# ECHO project ᴿᴹ

## Extension for Community Healthcare Outcomes

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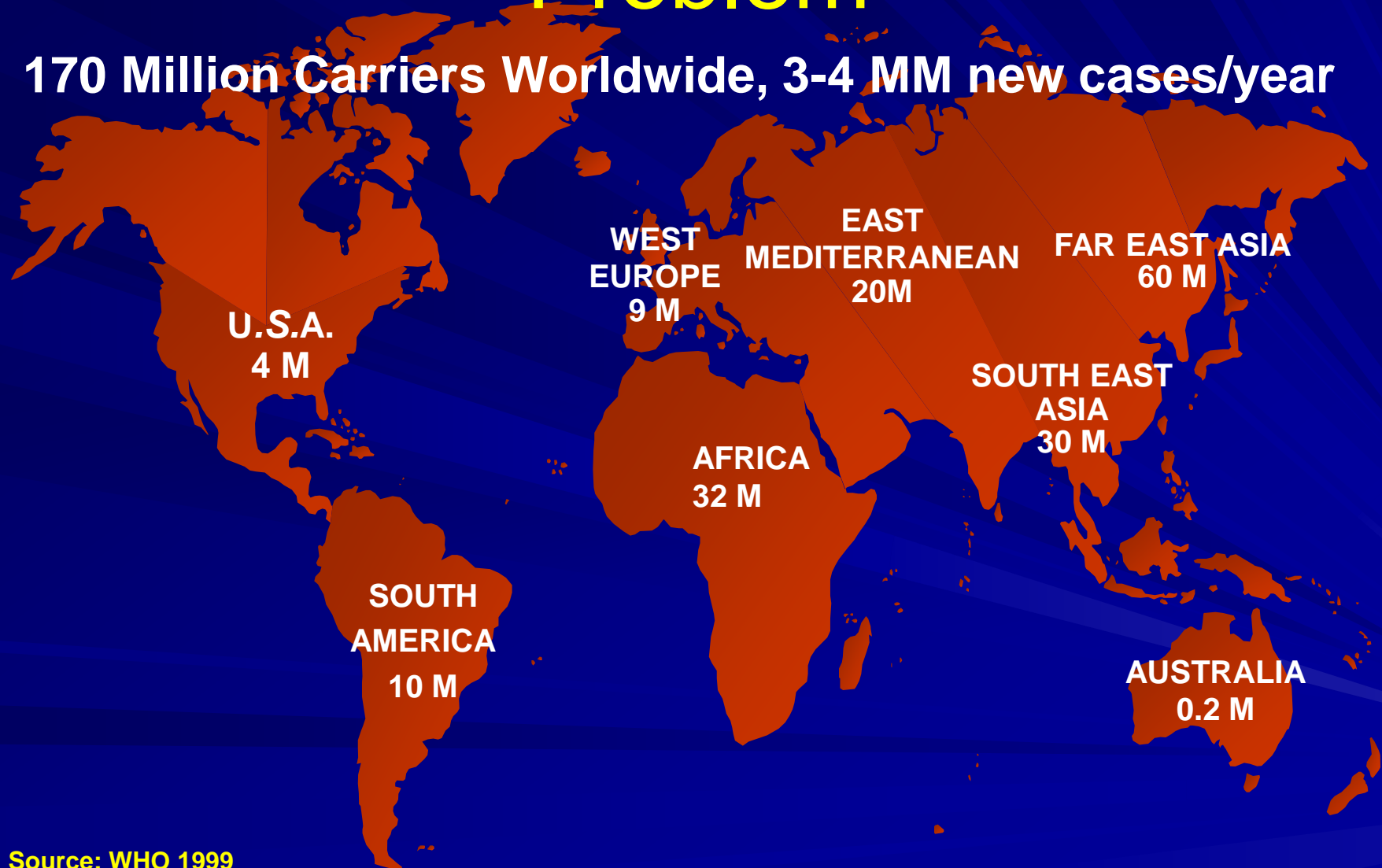**Fax: 505-272-4628**

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# MISSION

**The mission of Project ECHO is to develop the capacity to safely and effectively treat chronic, common and complex diseases in rural and underserved areas and to monitor outcomes.**

