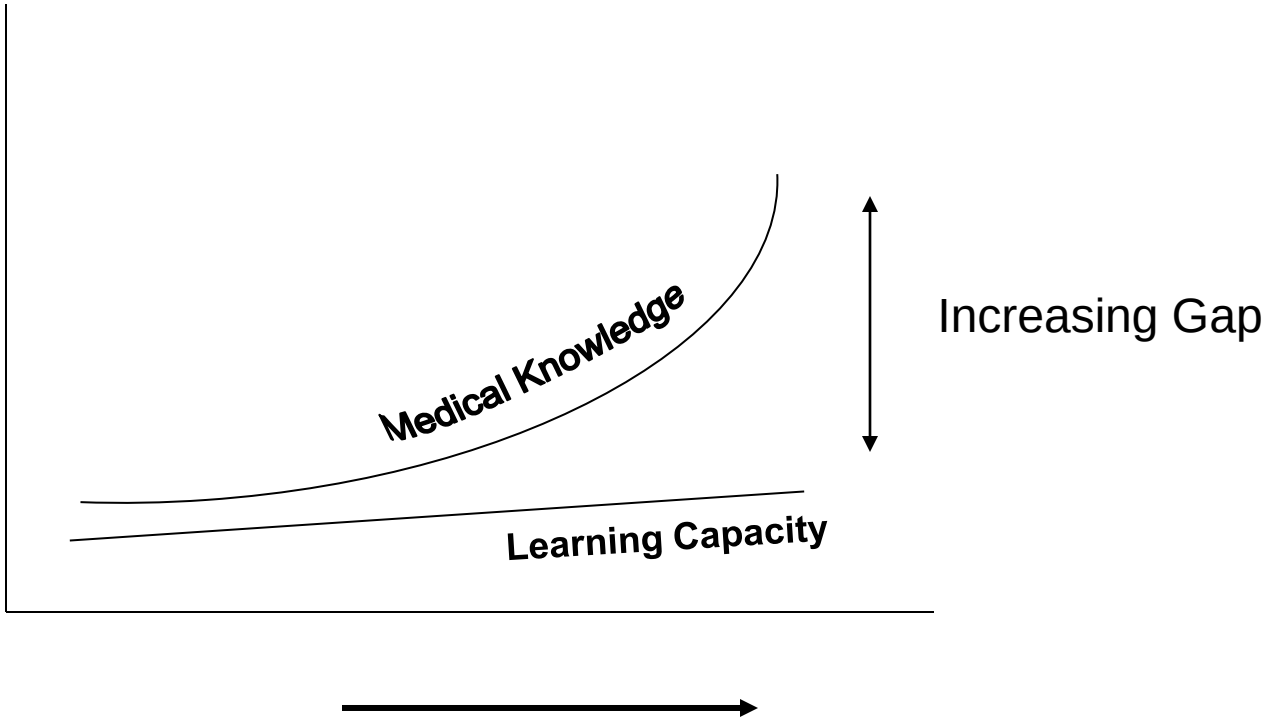


Successful Expansion into Multiple Diseases

Monday	Tuesday	Wednesday	Thursday	Friday
Rheumatology • A Bankhurst, MD **Complex Care** • D Neale, MD • J Katzman, MD • M Komaromy, MD	**Women's Health & Genomics** • LB Curet, MD **Dementia** • J Knoefel, MD • J Kelly, MD • C Herman, MD **HIV/AIDS** • M Iandiorio, MD • E Thomas, MD **Diabetes – CHW CREW** • K Colleran, MD	**Diabetes & Cardiovascular** • K Colleran, MD • B Cox, MD **Palliative Care** • D Neale, MD • L Marr, MD **Hepatitis C: Community** • S Arora, MD • K Thornton, MD	**Chronic Pain** • J Katzman, MD • G Comerci, MD **Prison Peer Education Program** • K Thornton, MD	**Integrated Addiction/Psychiatry** • M Komaromy, MD • L Hayes, MD



TRANSFORMING PRIMARY CARE WITH KNOWLEDGE NETWORKS



"Expanding the Definition of Underserved Population"

Potential Benefits of ECHO® model to Health System

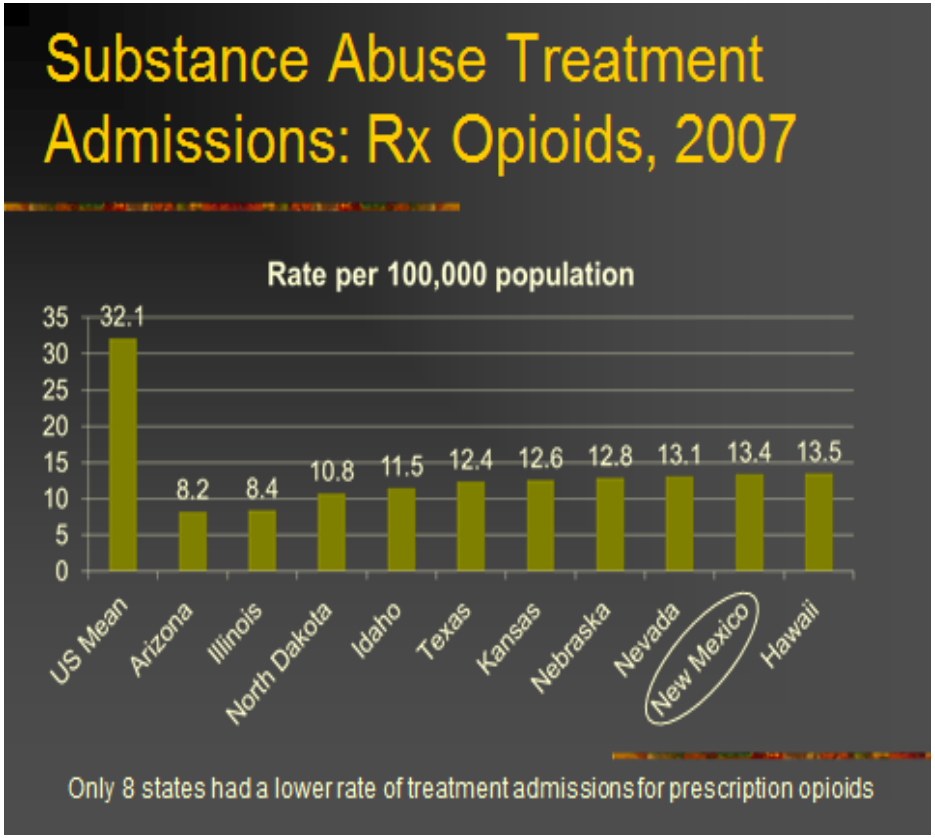
- Quality and Safety
- Rapid Learning and best-practice dissemination
- Reduce variations in care
- Access for Rural and Underserved Patients, reduced disparities
- Workforce Training and Force Multiplier
- De-monopolize Knowledge
- Improving Professional Satisfaction/Retention
- Supporting the Medical Home Model
- Cost Effective Care- Avoid Excessive Testing and Travel
- Prevent Cost of Untreated Disease (e.g.: liver transplant or dialysis)
- Integration of Public Health into treatment paradigm

