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

ECHO project SM

Extension for Community Healthcare Outcomes

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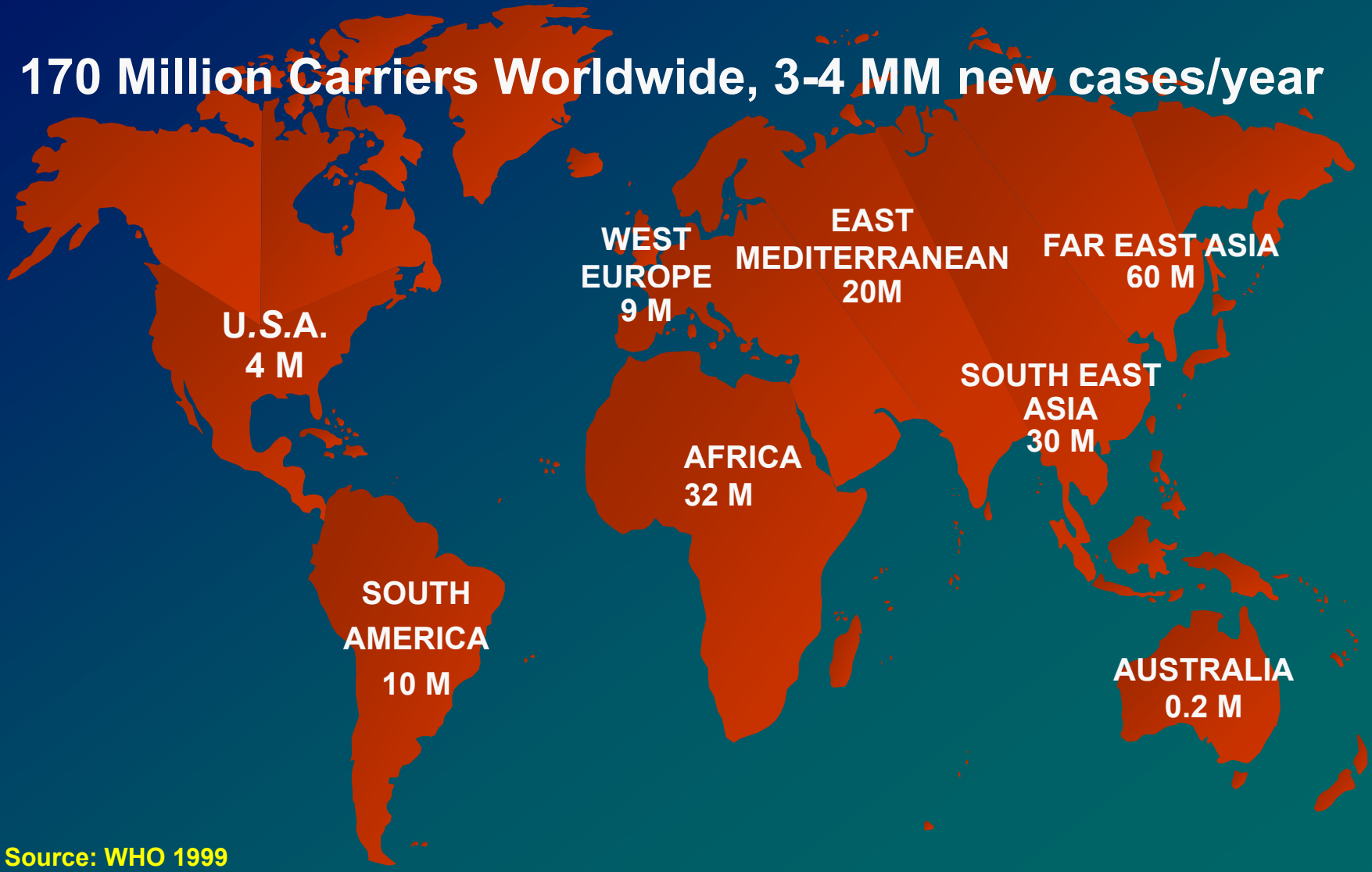
MISSION

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.

Supported by NM Dept of Health, 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: A Global Health Problem