# Hepatitis C: A Global Health Problem

**170 Million Carriers Worldwide, 3-4 MM new cases/year**



U.S.A. 4 M

WEST EUROPE 9 M

EAST MEDITERRANEAN 20M

FAR EAST ASIA 60 M

SOUTH EAST ASIA 30 M

AFRICA 32 M

SOUTH AMERICA 10 M

AUSTRALIA 0.2 M
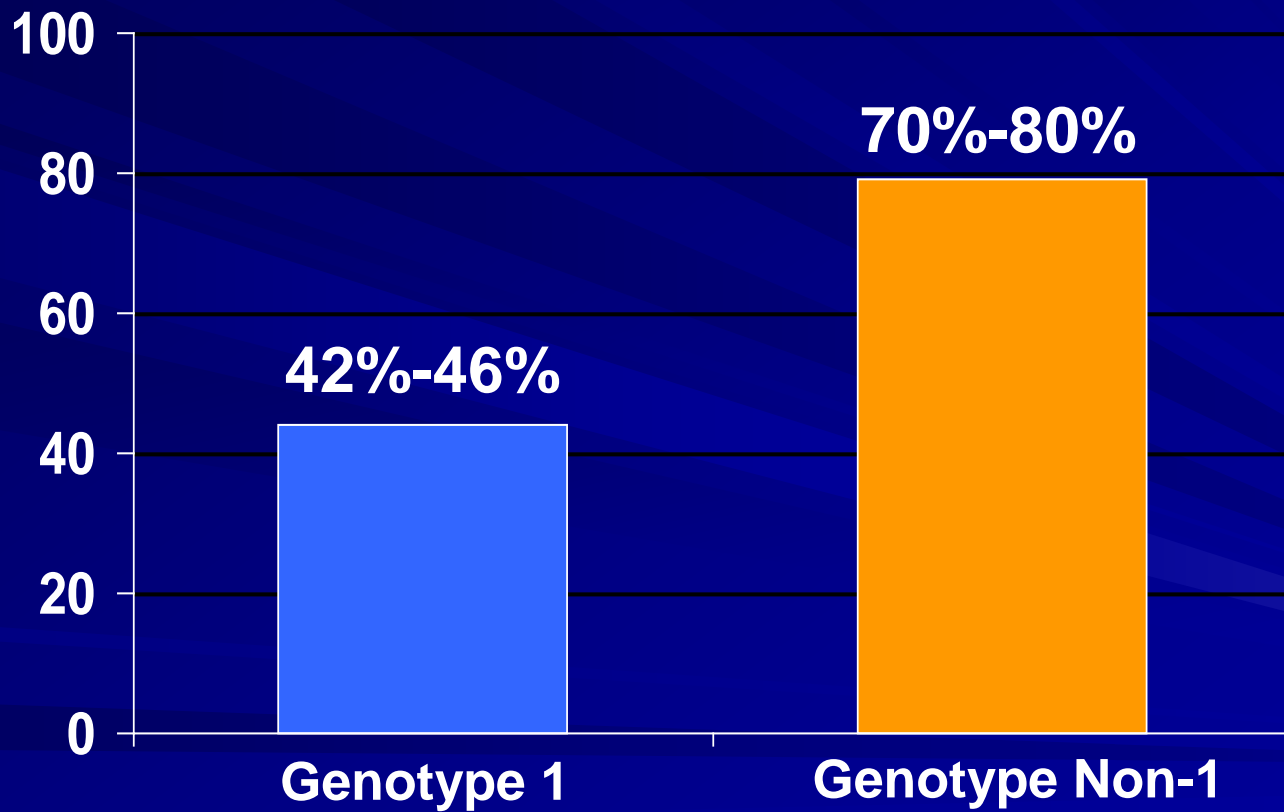
# HEPATITIS C IN NEW MEXICO

~ **Estimated number is greater than 28,000**

~ **In 2004 Less than 5% had been treated**

~ **Without treatment 8,000 patients will develop cirrhosis between 2010-2015 with several thousand deaths**

~ **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**

# Sustained Viral Response (Cure) Rates with PegIFN/RBV According to Genotype



Adapted from Strader DB et al. *Hepatology.* 2004;39:1147-1171.