ECHO® Replication:

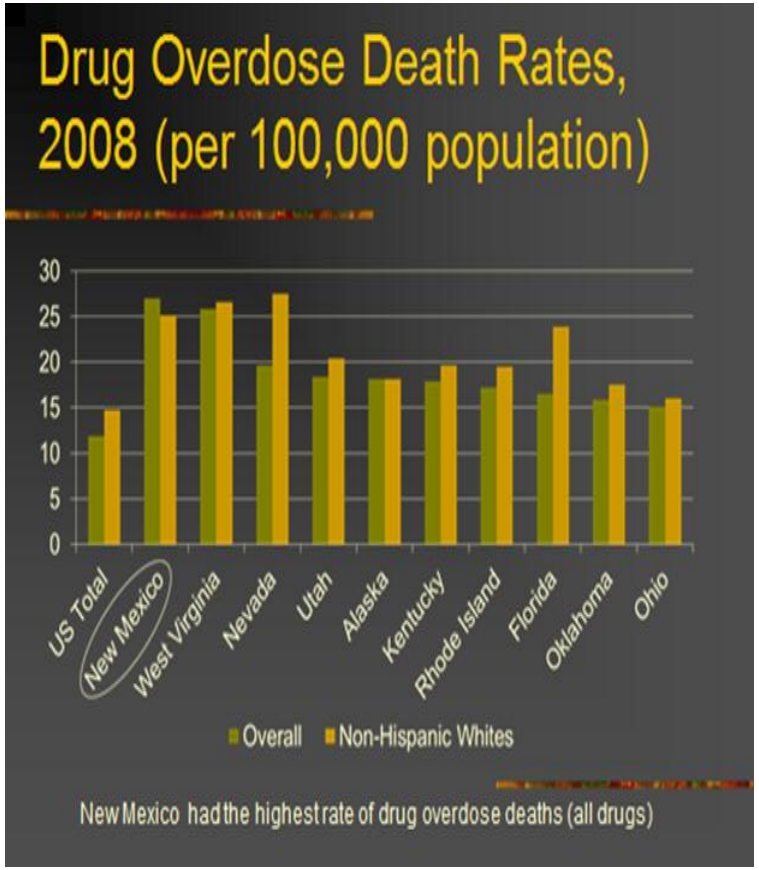
- University of Washington (HCV, Chronic Pain, HIV, Addiction)
- University of Chicago (HTN, Cancer, ADHD)
- Veteran's Administration Health System (Chronic Pain, DM, Heart Failure, HCV, Women's Health, Nephrology)
- Department of Defense, Army (Pain)
- University of Nevada (DM)
- University of Utah (HIV/AIDS)
- University of South Florida, ETAC (HCV/HIV Co-Infection)
- Florida and Caribbean, AETC (HIV/AIDS)
- Harvard, Beth Israel Deaconess Medical Center (HCV, Dementia)
- Community Health Center, Inc. (HIV, HCV, Chronic Pain)
- India, New Delhi (HIV, HCV)
- India, Lucknow (Autism)
- Uruguay (Liver Disease)
- Indian Health Service (Pain/Addiction)

