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

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
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

<table>
<thead>
<tr>
<th>Community Clinicians N=25</th>
<th>BEFORE Participation MEAN (SD)</th>
<th>TODAY MEAN (SD)</th>
<th>Paired Difference (p-value) MEAN (SD)</th>
<th>Effect Size for the change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Ability to identify suitable candidates for treatment for HCV.</strong></td>
<td>2.8 (1.2)</td>
<td>5.6 (0.8)</td>
<td>2.8 (1.2) (&lt;0.0001)</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>2. Ability to assess severity of liver disease in patients with HCV.</strong></td>
<td>3.2 (1.2)</td>
<td>5.5 (0.9)</td>
<td>2.3 (1.1) (&lt; 0.0001)</td>
<td>2.1</td>
</tr>
<tr>
<td><strong>3. Ability to treat HCV patients and manage side effects.</strong></td>
<td>2.0 (1.1)</td>
<td>5.2 (0.8)</td>
<td>3.2 (1.2) (&lt;0.0001)</td>
<td>2.6</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Community Clinicians N=25</th>
<th>BEFORE Participation MEAN (SD)</th>
<th>TODAY MEAN (SD)</th>
<th>Paired Difference (p-value) MEAN (SD)</th>
<th>Effect Size for the change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4. Ability to assess and manage psychiatric co-morbidities in patients with hepatitis C.</strong></td>
<td>2.6 (1.2)</td>
<td>5.1 (1.0)</td>
<td>2.4 (1.3) (&lt;0.0001)</td>
<td>1.9</td>
</tr>
<tr>
<td><strong>5. Serve as local consultant within my clinic and in my area for HCV questions and issues.</strong></td>
<td>2.4 (1.2)</td>
<td>5.6 (0.9)</td>
<td>3.3 (1.2) (&lt;0.0001)</td>
<td>2.8</td>
</tr>
<tr>
<td><strong>6. Ability to educate and motivate HCV patients.</strong></td>
<td>3.0 (1.1)</td>
<td>5.7 (0.6)</td>
<td>2.7 (1.1) (&lt;0.0001)</td>
<td>2.4</td>
</tr>
</tbody>
</table>

(continued)
### Project ECHO® Clinicians

#### HCV Knowledge Skills and Abilities (Self-Efficacy)

<table>
<thead>
<tr>
<th>Community Clinicians N=25</th>
<th>BEFORE Participation MEAN (SD)</th>
<th>TODAY MEAN (SD)</th>
<th>Paired Difference (p-value) MEAN (SD)</th>
<th>Effect Size for the change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Competence (average of 9 items)</td>
<td>2.8* (0.9)</td>
<td>5.5* (0.6)</td>
<td>2.7 (0.9) (&lt;0.0001)</td>
<td>2.9</td>
</tr>
</tbody>
</table>

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.

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

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Not/Minor Benefits</th>
<th>Moderate/Major Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhanced knowledge about management and treatment of HCV patients.</td>
<td>3% (1)</td>
<td>97% (34)</td>
</tr>
<tr>
<td>Being well-informed about symptoms of HCV patients in treatment.</td>
<td>6% (2)</td>
<td>94% (33)</td>
</tr>
<tr>
<td>Achieving competence in caring for HCV patients.</td>
<td>3% (1)</td>
<td>98% (34)</td>
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</table>
## Project ECHO®
### Annual Meeting Survey

<table>
<thead>
<tr>
<th>N=17</th>
<th>Mean Score (Range 1-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project ECHO® has diminished my professional isolation.</td>
<td>4.3</td>
</tr>
<tr>
<td>My participation in Project ECHO® has enhanced my professional satisfaction.</td>
<td>4.8</td>
</tr>
<tr>
<td>Collaboration among agencies in Project ECHO® is a benefit to my clinic.</td>
<td>4.9</td>
</tr>
<tr>
<td>Project ECHO® has expanded access to HCV treatment for patients in our community.</td>
<td>4.9</td>
</tr>
<tr>
<td>Access, <strong>in general</strong>, to specialist expertise and consultation is a major area of need for you and your clinic.</td>
<td>4.9</td>
</tr>
<tr>
<td>Access to <strong>HCV specialist</strong> expertise and consultation is a major area of need for you and your clinic.</td>
<td>4.9</td>
</tr>
</tbody>
</table>
The 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 given 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