**Good News:**

Curable in 45-81% of cases

**Bad News:**

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

# RURAL NEW MEXICO

## Underserved Area for Healthcare Services

- 121,356 sq miles
- 1.83 million people
- 42.1% Hispanic
- 9.5% Native American
- 17.7% poverty rate compared to 11.7% nationally
- >22% lack health insurance

- 32 of 33 New Mexico counties are listed as Medically Underserved Areas (MUAs)
- 14 counties designated as Health Professional Shortage Areas (HPSAs)

# GOALS

~ **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 (telemedicine 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**

~ **HIPAA compliant centralized database to monitor outcomes**

# 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 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**

# Technology

~ **Videoconferencing Bridge** (Polycom RMX 2000)

~ **Videoconferencing Recording Device** (Polycom RSS 2000)

~ **You Tube-like Website** (Polycom VMC 1000 )

~ **Webcam Interfacing Capacity** (Polycom CMA 5000)

~ **iHealth**

~ **Webinar**

~ **Customer Relation Management Solution**

~ **Software for Online Classes**

# How well has model worked for Hepatitis C ?

400 HCV Telehealth Clinics have been conducted

- >4000 patients entered HCV disease management  program

CMEs/CEs issued:
5100 CME/CE hours issued to ECHO Clinicians for Hep C. Total CME hours 10,000 at no cost

237 hours of HCV Training conducted at rural sites

# 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

# 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

# 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:  14
    - New Mexico Department of Corrections: 7
  - Control: University of New Mexico (UNM) Liver Clinic
- Subjects meeting inclusion / exclusion criteria
  - Community cases seen by primary care physicians
  - Consecutive University patients

# Study Design

- Prospective cohort study
  - Participation determined by available technology
  - Randomization by patient, Clinician, or site not feasible
- Advantages
  - Uniform eligibility criteria
  - Standardized treatment
  - Prospective measurement of end-points
- Limitation: groups unbalanced with respect to patient covariates

# Principal Endpoints

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

- Significant adverse event (SAE): major side-effect

# Developing New Standards of Practice for Hepatitis C

- 405 hepatitis C patients met inclusion and exclusion criteria
  - Age: 43.0 ± 10.0 years
  - Men:  63.3%
  - Minority:  65.2%
  - Genotype 1:  57.0%
  - Log10 viral load:  5.89 ± 0.95
  - Treatment sites
    - UNMH:  145 (35.8%)
    - ECHO site:  260 (64.2%)

# Preliminary Treatment Outcomes

| Outcome | ECHO | UNMH | P-value |
|---------|------|------|---------|
| Non-response | 14.4% | 11.8% | NS |
| SAE | 10.4% | 20.6% | P<0.01 |
| Minority | 69% | 49% | P<0.01 |
| SVR Genotype 1/4 | 50% | 48% | NS |
| SVR Genotype 2/3 | 70% | 68% | NS |