TWO PUBLIC HEALTH CRISES

Chronic Pain Management



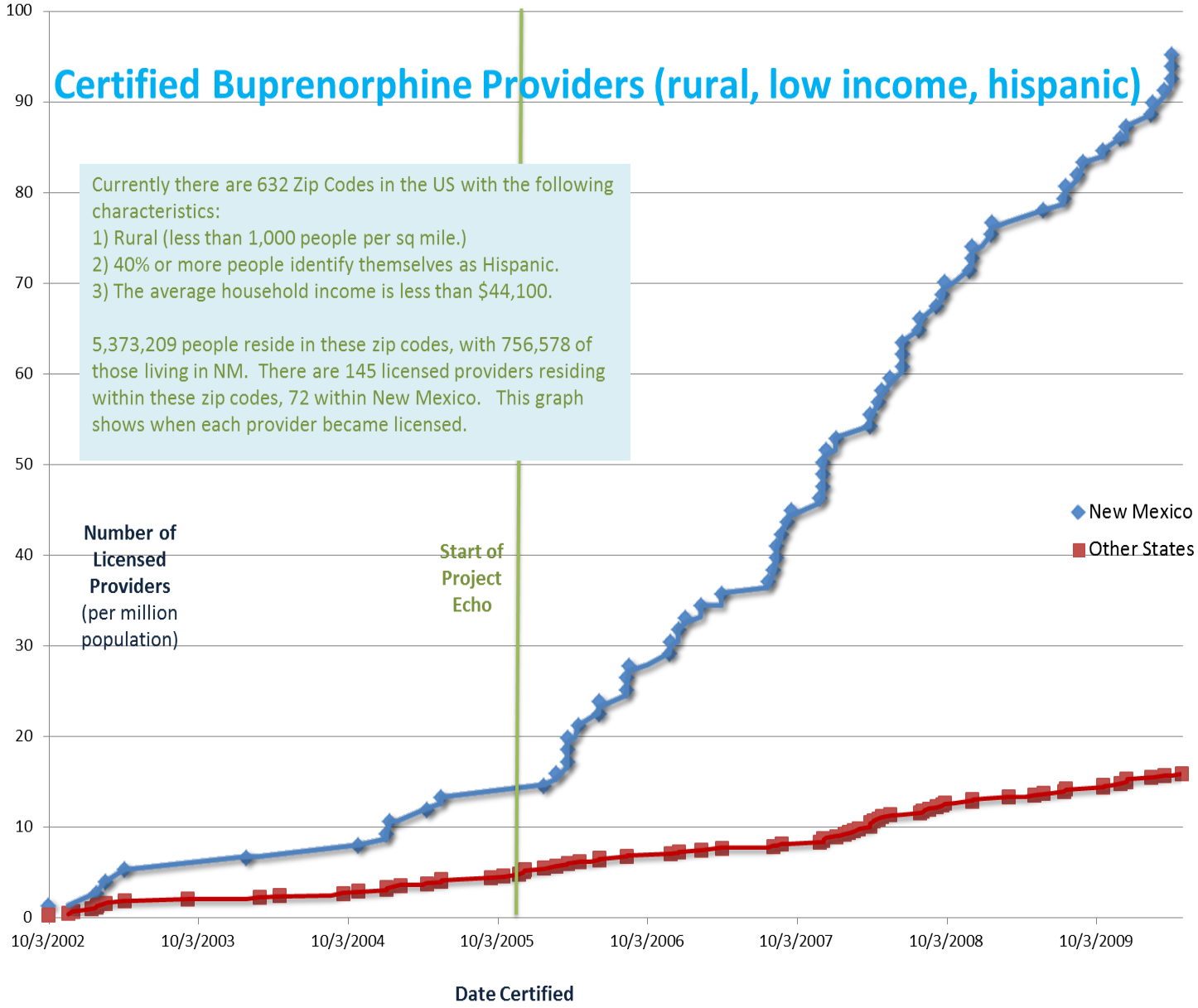
Substance Abuse and Addictions



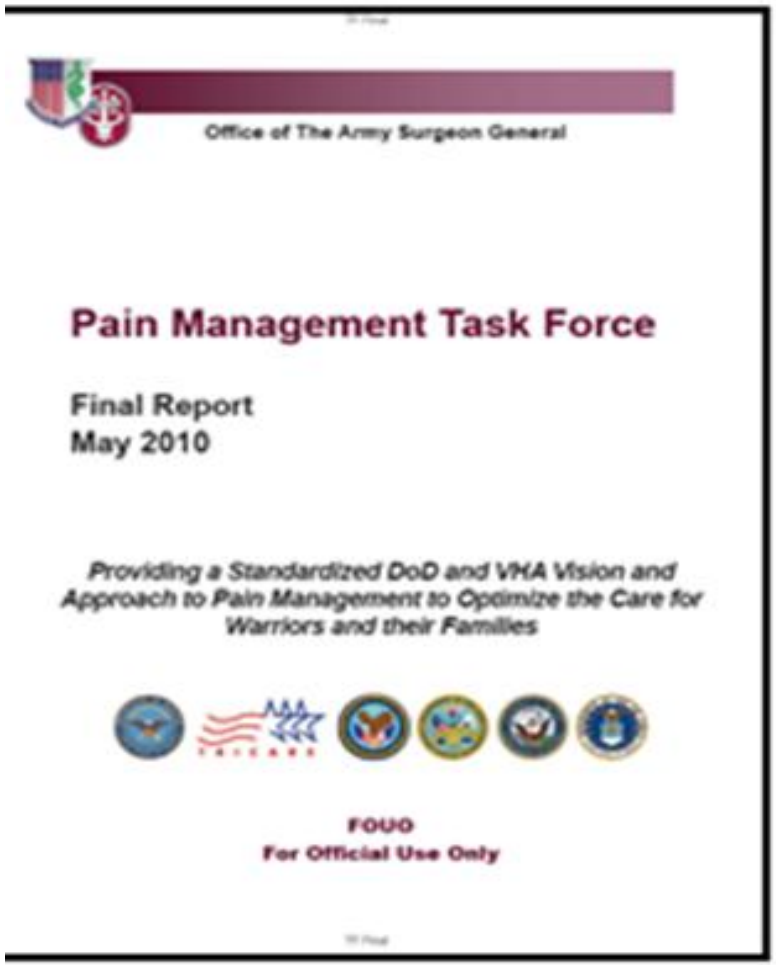
Integrated Addictions and Psychiatry Clinic

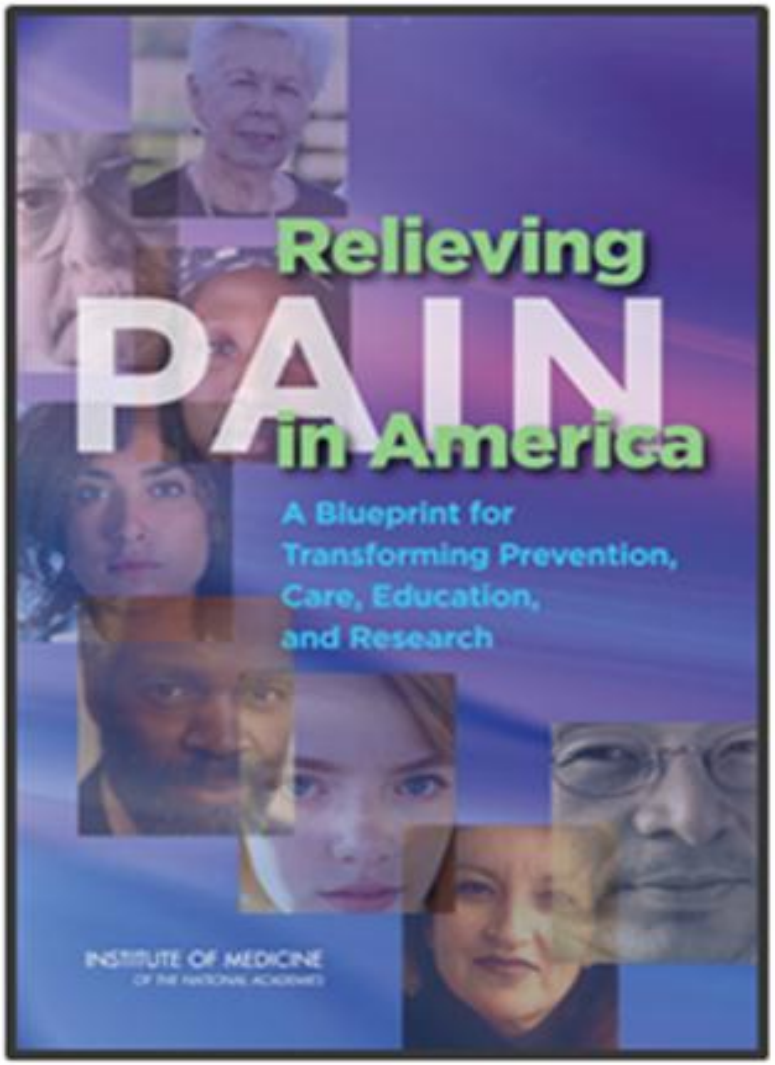
- Focus on treating opioid addiction (heroin, prescription opioid analgesics) with psychosocial support + effective medication
- Only 32 physicians in New Mexico certified to prescribe Buprenorphine in 2007
- Trained/certified 225 physicians statewide in use of buprenorpine/Suboxone, 274 total clinicians trained

Certified Buprenorphine Providers (rural, low income, hispanic)



Core Pain Publications





BACKGROUND: Need for a Pain ECHO

- Unintentional Drug Overdose Death Rates in New Mexico reaching a Public Health Crisis
- Opiates frequently involved in the overdose death (but not the only drug)
- Death Rates predominantly seen in adolescents and young adults
- Unintentional Opiate-related Death rates in New Mexico now EXCEED motor vehicle accident deaths

2009: UNM ECHO Pain Program

- To address scarce pain management expertise in New Mexico
  - Over 6 month wait times for pain consultation at UNM Pain Center
  - Improve Primary Care clinical knowledge, skills and confidence managing chronic pain
    - Safe Opioid prescribing
    - Behavioral Health and Addiction Risk
    - Interdisciplinary Multimodal Therapies (best practices)