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



Source: WHO 1999

HEPATITIS C IN NEW MEXICO

~ Estimated number is greater than 28,000

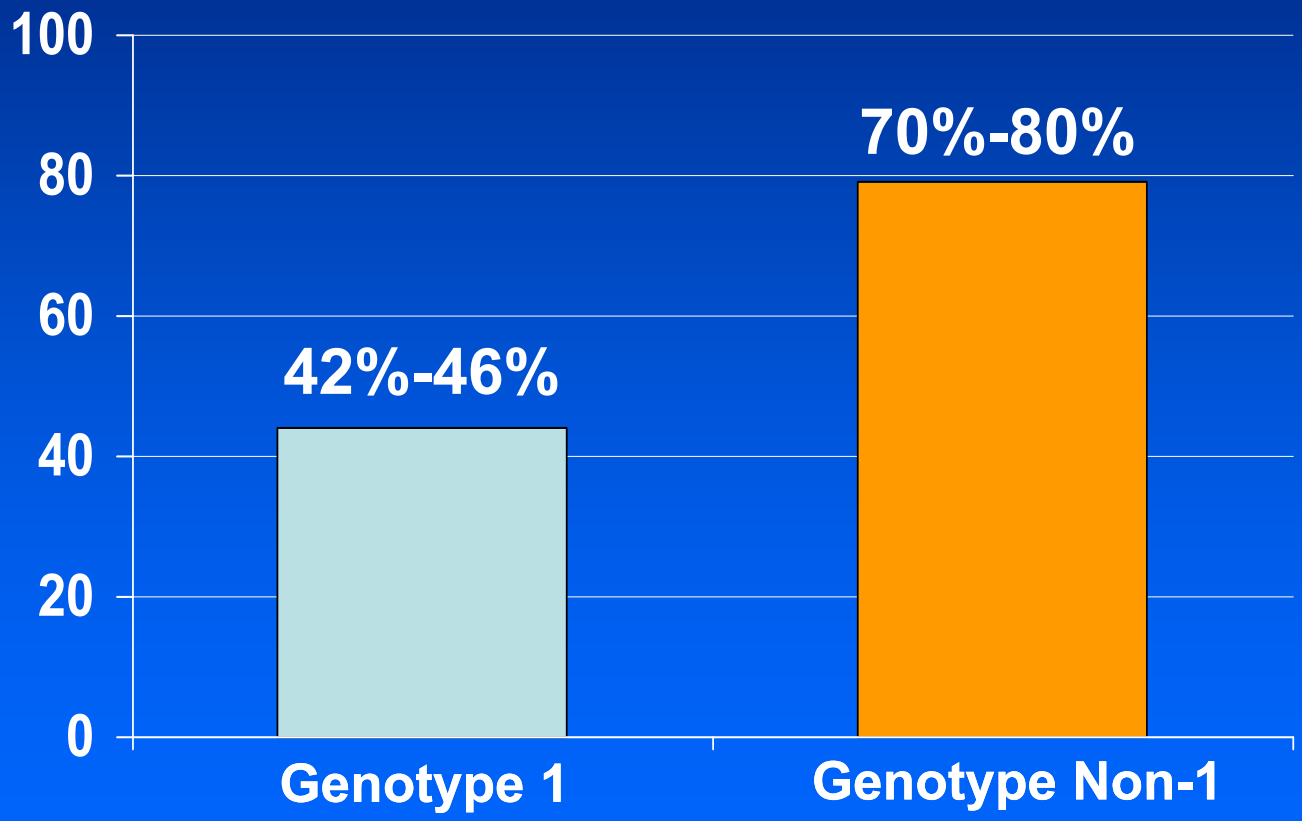
~ In 2004 Less than 5% had been treated

~ 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.

HEPATITIS C TREATMENT

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)

HEALTH CARE IN NEW MEXICO

~20% practice in rural or frontier areas

New Mexico Physician Survey 2001

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


Clustering of Poor Prognostic Factors in Heavy Patients
Clustering of Poor Prognostic Factors in Heavy Patients
DRUG INFORMATION HANDBOOK

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

<u>CMEs/CEs issued:</u>

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: 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

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 Endpoint

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

Developing New Standards of Practice for Hepatitis C

- 407 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: 146
    - ECHO site: 261

Treatment Outcomes

Outcome	ECHO	UNMH	P-value
	N=261	N=146	
SAE	6.9%	13.7%	P<0.024
Minority	68%	49%	P<0.01
SVR Genotype 1/4	50%	46%	NS
SVR Genotype 2/3	70%	71%	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

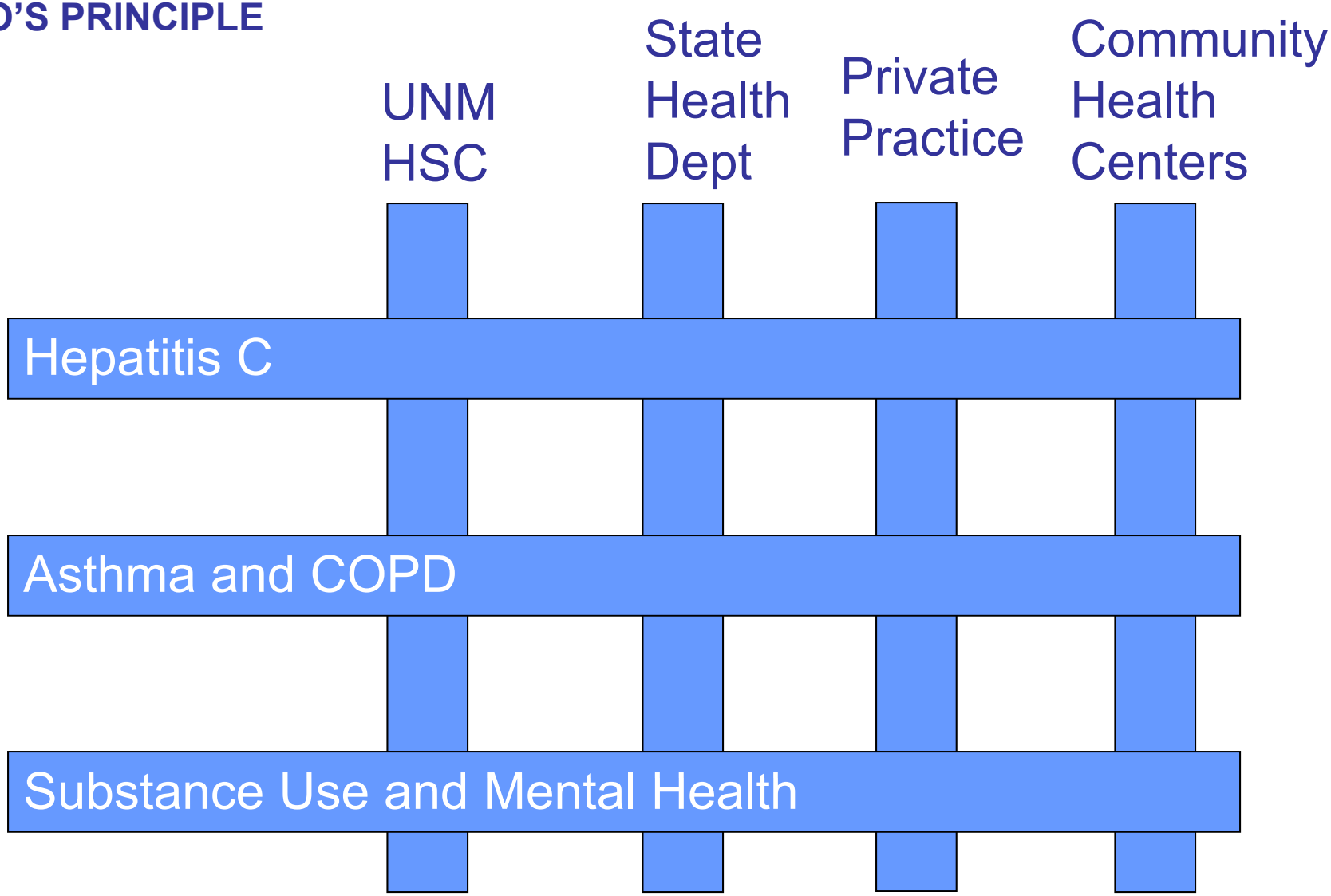
~ High societal impact (health and economic)