SAE=significant adverse event

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**
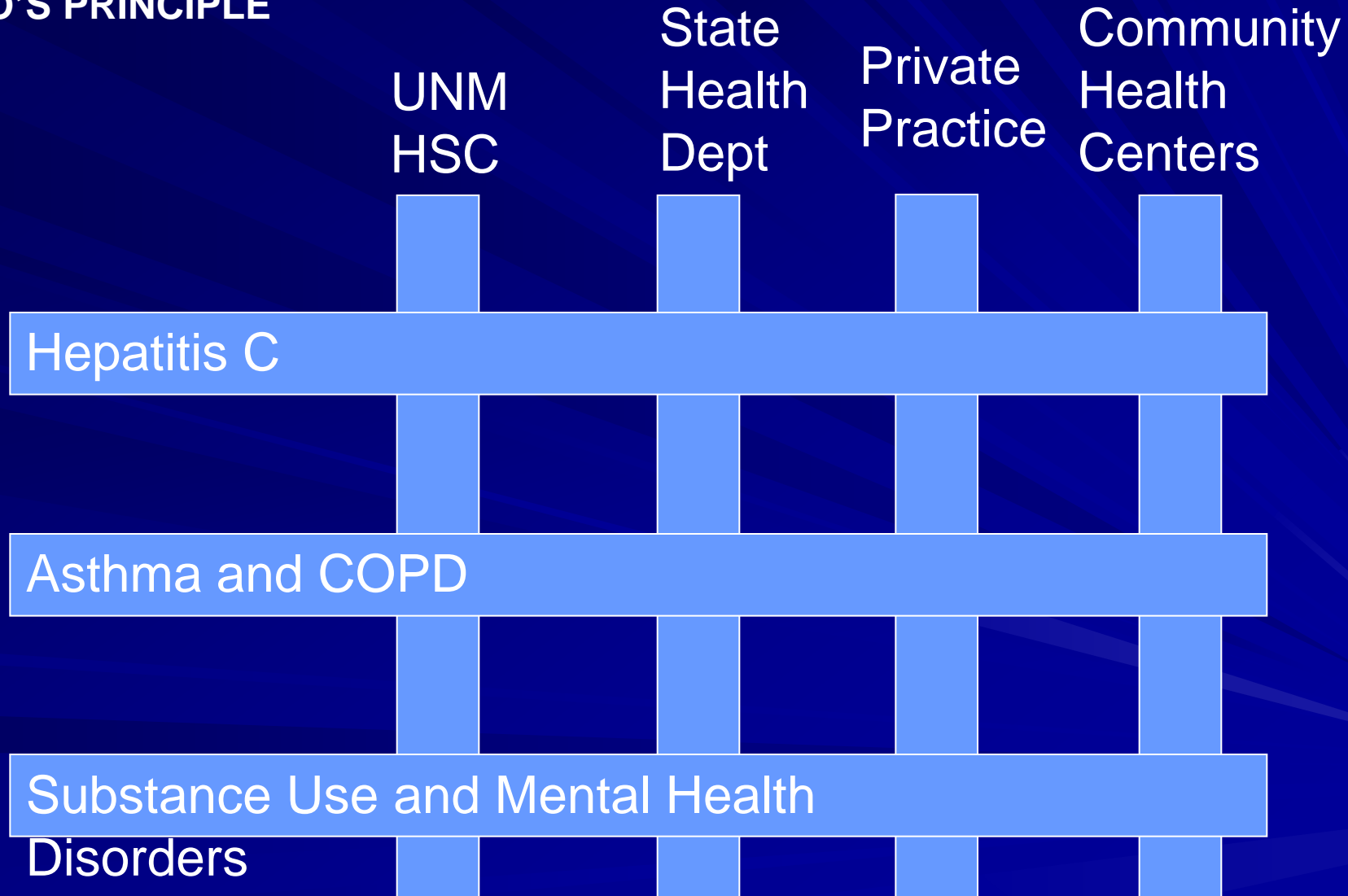
# FORCE MULTIPLIER