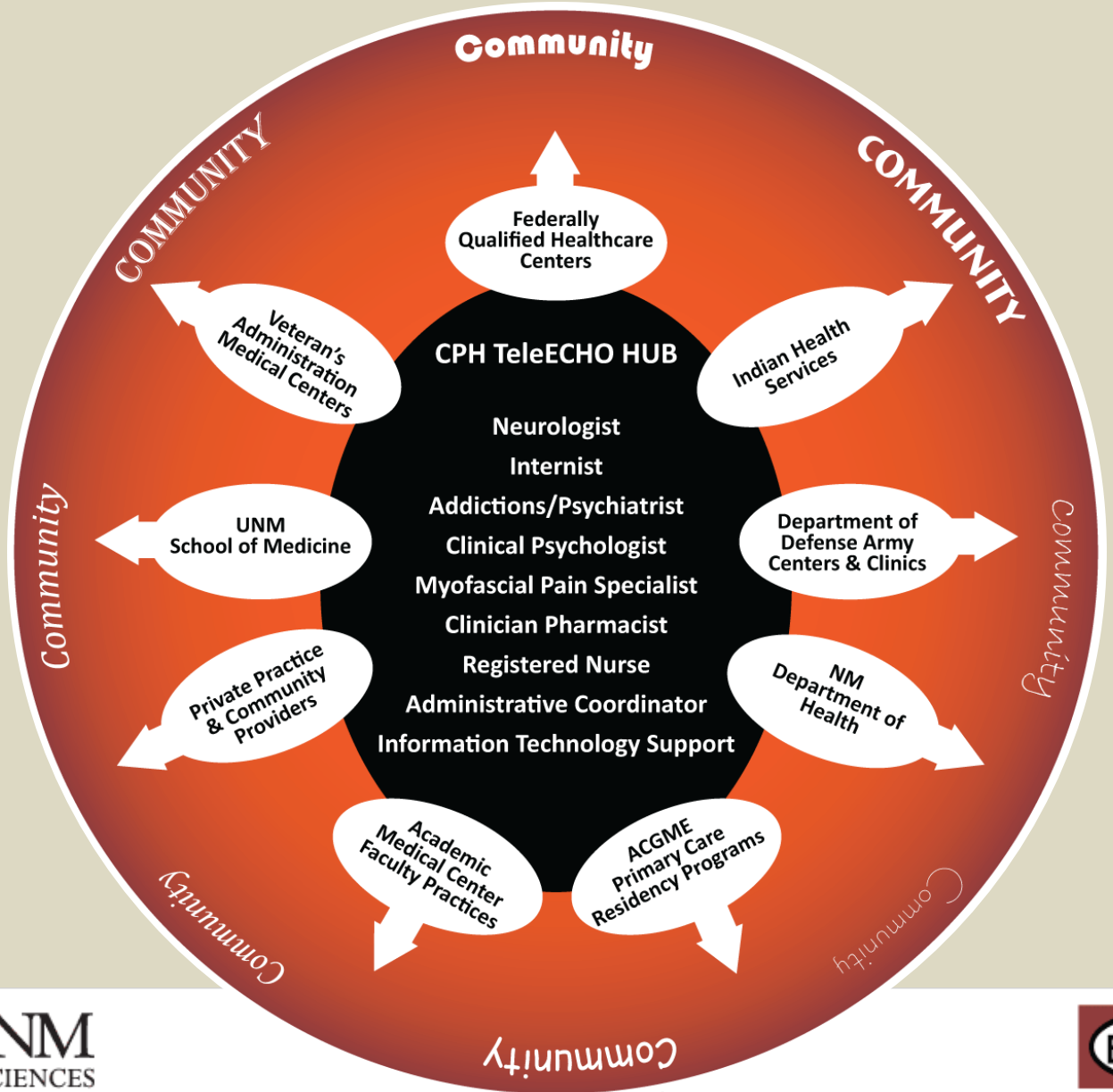
Goals for Chronic Pain ECHO®

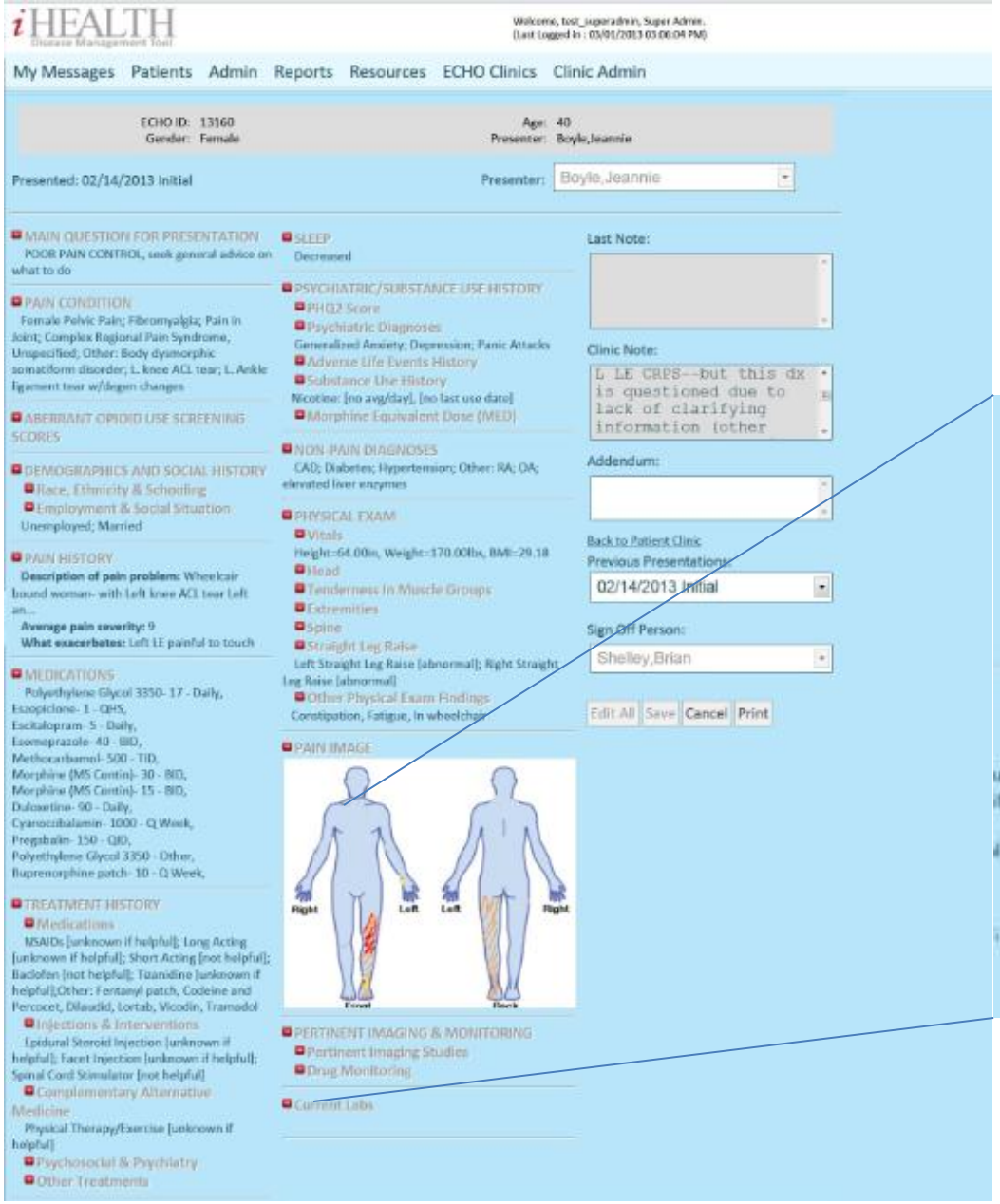
- Education of primary care providers and other allied health professionals
  - Curriculum – didactics and demonstrations that build upon each other
  - Case-based learning
  - Workplace learning
  - Mini-residency, 2-Day training