~ Serious outcomes of untreated disease

~ Improved outcomes with disease management

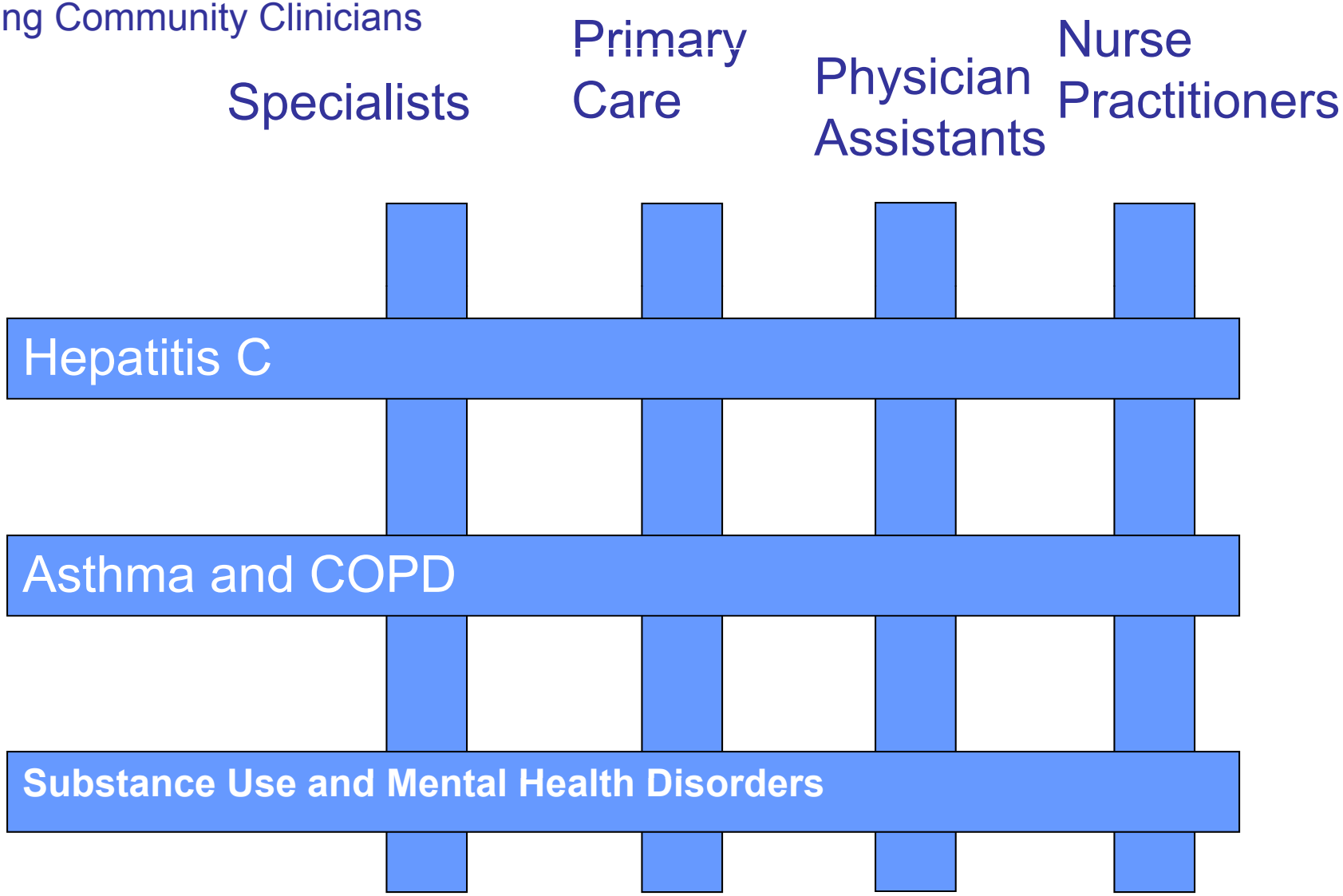
BUILDING BRIDGES

PARETO'S PRINCIPLE



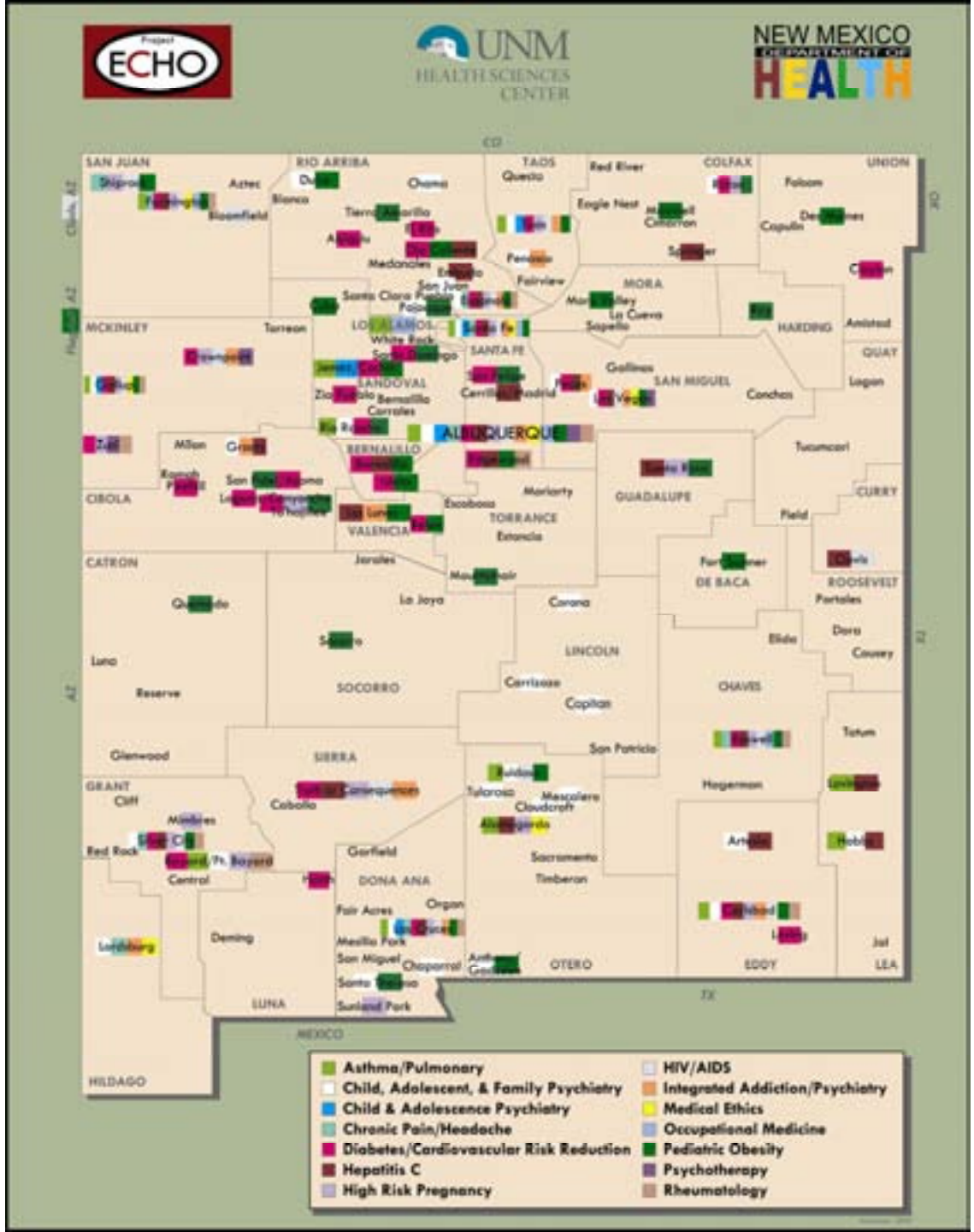
FORCE MULTIPLIER

Use Existing Community Clinicians



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


Project ECHO
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TORRANCE
GUADALUPE
CURRY
CIBOLA
VALENCIA
ROOSEVELT
CATRON
DE BACA
LINCOLN
SOCORRO
CHAVES
SIERRA
GRANT
DONA ANA
OTERO
EDDY
LEA
LUNA
HIDALGO
Asthma/Pulmonary
Child, Adolescent, & Family Psychiatry
Child & Adolescence Psychiatry
Chronic Pain/Headache
Diabetes/Cardiovascular Risk Reduction
Hepatitis C
High Risk Pregnancy
HIV/AIDS
Integrated Addiction/Psychiatry
Medical Ethics
Occupational Medicine
Pediatric Obesity
Psychotherapy
Rheumatology

