Project ECHO®

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Goals and Objectives

• Share the history of Project ECHO
• Identify the four points of the ECHO model
• Compare ECHO and traditional telemedicine
• Update on Project ECHO today
Hepatitis C - a huge problem

- In 2004 30,000 untreated cases in NM
- 2,300 prisoners in NM were HCV positive
- Untreated, leads to cirrhosis, variceal GI bleeding, encephalopathy, ascites, death
- Successful treatment, even in cirrhotics, reduces long term risks and cost by 90%
New Mexico is a huge state
Poor, Rural, Medically Underserved

- 120,000 square miles
- 2 million people
- 50% Hispanic
- 10% Native American
- 20% poverty
Project ECHO

• Conceived and developed in Albuquerque by Dr. Sanjeev Arora at UNM to treat patients in NM with Hep C
Principles

• Not enough specialty care
• Will never have enough specialists
• Specialist visit vs specialty care
• Need specialists to share their expertise
• Train in place “mini specialists”
• Raise specialty expertise exponentially
• Move knowledge to the need
ECHO
Extension for Community Healthcare Outcomes

- Modeled after agriculture extension agents
- Ag Agent or Extension Agent would go out to farmers and talk about new discoveries and best practices in farming
- Very effective
- Very inefficient
Project ECHO

- Uses video conferencing technology to train healthcare providers in underserved areas to care for patients with chronic diseases that otherwise would require specialty referral.
ECHO Model

• Use technology to move knowledge
• Share “best practices” for disease treatment
• Use case based learning like school/residency
• Monitor outcomes

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Technology

• Video conferencing Hardware
• Video conferencing Software – Zoom
• Initially expensive – now cheap
• Can be done with 3G and smartphone
ECHO Model

• Use Technology to move knowledge
• Share “best practices” for disease treatment
• Case based learning like school/residency
• Monitor outcomes

Best Practice in Medicine

• Algorithm
• Check Lists
• Process map
• Wisdom Based on Experience
ECHO Model

• Use Technology to move to move knowledge
• Sharing “best practices” for disease treatment
• Case based learning like school/residency
• Monitor outcomes

Hubs and Spokes

• ECHO links specialist teams at an academic “hub” with primary care providers in local communities – the “spokes” of the model

• “Hubs” and “spokes” participate in weekly online teleECHO™ clinics

• Clinics combine patient case presentations with didactic learning and mentoring
Case Based Learning

**ECHO®**

- Provider (“spoke”) sees a patient and presents the case via video to the expert (“hub”)
- They discuss the case and provider treats the patient
- Process is repeated over and over until the provider becomes expert at treating that disease
- The provider becomes the local expert for that condition
ECHO Concept

• Use Technology to move knowledge
• Share “best practices” for disease treatment
• Case based learning like med school/residency
• Monitor outcomes

• If you’re a hammer, everything looks like a nail
• Temper enthusiasm with evidence
• Are you doing what you say you are?
# Project ECHO Clinicians

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

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

<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>1. Ability to identify suitable candidates for treatment for HCV.</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>2. Ability to assess severity of liver disease in patients with HCV.</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>3. Ability to treat HCV patients and manage side effects.</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>
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<td>Community Clinicians N=25</td>
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<tr>
<td>4. Ability to assess and manage psychiatric co-morbidities in patients with hepatitis C.</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>5. Serve as local consultant within my clinic and in my area for HCV questions and issues.</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>6. Ability to educate and motivate HCV patients.</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>
<tr>
<td></td>
<td>Mean (1-5)</td>
<td></td>
<td></td>
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<tr>
<td>-----------------------------------------------------------------</td>
<td>------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project ECHO® has diminished my professional isolation</td>
<td>4.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participation in Project ECHO® has enhanced my professional satisfaction</td>
<td>4.8</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Collaboration with Project ECHO® is a benefit to my clinic</td>
<td>4.9</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>ECHO® has expanded access to HCV treatment for pts in our community</td>
<td>4.9</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>HCV expertise/consultation is a major area of need for you and your clinic</td>
<td>4.9</td>
<td></td>
<td></td>
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<tr>
<td>Specialist expertise/consultation is a major area of need for you and your pts</td>
<td>4.9</td>
<td></td>
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</tr>
</tbody>
</table>
Benefits to Clinicians

• More confident to care for condition
• Mentoring relationship with hub
• Networking relationship with other spokes
• Better access for their patients to care
• What it means to care for patients
• What spokes need to care for patients
Goals and Objectives 2004

• To train providers in rural areas and prisons to treat Hep C
• To show that ECHO guided treatment is as safe and effective as treatment in a university subspecialty clinic
• To show that ECHO improves access to care for underserved populations
• Develop a general model to treat complex diseases
• 407 patients with Hep C previously untreated
• 146 at UNM and 261 at 21 ECHO sites across NM
• Cure rate and safety were identical

## Treatment Outcomes

<table>
<thead>
<tr>
<th>Outcome</th>
<th>ECHO</th>
<th>UNMH</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<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

Was ECHO Rx As Safe?

• Serious Adverse Events (SAE) p=0.02
  • UNM -13.7%
  • ECHO – 6.9%

• SAE Requiring Termination of Rx p=0.05
  • UNM – 8.9%
  • ECHO – 4.2%
Conclusions

- Comparable medical results
- Comparable safety
- Increased access to Rx for minorities
Was It Cost Effective?