Goals for Chronic Pain ECHO®

- Best practices for safe and effective treatment
- Utilize technology to co-manage patients at remote sites
- Evaluate program; Research patient population outcomes

Concept of *"Force Multiplication"* *via Hub/Spoke Design*





‘iHealth’
Pain Management Tool

Pain Curricula Split into 5 Week Modules

- Module 1 Chronic Pain Essentials
- Module 2 Opioids and Addictions
- Module 3 Psychology of Chronic Pain
- Special Topics Modules
  - Integrative Series
  - Complex Regional Pain Syndrome
  - Other Pain Syndromes

MODULE 2 satisfies NM opiate pain management mandates

TITLE 16 OCCUPATIONAL AND PROFESSIONAL LICENSING
CHAPTER 10 MEDICINE AND SURGERY PRACTITIONERS
PART 14 MANAGEMENT OF PAIN WITH CONTROLLED SUBSTANCES

16.10.14.1 ISSUING AGENCY: New Mexico Medical Board, hereafter called the board.
[16.10.14.1 NMAC - N, 1/20/03; A, 4/3/05]

16.10.14.2 SCOPE: This part applies to all New Mexico medical board licensees who hold a federal drug enforcement administration registration.
[16.10.14.2 NMAC - N, 1/20/03; A, 9/28/12]

16.10.14.3 STATUTORY AUTHORITY: These rules are promulgated pursuant to and in accordance w the Medical Practice Act, Sections 61-6-1 through 61-6-35 NMSA 1978 and the Pain Relief Act, Sections 24-2D NMSA through 24-2D-6.
[16.10.14.3 NMAC - N, 1/20/03; A, 9/28/12]

16.10.14.4 DURATION: Permanent
[16.10.14.4 NMAC - N, 1/20/03]

16.10.14.5 EFFECTIVE DATE: January 20, 2003, unless a later date is cited at the end of a section.
[16.10.14.5 NMAC - N, 1/20/03]

16.10.14.6 OBJECTIVE: It is the position of the board that practitioners have an obligation to treat chro pain and that a wide variety of medicines including controlled substances and other drugs may be prescribed for t purpose. When such medicines and drugs are used, they should be prescribed in adequate doses and for appropria lengths of time after a thorough medical evaluation has been completed.
[16.10.14.6 NMAC - N, 1/20/03; A, 4/3/05]

16.10.14.7 DEFINITIONS:
A. "Addiction" is a neurobehavioral syndrome with genetic and environmental influences that results

MODULE 2: Opioids and Addictions

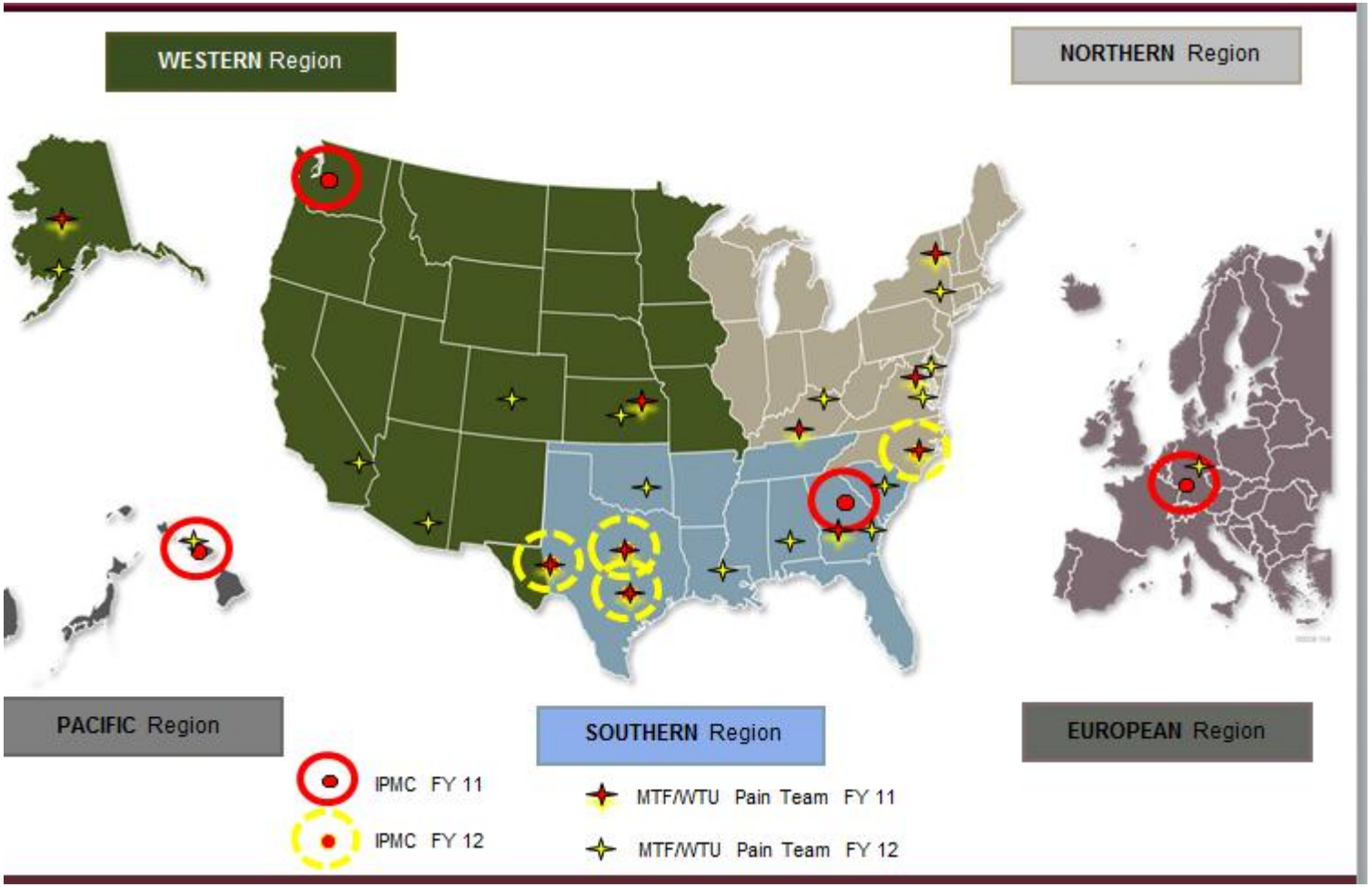
- OPIOID INDICATIONS AND USE
- CHRONIC OPIOID TREATMENT : MEDICAL CONCERNS
- CHRONIC OPIOID TREATMENT: BEHAVIORAL CONCERNS
- ADDICTIONS AND CHRONIC PAIN
- NON-OPIOID CHRONIC PAIN MEDICATIONS

ECHO Pain Replication in North America

ECHO replication in North America

- *University of Washington (Tele-Pain)*
- *Veteran's Administration (SCAN ECHO)*
- *Community Health Centers (CT, AZ, CA)*
- *Department of Defense (Army Pain ECHO)*
- *Canada Pain and Addictions - in progress (Ontario)*
- *I H S National Center for TeleBehavioral Health (ECHO Pain and Addiction)*