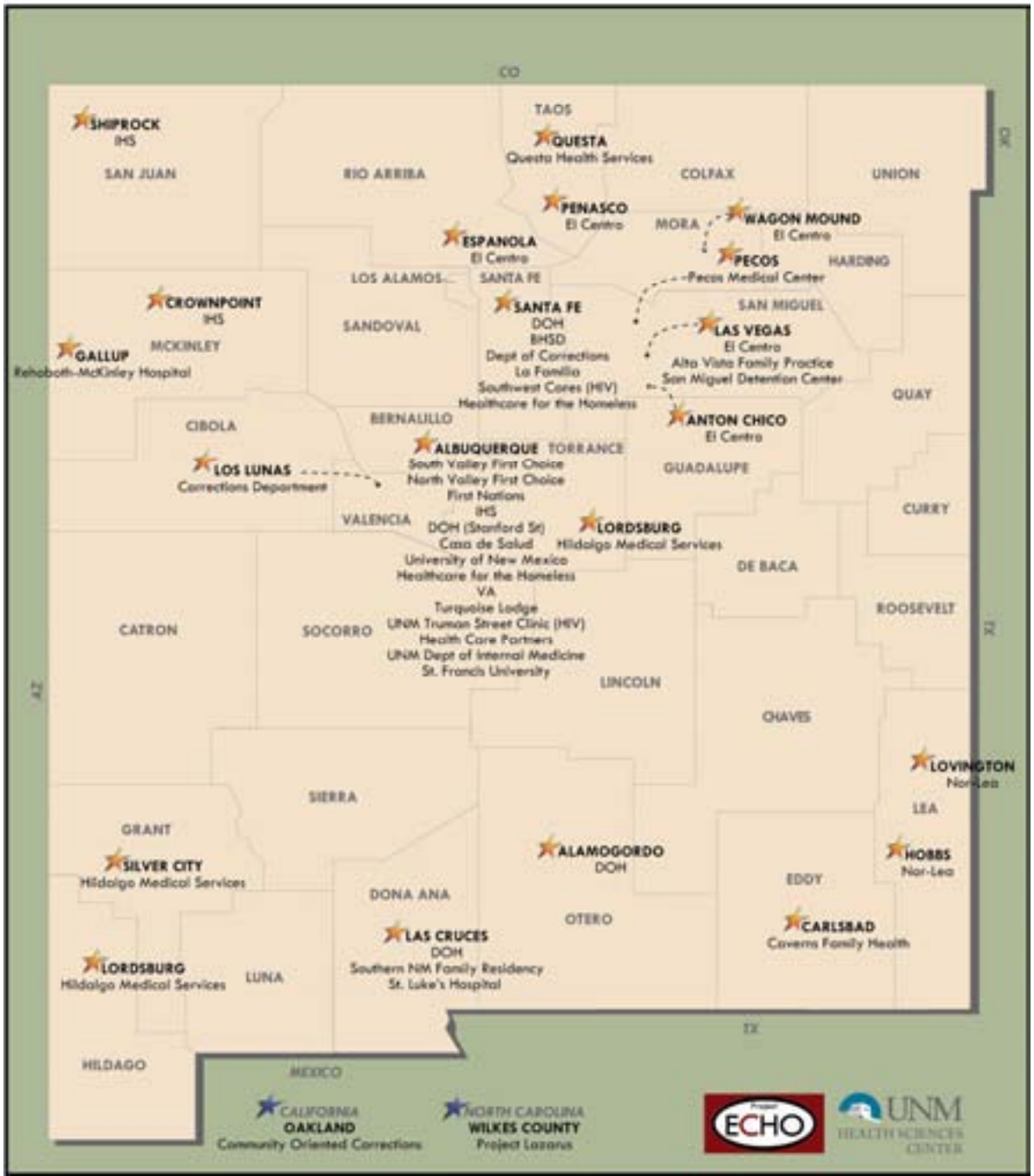
Integrated Addictions and Psychiatry Clinic

- Focus on treating opiate addiction (heroin, pain pills) with psychosocial support + effective medication
- Trained/certified 158 physicians statewide in use of buprenorpine/Suboxone, 274 total clinicians trained
- Since 2008, 84 weekly telehealth clinics, 654 patients presented and discussed

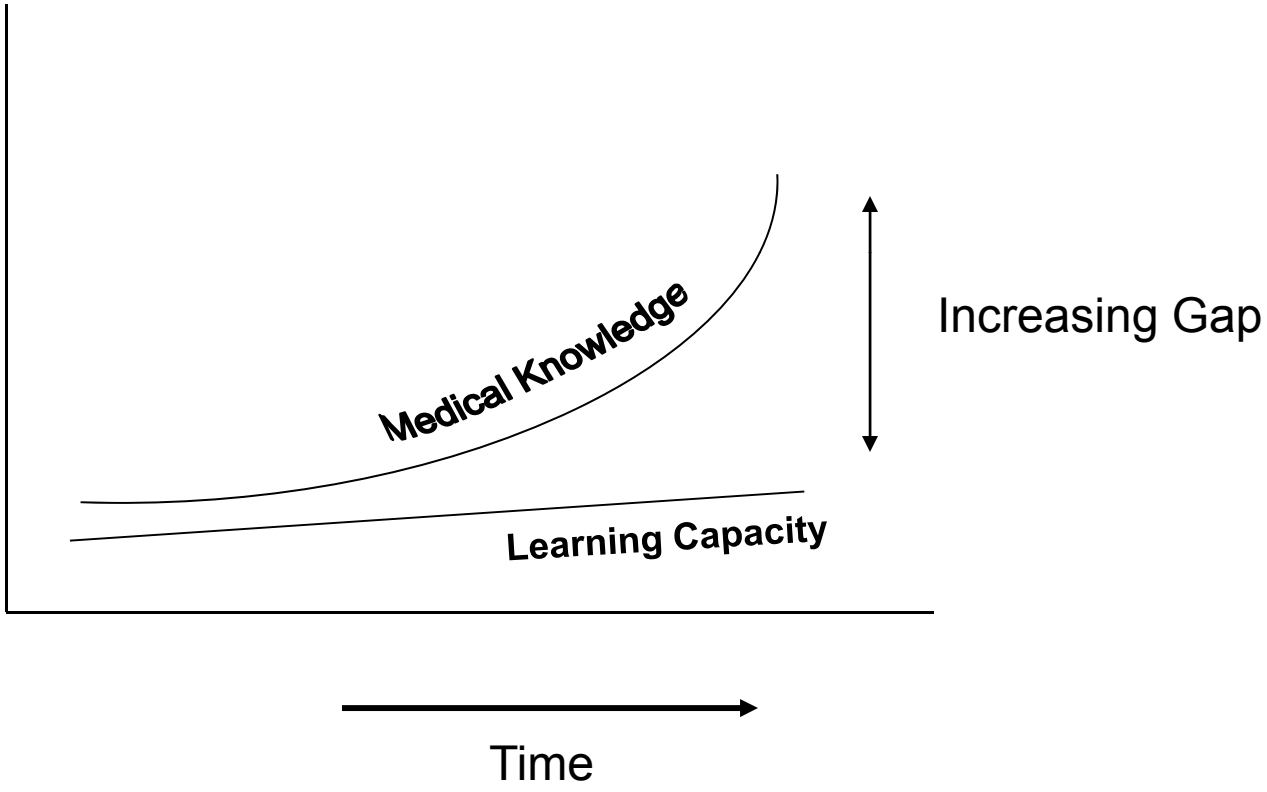
Integrated Addictions and Psychiatry Clinic