<table>
<thead>
<tr>
<th>Outcome</th>
<th>ECHO®</th>
<th>UNMH</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=261</td>
<td>N=146</td>
<td></td>
</tr>
<tr>
<td>Minority</td>
<td>68%</td>
<td>49%</td>
<td>P&lt;0.01</td>
</tr>
<tr>
<td>SVR* (Cure) Genotype 1</td>
<td>50%</td>
<td>46%</td>
<td>NS</td>
</tr>
<tr>
<td>SVR* (Cure) Genotype 2/3</td>
<td>70%</td>
<td>71%</td>
<td>NS</td>
</tr>
</tbody>
</table>

*SVR=sustained viral response

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

Specialists  Primary Care  Physician Assistants  Nurse Practitioners

Chronic Pain

Rheumatoid Arthritis + Rheumatology Consultation

Substance Use and Mental Health Disorders
Successful Expansion into Multiple Diseases

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rheumatology</td>
<td>Women’s Health &amp; Genomics</td>
<td>Diabetes &amp; Cardiovascular</td>
<td>Chronic Pain</td>
<td>Integrated Addiction/Psychiatry</td>
</tr>
<tr>
<td>A Bankhurst, MD</td>
<td>LB Curet, MD</td>
<td>K Colleran, MD</td>
<td>J Katzman, MD</td>
<td>M Komaromy, MD</td>
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<tr>
<td>Complex Care</td>
<td>Dementia</td>
<td>B Cox, MD</td>
<td>G Comerci, MD</td>
<td>L Hayes, MD</td>
</tr>
<tr>
<td>D Neale, MD</td>
<td>J Knoefel, MD</td>
<td></td>
<td></td>
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<tr>
<td>J Katzman, MD</td>
<td>J Kelly, MD</td>
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<td></td>
<td></td>
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<tr>
<td>M Komaromy, MD</td>
<td>C Herman, MD</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>HIV/AIDS</td>
<td>Diabetes &amp; Cardiovascular</td>
<td></td>
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<tr>
<td>M Iandiorio, MD</td>
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<td>K Colleran, MD</td>
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<tr>
<td>E Thomas, MD</td>
<td></td>
<td>B Cox, MD</td>
<td></td>
<td></td>
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<tr>
<td>Diabetes – CHW CREW</td>
<td>D Neale, MD</td>
<td></td>
<td>G Comerci, MD</td>
<td></td>
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<tr>
<td>K Colleran, MD</td>
<td>L Marr, MD</td>
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<td>L Hayes, MD</td>
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<td></td>
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<td></td>
<td>K Thornton, MD</td>
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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 CRISSES

Chronic Pain Management

Substance Abuse and Addictions

Substance Abuse Treatment Admissions: Rx Opioids, 2007

Only 8 states had a lower rate of treatment admissions for prescription opioids

Drug Overdose Death Rates, 2008 (per 100,000 population)

New Mexico had the highest rate of drug overdose deaths (all drugs)
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 buprenorphine/Suboxone, 274 total clinicians trained
Certified Buprenorphine Providers (rural, low income, hispanic)

Currently there are 632 Zip Codes in the US with the following characteristics:
1) Rural (less than 1,000 people per sq mile.)
2) 40% or more people identify themselves as Hispanic.
3) The average household income is less than $44,100.

5,373,209 people reside in these zip codes, with 756,578 of those living in NM. There are 145 licensed providers residing within these zip codes, 72 within New Mexico. This graph shows when each provider became licensed.

Number of Licensed Providers (per million population)
Core Pain Publications

Office of The Army Surgeon General

Pain Management Task Force
Final Report
May 2010

Providing a Standardized DoD and VHA Vision and Approach to Pain Management to Optimize the Care for Warriors and their Families

FOUO
For Official Use Only

Institute of Medicine
of the National Academies

Relieving PAIN in America
A Blueprint for Transforming Prevention, Care, Education, and Research
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 with
the Medical Practice Act, Sections 61-6-1 through 61-6-35 NMSA 1978 and the Pain Relief Act, Sections 24-2D-1
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 chronic
pain and that a wide variety of medicines including controlled substances and other drugs may be prescribed for
this purpose. When such medicines and drugs are used, they should be prescribed in adequate doses and for
appropriate 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

• INITIAL 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
Growth of ECHO Pain Tele-mentoring Clinic

100+ participants joined >5 times (2012)

90% are repeat participants

Unique attendees and sites joining Pain TeleECHO Clinics
2009-2012

2012: 4 unique attendees, 2 unique sites
2011: 3 unique attendees, 3 unique sites
2010: 2 unique attendees, 2 unique sites
2009: 1 unique attendee, 1 unique site

90% are repeat participants
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.