ARMY PAIN ECHO PHASED ROLL OUT



Slide courtesy of OTSG staff

Deliberate Army Phased Roll Out

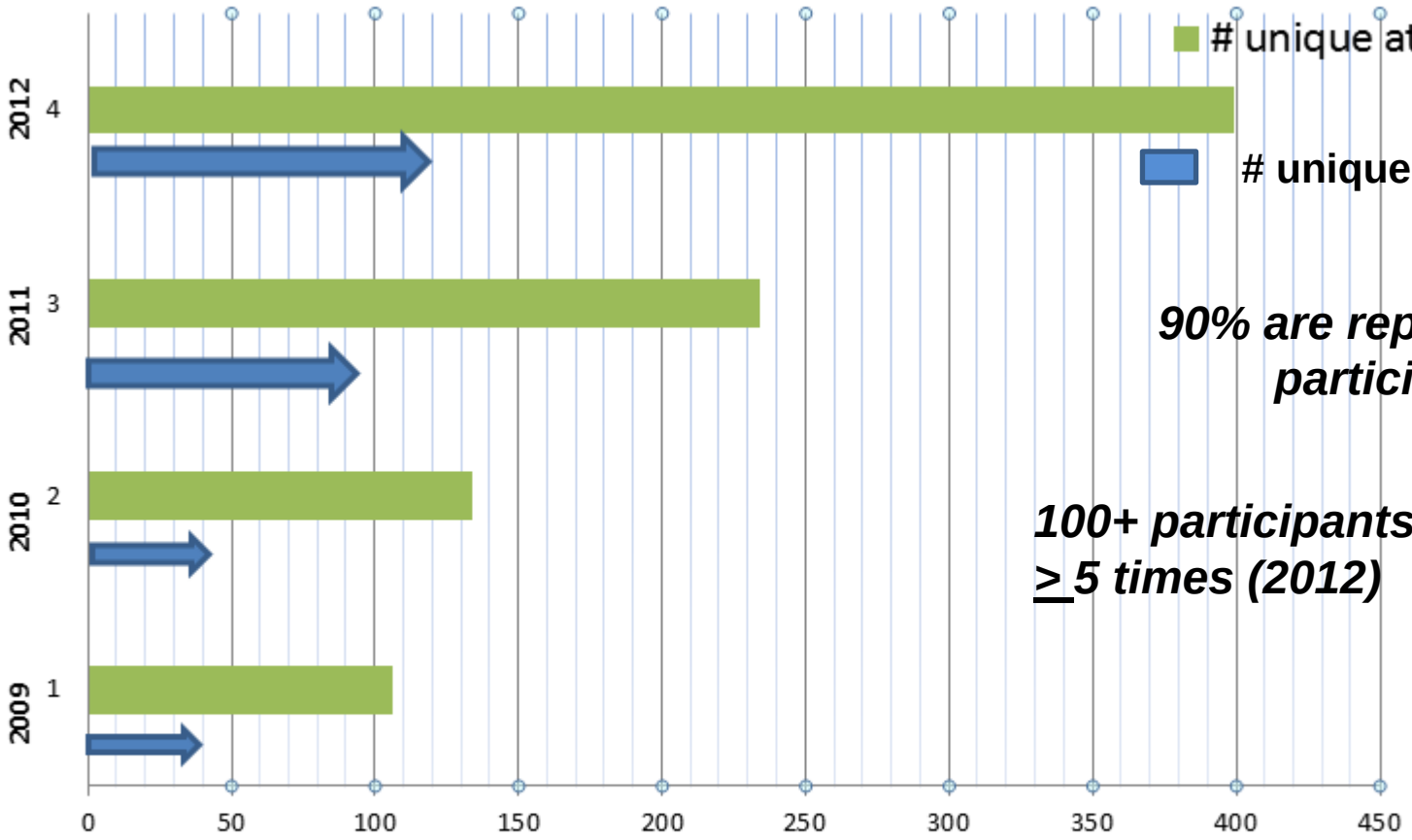
- PREPARATORY PHASE
  - IT support
  - VTC readiness
  - Adequate staffing
- OBSERVATION PHASE
  - 2 day Bootcamp
  - Mock Clinics
  - Hands-on Skills
- INTIAL 2 MONTH MENTORING
  - Army joins ECHO
  - Participates in curriculum and demonstrations
  - Builds relationships across Army
  - Cases presented weekly
- HUB ROLL OUT PHASE
  - 2 months' distance mentoring by UNM ECHO faculty

ARMY MEDICINE
Bringing Value...Inspiring Trust

UNM HEALTH SCIENCES CENTER

Project ECHO®
Extension for Community Healthcare Outcomes

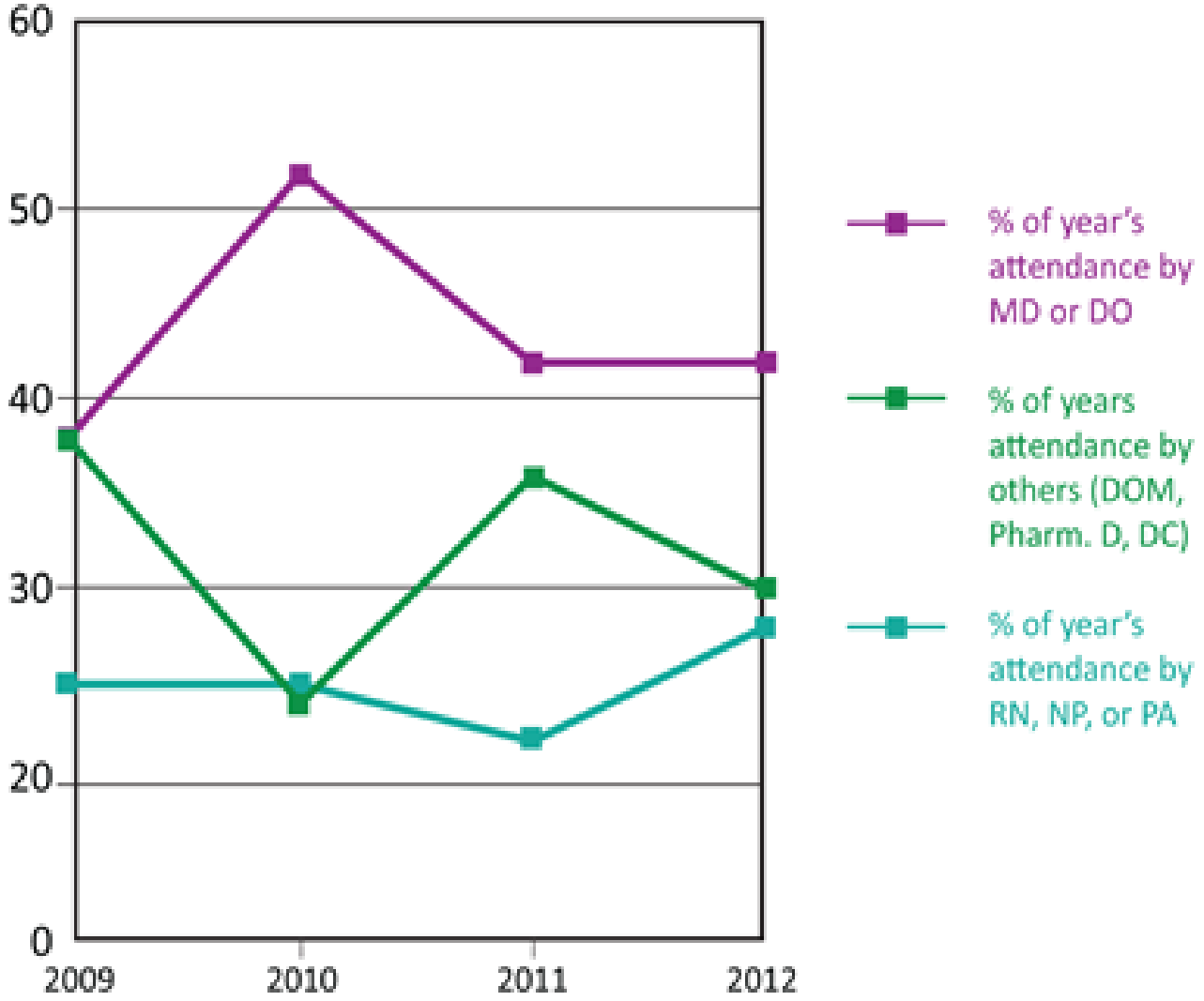
Growth of ECHO Pain Tele-mentoring Clinic