- Monitored/comanaged 1727 individual patients through physician logs
- 2009 ECHO/DOH provided 2682 months of funded medication treatment
- Participating sites: Albuquerque,Carlsbad, Penasco, Wagonmound, Las Vegas, Las Cruces, Espanola, Santa Fe, Pecos, Crownpoint, Shiprock, Lordsburg, Hobbs, Gallup, Lovington, Silver City, Anton Chico, Los Lunes, Taos, Questa, Alamagordo; also sites in California, North Carolina, and Scotland

IAP Clinic Participation Sites



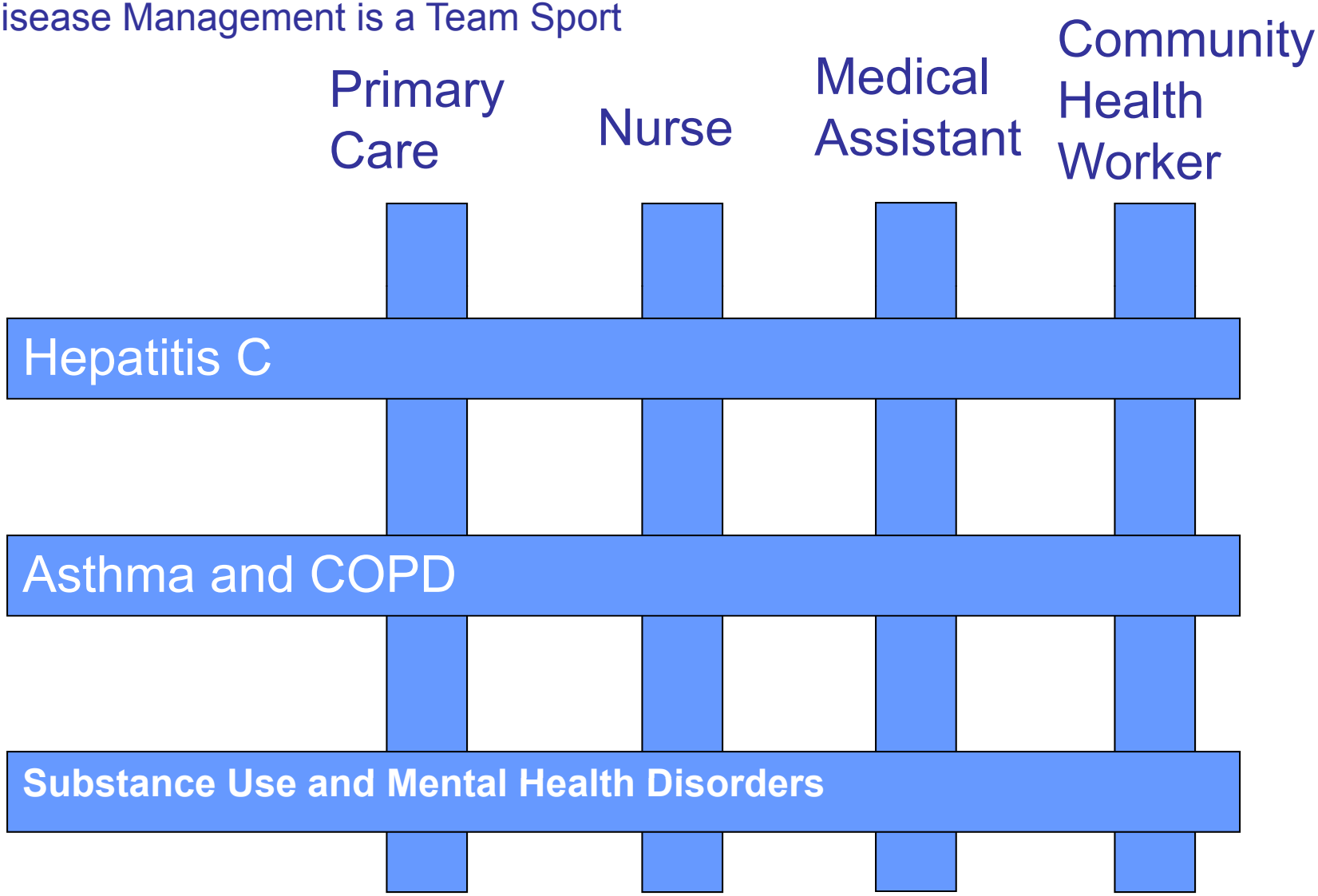
A KNOWLEDGE NETWORK IS NEEDED



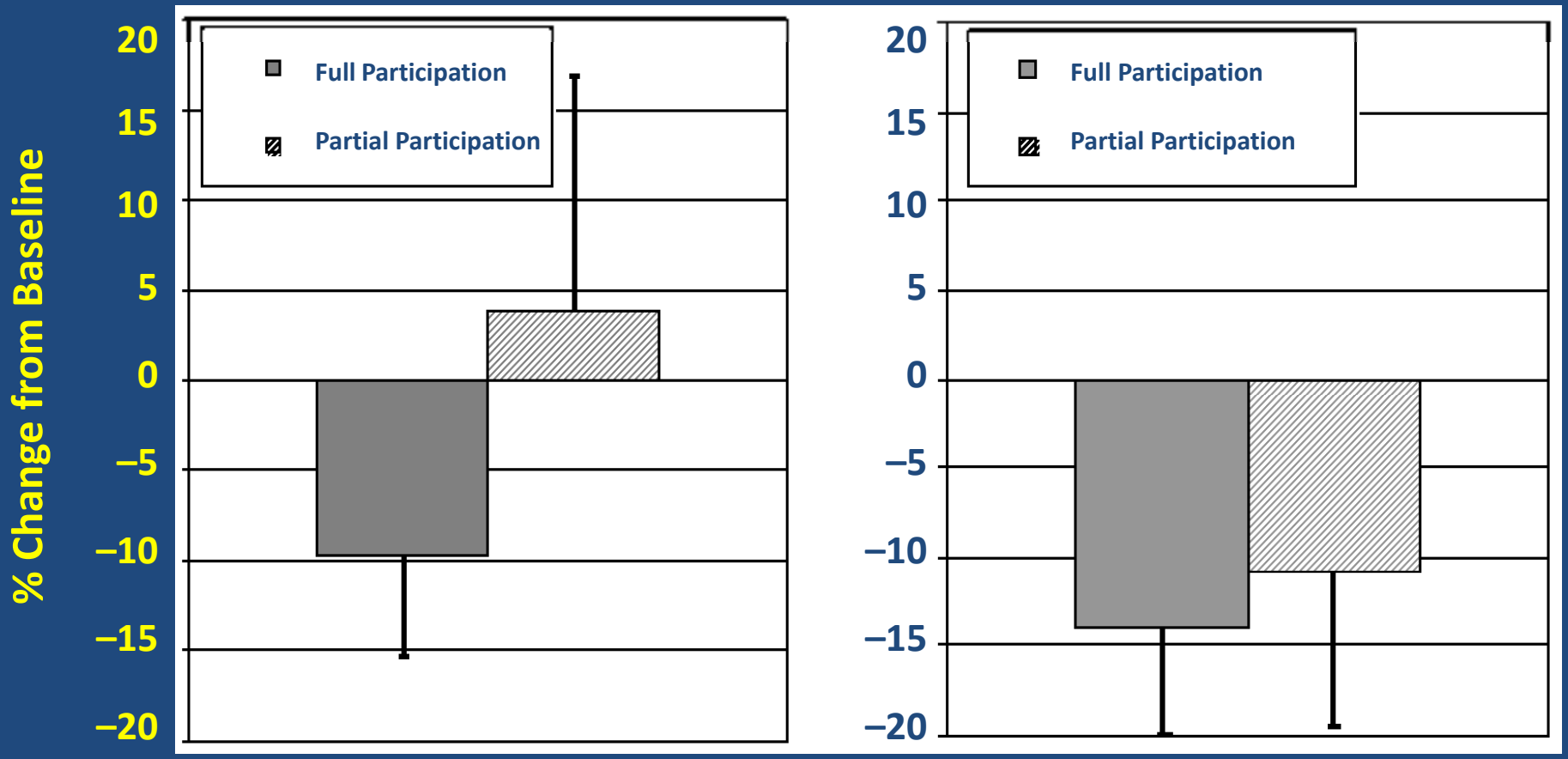
"Expanding the Definition of Underserved Population"