Use Existing Community Clinicians

Specialists

Primary Care

Physician Assistants
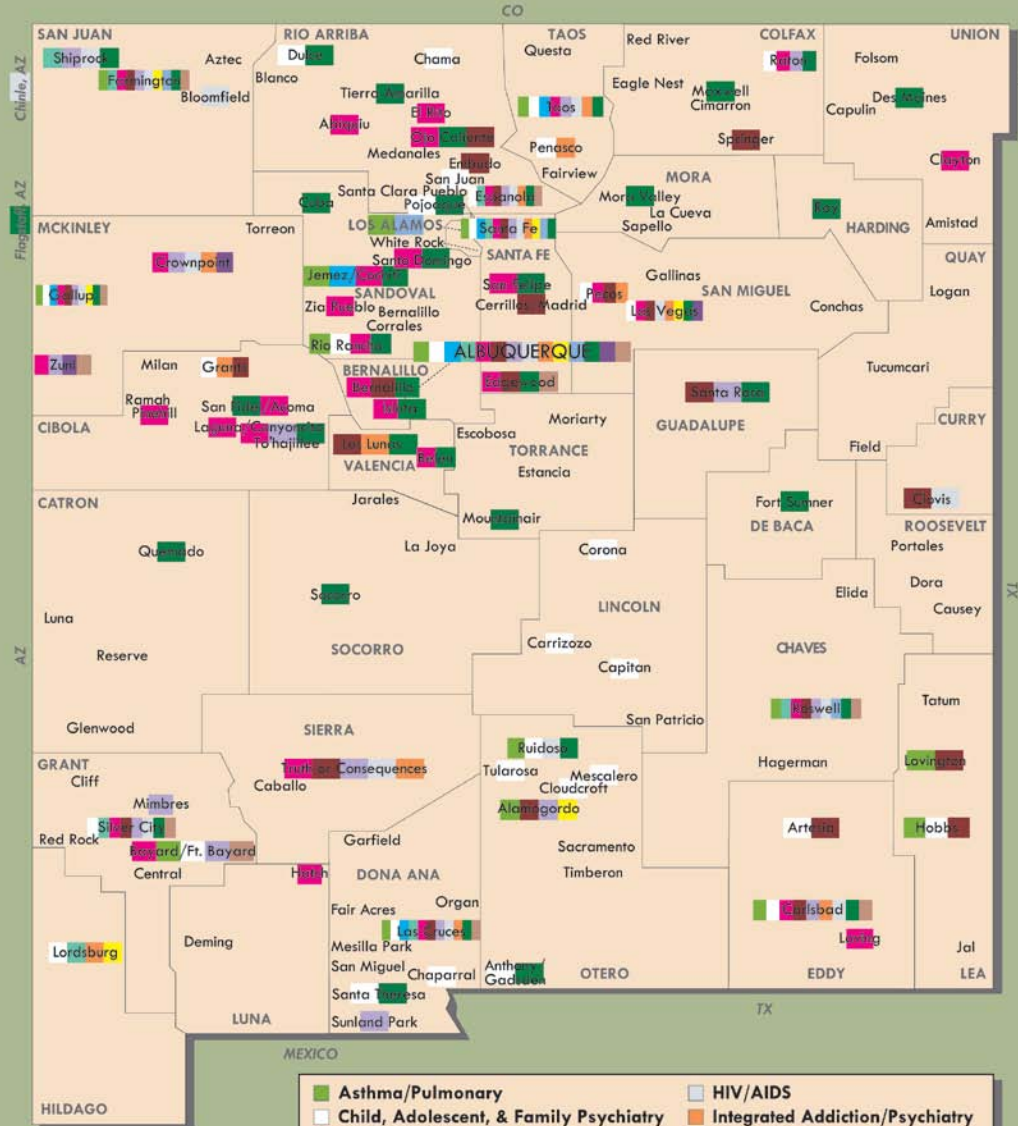
Nurse Practitioners

Hepatitis C

Asthma and COPD

**Substance Use and Mental Health Disorders**

# Successful Expansion Into Multiple Diseases

| | Mon | Tue | Wed | Thurs | Fri |
|---|---|---|---|---|---|
| **8-10 AM** | Hepatitis C Arora Thornton | Cardiac Risk Reduction Clinic Colleran | Asthma Harkins | Prevention of Teenage Suicide-Kriechman | Child Psychiatry-Graeber |
| **10-12 AM** | Rheuma-tology-Bankhurst | Chronic Pain-Katzman | Substance Abuse-Komaromy | High Risk Pregnancy Curet | Psychotherapy Katzman |
| **2-4 PM** | Occupational Health-Wagner | Motivational Interviewing-Oetzel | Ethics Consultation Simpson | Childhood Obesity Mcgrath | Resident Teaching Psychotherapy Katzman |

# FORCE MULTIPLIER

Chronic Disease Management is a Team Sport

Primary Care | Nurse | Medical Assistant | Community Health Worker

Hepatitis C

Asthma and COPD

**Substance Use and Mental Health Disorders**

# Potential Benefits

~ Quality and Safety- Rapid Learning

~ Access for Rural and Underserved Patients

~ 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 (eg: Liver Transplant or Dialysis)

~ Integration of Public Health into Treatment Paradigm

# Awards for ECHO Team

- Applications sought for Disruptive Innovations in Healthcare – New Models that would change healthcare nationally and globally (2007)

- Project ECHO selected a winner amongst 307 Applications from 27 countries

- ehealth Inititative 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)

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