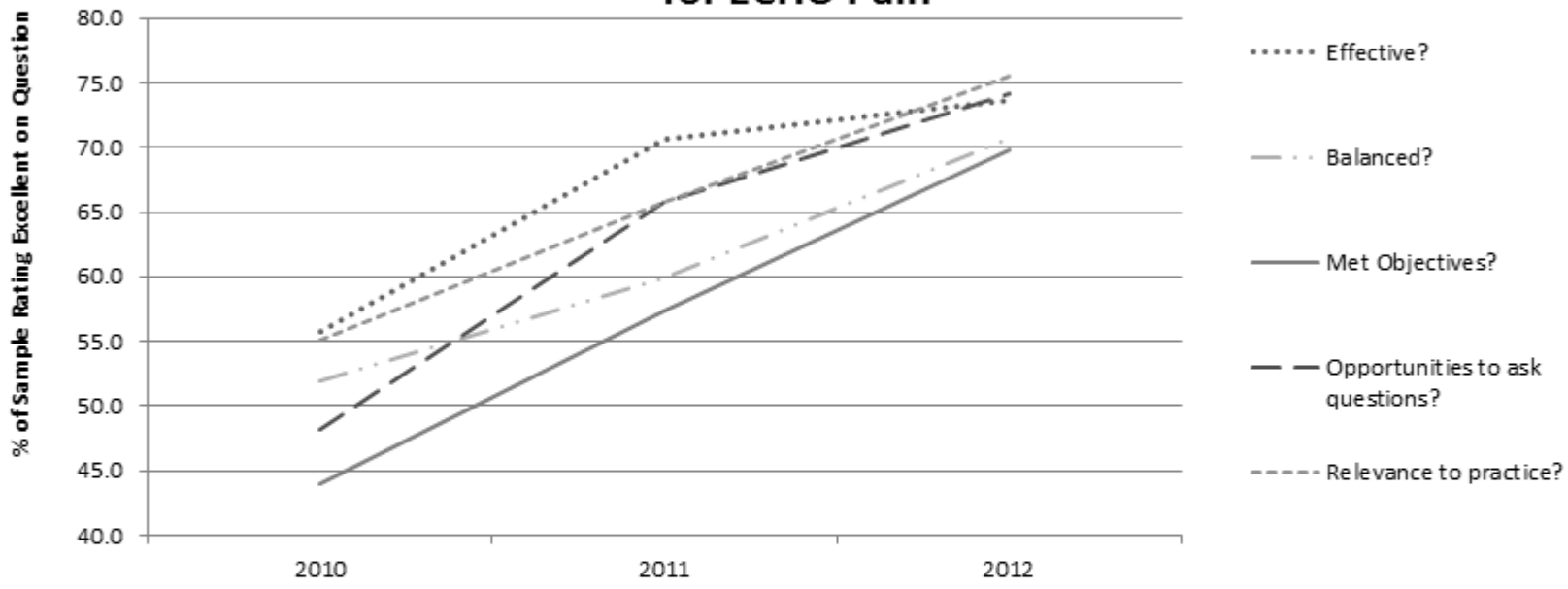
Unique attendees and sites joining Pain TeleECHO Clinics

2009-2012

Interdisciplinary Breakdown (attendees)



Anonymous CME Evaluation Results for ECHO Pain – Change in proportion of excellence ratings demonstrated graphically by question and year and tested using a Chi-Square Goodness of Fit test for the period from 2010 through 2012.



CME Rating Measure	N	DF	X^2 Statistic	Cramer's V†	P-Value	Relative Change‡, 2010 vs. 2012
Effective?	755	2	13.14	0.13	0.0014	24%
Balanced?	752	2	16.76	0.15	0.0002	26%
Met Objectives?	758	2	27.58	0.19	<0.0001	37%
Opportunities to ask questions?	696	2	17.16	0.16	0.0002	35%
Relevance?	590	2	11.70	0.14	0.0029	27%

† A scale for interpreting the Cramer's V effect size is: 0.10 = small; 0.30 = medium; 0.50 = large.

‡ Relative change is the proportional increase in percentage of respondents rating "Excellent"

Continuing medical education 2012
UNM ECHO Pain Program

1,863 hours of educational credits* for professional licensure:
MD, DO, NP, PA, RN, SW, PT, DDS, PharmD**

****Over 4,500 CME issued since 2009***
*****Evaluations rate our program "Excellent" and "Relevant to my practice" (p<.05)***

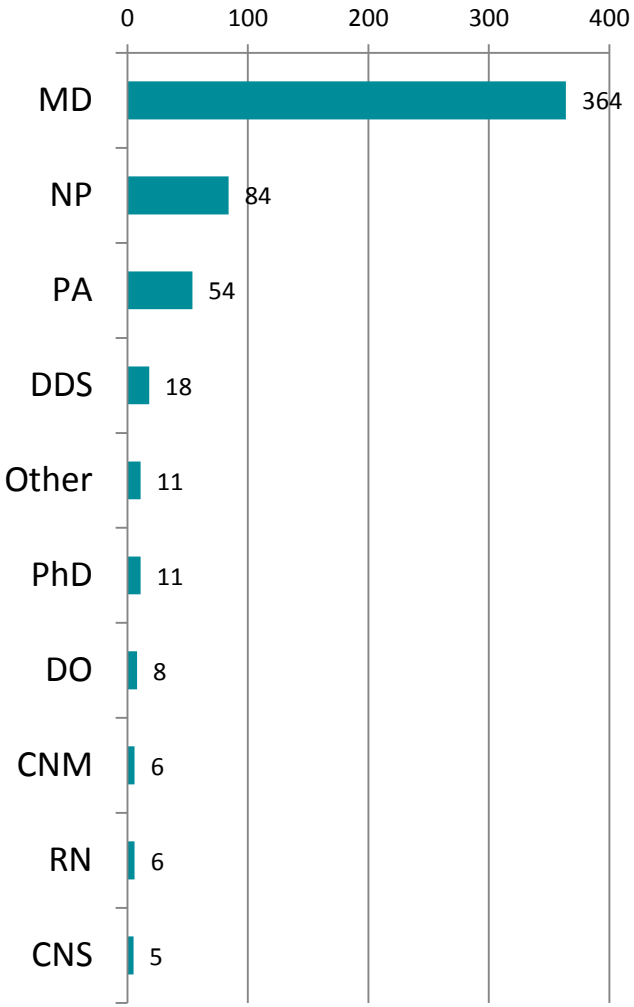
N >1,500
Trained by ECHO Pain faculty to date