FORCE MULTIPLIER

Chronic Disease Management is a Team Sport

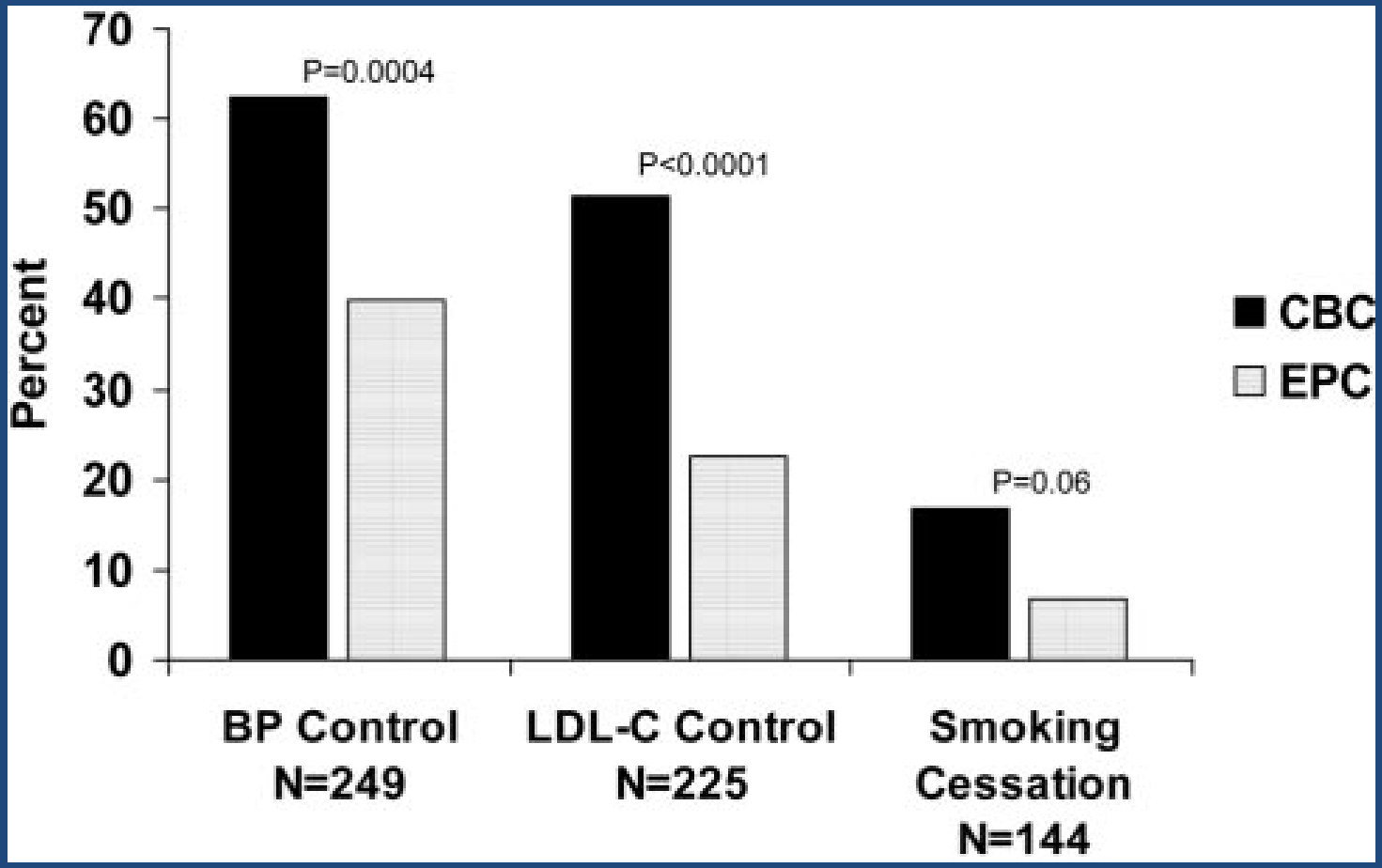


Changes in HbA1c with CHW as sole Diabetes Educator



Culica JH. Care for the Poor & Underserved. 2008;19:1076-1095.

Community Based Care for Cardiac Risk Factor Reduction was More Effective than Enhanced Primary Care



Becker Circulation. 2005;111:1298-1304.

Why is a Community Health Worker (CHW) Intervention Effective?

~ Live in Community

~ Understand Culture

~ “Have Walked Two Moons in The Patient’s Moccasins”

~ Appreciate Economic Limitations of Patient and Know Community Resources Available to Patient

~ Often Know Family and can engage other Social Resources for Patient

~ Spend More Time with Patient

CHW Training – TWO TRACKS

~ CHW Specialist Training

~Diabetes, Obesity, Diet, Smoking Cessation, Exercise

~Substance Use Disorders

Specialty CHW Program

~ Use Low Cost Technology to Take Specialty Training to the CHWs, Promotoras, CHRs, Medical Assistants Where They Live

~ Narrow Focus- Deep Knowledge

~ Standardized Curriculum

~ Ongoing Support via Knowledge Networks

~ Part of Disease Management Team

~ Warm Handoff

Why Do We Need An Army of CHWs?

~ The Baby Boomers Are Aging

~ There will be a Tsunami of Chronic Disease

~ They Have a High Expectation for Service

~ There is a Severe Shortage of Primary Care Clinicians with No Visible Solutions in the Short Term

~Primary Care Clinicians Need Support

Community Health Workers in Prison

The New Mexico Peer Education Program

Pilot training cohort, CNMCF Level II, July 27-30, 2009

First day of peer educator training

Photo consents on file with Project ECHO and CNMCF

Graduation Ceremony of First Cohort

The New Mexico Peer Education Program

Pilot training cohort, CNMCF Level II, July 27-30, 2009

Graduation as Peer Educators

Photo consents on file with Project ECHO and CNMCF

ECHO Model Overcomes Many Barriers for Training & Development

- Existing Methodologies for Training and Development of Widely Distributed Learners Have Significant Limitations
  - Expensive
  - Out of Sight-Out of Mind
  - Applying Knowledge is a Whole New Thing
  - Employee Turnover
  - Knowledge Becomes Obsolete

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

~ 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


Project

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.

Supported by NM Dept of Health, 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