• In 60% of patients costs were decreased
• In other 40% cost per QALY was $8300
What We Learned

• ECHO model might work for other conditions
• ECHO is different from traditional telemedicine
• Ongoing mentoring and networking are key
• One standard care for everybody
• Task shifting, training in place, CHW’s
ECHO Might Work for Other Diseases

• Common
• Chronic
• Complex with Changing Therapy
• High Societal Impact (Medical and Economic)
• Serious Outcomes of Untreated Disease
• Improved Outcomes With Treatment
| 80,000+ CME/CEU CREDITS PROVIDED FOR FREE IN NEW MEXICO | 60+ HUB PARTNERS IN THE US | 40+ HUB PARTNERS GLOBALLY 19 COUNTRIES | 50+ COMPLEX CONDITIONS COVERED |
Complex Conditions

• High Utilizing Medicaid Patients
• Chronic Pain
• Addiction and Psychiatry
• Good Health and Wellness in Indian Country
ECHO vs. Telemedicine

ECHO Telehealth

ECHO Supports Community Based Primary Care Teams

Patients reached with specialty knowledge & expertise

Traditional Telemedicine

Specialist Manages Patient Remotely
**ECHO**

- Not direct patient care
- Trains focused experts
- Multidisciplinary team
- Benefits patients indirectly
- Amplifies impact of specialist
- Considered education

**Telemedicine**

- Direct patient care
- Expert consults with patient
- Single expert
- Benefits patient directly
- Specialist see one patient
- May be legal issues
One Standard of Care

Heart Disease

Diabetes

Cancer
Chronic Disease Management is a Team Sport

HIV

Complex Care

Hepatitis C
Community Health Workers

• Evidence Based Intervention
• High school education
• In depth training in a narrow area
• Live in community
• Understand culture
• Know family
• Spend more time with patient and family
ECHO CHW Training

• Diabetes
• Substance Use Disorders
• Complex Multiple Diagnoses
• Obesity Prevention
• Prison Peer Educator Training
ECHO Benefits Patients

- Safe, individualized, evidence based care
- Increased access to care
- Reduced disparities in healthcare delivery
- Support for Medical Home Model
- Cost Effective Care
  - Decreased Travel
  - Decreased Testing
Benefits to Health System

• Better quality and safety
• Reduced variations in care
• Workforce training
• Cost savings
• Improved professional retention
• Rapid best-practice dissemination
We Don’t Know What We Don’t Know
Innovation

• Education
• Quality Improvement
• Hospital safety
ECHO Act

• In April 2016, Senator Orin Hatch (R UT) and Senator Brian Schatz (D HI) co sponsored S 2873 to investigate imbedding ECHO® in federal healthcare systems

• In June 2016, HR 5395 was introduced to the House of Representatives by Representative Michael Burgess (R TX) and Representative Doris Matsui (D CA)

• Passed the Senate 97-0 on November 29, 2016 and passed the House by acclamation on December 6, 2016

• Signed into law by President Obama December 15, 2016
ECHO has been adopted by over 65 academic medical centers and other healthcare organizations in the US.
Army and Navy Pain Management ECHO Clinics

**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

**Navy ECHO Hubs:**
- Navy Medicine East (NME) – Naval Medical Center (NMC) Portsmouth, VA
- Navy Medicine West (NMW) – Naval Medical Center San Diego (NMCSD), CA

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**States Covered:**
- Army: Arizona, California, Florida, Maryland, Missouri, New Hampshire, New Jersey, New Mexico, New York, Oklahoma, Texas, Virginia
- Navy: Arizona, California, Florida, Maryland, New Hampshire, New Mexico, New York, Oklahoma, Texas, Virginia

**Locations:**
- Army: Fort Huachuca, Fort Irwin
- Navy: Naval Hospital (NH) Jacksonville, Naval Air Station Jacksonville

**Country Covered:**
- Army: Belgium, Germany, Italy, Japan, South Korea
- Navy: Belgium, Germany, Italy, Japan, South Korea

**Clinics:**
- Army: ECHO Clinics
- Navy: ECHO Clinics

**Clinic Information:**
- Army and Navy Pain Management ECHO Clinics

**Map:**
- Map of the United States showing locations of Army and Navy Pain Management ECHO Clinics
Current ECHO Global Reach

ECHO is now in use in over 20 countries by 110+ replicating partners.
What Makes ECHO Work?

- Ongoing Mentor Relationship
- Guided Practice
- Social Network
- Technology
- Force Multiplication
- Demonopolizing Knowledge
- Knowledge Expansion
- Team Based Care
- Task Shifting
- Joy of Work
In Conclusion

• Project ECHO – uses video conferencing, best practice protocols, case based learning, and monitoring of outcomes to safely and effectively train providers to treat common and complex diseases in rural and underserved areas in the US and around the world
Our Goal

To touch the lives of 1 billion people by 2025
We’d love to have you join us!
Want More Information?

- Orientation – one day on-site conference
- Immersion – three day on-site “How to”
- Go to echo.unm.edu
  - Start an ECHO
  - Training events
THANK YOU

Want More Information?

echoreplication@salud.unm.edu

Visit: http://echo.unm.edu