Special Opiate Education-

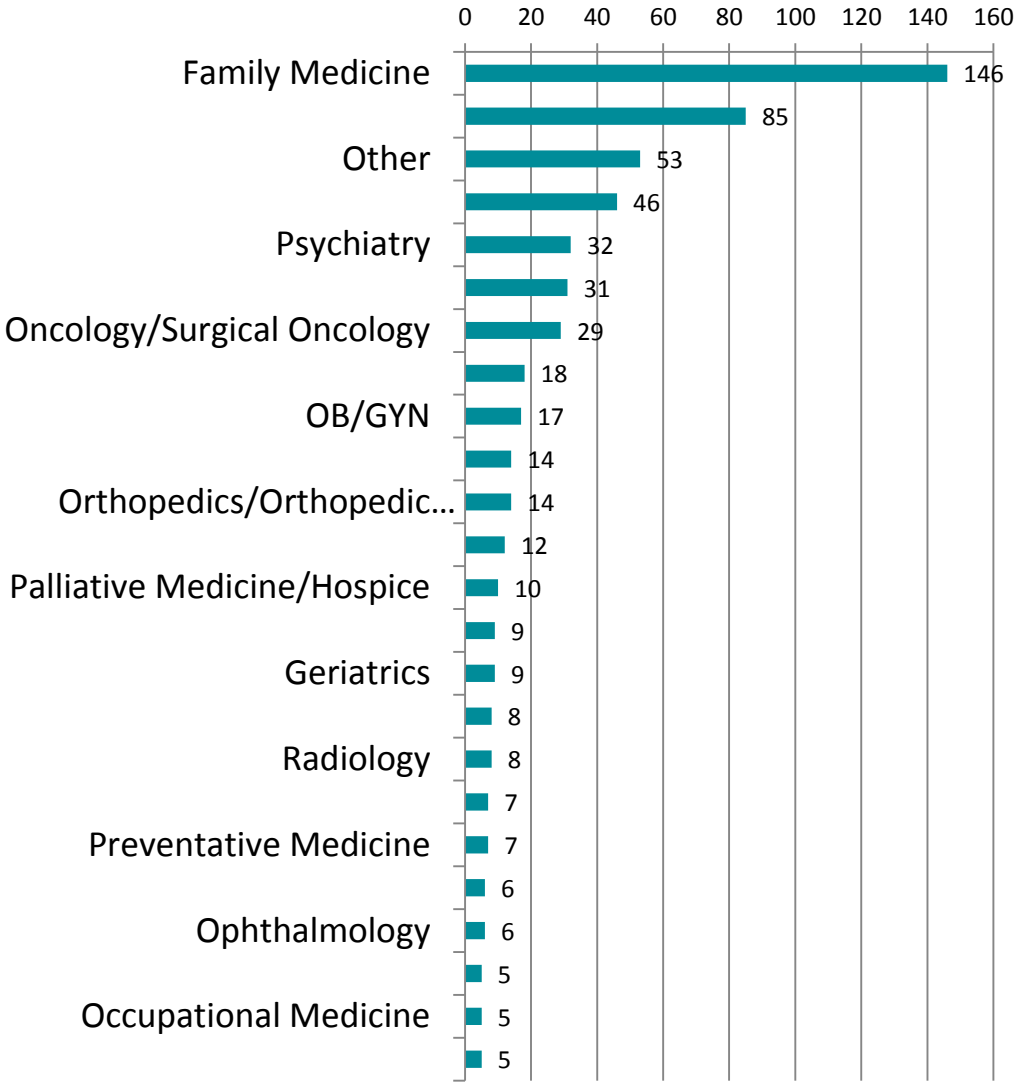
**Required for licensure in NM*

- Comprised of one 5 hour training
  - Saturday; various locations in NM
- 1,100 Providers Trained in 6 training days
- 1,075 consented/matched sets analyzed
- ***Statistically Significant increases resulted:***
  - ***Knowledge of Opiates***
  - ***Self Efficacy Managing Opiates***
  - ***Perceived Value to Practice***

Degree



Specialty



Knowledge

Measure	Pre Mean	Post Mean	Difference					
			n	Mean	SD	Student's t	P-value	Effect Size(d)†
Test Score (10 Possible)	7.04	8.77	1075	1.73	1.71	23.42	<0.0001	1.01
Percent Score (100% possible)	70.4%	87.7%	1075	17.3%	17.1%	23.42	<0.0001	1.01

Self-Efficacy

Overall Rating: Tests for Significance

Measure	Pre Mean	Post Mean	Difference					
			n	Mean	SD	Student's t	P-value	Effect Size(d)†
Overall Rating (7 Possible)	4.53	5.45	1075	0.92	0.88	24.14	<0.0001	1.04
Percent Rating (100% possible)	64.7%	77.8%	1075	13.1%	12.6%	24.14	<0.0001	1.04

ECHO Awards/Honors of Distinction

- 2009 Robert Wood Johnson Foundation

- 2011 American Pain Society Clinical Center of Excellence

- 2012 National Institutes of Health Centers of Excellence in Pain Education

Conclusions

1. The ECHO Model™ fills a community need, and differs from individual patient care (addressed in traditional telemedicine).
2. The ECHO Pain model offers a successful, practical and cost effective solution to recommendations made in the DoD and IOM reports on pain.
3. Improved knowledge, skills and practice change are demonstrated in an Interprofessional Collaborative Practice.
4. Successful replications of ECHO Pain (and ECHO Pain/Addictions) across the country demonstrate the need for this approach.
5. Lifelong learning through a tele-mentoring social network enhances practice and improves outcomes.

Project ECHO®

... promotes care in underserved areas

The mission of Project ECHO® (Extension for Community Healthcare Outcomes) has been to develop the capacity to safely and effectively treat chronic, common, and complex diseases in rural and underserved areas, and to monitor outcomes of this treatment.

Project ECHO® is funded in part by a grant from the Robert Wood Johnson Foundation and has received support from the New Mexico Legislature, the University of New Mexico, the New Mexico Department of Public Health and Agency for Healthcare Research and Quality.