**Change in Proportion of Excellence Ratings by Question and Year for ECHO Pain**

<table>
<thead>
<tr>
<th>CME Rating Measure</th>
<th>N</th>
<th>DF</th>
<th>$X^2$ Statistic</th>
<th>Cramer’s V*</th>
<th>P-Value</th>
<th>Relative Change³, 2010 vs. 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective?</td>
<td>755</td>
<td>2</td>
<td>13.14</td>
<td>0.13</td>
<td>0.0014</td>
<td>24%</td>
</tr>
<tr>
<td>Balanced?</td>
<td>752</td>
<td>2</td>
<td>16.76</td>
<td>0.15</td>
<td>0.0002</td>
<td>26%</td>
</tr>
<tr>
<td>Met Objectives?</td>
<td>758</td>
<td>2</td>
<td>27.58</td>
<td>0.19</td>
<td>&lt;0.0001</td>
<td>37%</td>
</tr>
<tr>
<td>Opportunities to ask questions?</td>
<td>696</td>
<td>2</td>
<td>17.16</td>
<td>0.16</td>
<td>0.0002</td>
<td>35%</td>
</tr>
<tr>
<td>Relevance?</td>
<td>590</td>
<td>2</td>
<td>11.70</td>
<td>0.14</td>
<td>0.0029</td>
<td>27%</td>
</tr>
</tbody>
</table>

* 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)
Treating Chronic Pain in New Mexico: Addressing Best Practices, Addiction, and Current Regulations

This course is approved by the NM Medical Board to fulfill the 5 hour requirement related to Management of Chronic Pain with Controlled Substances.

Presented by:

UNM
School of Medicine
UNM Pain Consultation & Treatment Center
Department of Neurosurgery

Albuquerque • Santa Fe • Las Cruces
New Mexico
Saturdays, 8:00 am - 1:30 pm

November 3, 2012 • Domenici Auditorium, UNM North Campus, Albuquerque
December 8, 2012 • Domenici Auditorium, UNM North Campus, Albuquerque
January 26, 2013 • La Fonda Hotel, Santa Fe, New Mexico
February 23, 2013 • VA Health Care System, Albuquerque
April 6, 2013 • Hotel Encanto, Las Cruces, New Mexico
May 18, 2013 • Domenici Auditorium, UNM North Campus, Albuquerque
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
## Knowledge

<table>
<thead>
<tr>
<th>Measure</th>
<th>Pre Mean</th>
<th>Post Mean</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Student’s t</th>
<th>P-value</th>
<th>Effect Size(d)†</th>
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<tbody>
<tr>
<td><strong>Test Score</strong></td>
<td></td>
<td></td>
<td>1075</td>
<td>1.73</td>
<td>1.71</td>
<td>23.42</td>
<td>&lt;0.0001</td>
<td>1.01</td>
</tr>
<tr>
<td>(10 Possible)</td>
<td>7.04</td>
<td>8.77</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Percent Score</strong></td>
<td>70.4%</td>
<td>87.7%</td>
<td>1075</td>
<td>17.3%</td>
<td>17.1%</td>
<td>23.42</td>
<td>&lt;0.0001</td>
<td>1.01</td>
</tr>
<tr>
<td>(100% possible)</td>
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</table>
## Self-Efficacy

### Overall Rating: Tests for Significance

<table>
<thead>
<tr>
<th>Measure</th>
<th>Pre Mean</th>
<th>Post Mean</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Student’s t</th>
<th>P-value</th>
<th>Effect Size(d)†</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Rating</strong></td>
<td>4.53</td>
<td>5.45</td>
<td>1075</td>
<td>0.92</td>
<td>0.88</td>
<td>24.14</td>
<td>&lt;0.0001</td>
<td>1.04</td>
</tr>
<tr>
<td><strong>Percent Rating</strong></td>
<td>64.7%</td>
<td>77.8%</td>
<td>1075</td>
<td>13.1%</td>
<td>12.6%</td>
<td>24.14</td>
<td>&lt;0.0001</td>
<td>1.04</td>
</tr>
</tbody>
</table>

*Overall Rating (7 Possible)*

*Percent Rating (100% possible)*
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.

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