



UNIVERSITY OF NEW MEXICO HEALTH SCIENCES CENTER
SCHOOL OF MEDICINE

DEPARTMENT OF
INTERNAL MEDICINE



Extension for **O**mmunity **H**ealthcare **O**utcomes

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MISSION

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

Agency for Health Research and Quality HIT grant 1 UC1 HS015135-04, and MRISP, R24HS16510-02 , New Mexico Legislature, Supported by NM Dept of Health, and Robert Wood Johnson Foundation

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 and 2015 with several thousand deaths**
- ~ **2,300 prisoners diagnosed in corrections system (expected number is greater than 2,400) - None treated**
- ~ **Highest rate of chronic liver disease/cirrhosis deaths in the nation**

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

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 (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 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**



ECHO Whale



PCA Espanola



Baton Rouge



Pecos Valley MC



DOH Las Cruces



SBRT-First Choice South Va



Memorial HDX7000



LAS VEGAS ECFH



Clustering of Poor Prognostic Factors in Heavy Patients

Weight, kg (lb)	< 75.0 (1,650)	> 75.0 (1,651) ^a
Mean, n (%)	280 (100.0)	1071 (24.30) ^b
Mean Ratio, n (%)	28 (10.0)	86 (8.07)
Age, years ^c	74.0 ± 10.0	68.0 ± 8.67 ^d
SOB, kg/m ³	31.2 ± 2.7	30.8 ± 3.67 ^d
Electrolytes, % (No)	100 (100.0)	300 (27.97) ^d
Long-term drug use ^e	5.00 ± 3.77	4.00 ± 3.64 ^d
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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 ?

500 HCV Telehealth Clinics have been conducted

- >5,000 patient consultations

CMEs/CEs issued:

7,100 CME/CE hours issued to ECHO Clinicians for Hep C. Total CME hours >15,000 at no cost to rural or prison clinicians

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	<u>BEFORE</u> Participation MEAN (SD)	<u>TODAY</u> MEAN (SD)	Paired Difference MEAN (SD) (p-value)	<u>Effect Size</u> 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

The background is a gradient of blue and black. A curved line starts from the left side, passing through the text, and curves downwards towards the bottom right corner. The text is white and centered.

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

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

Conclusions

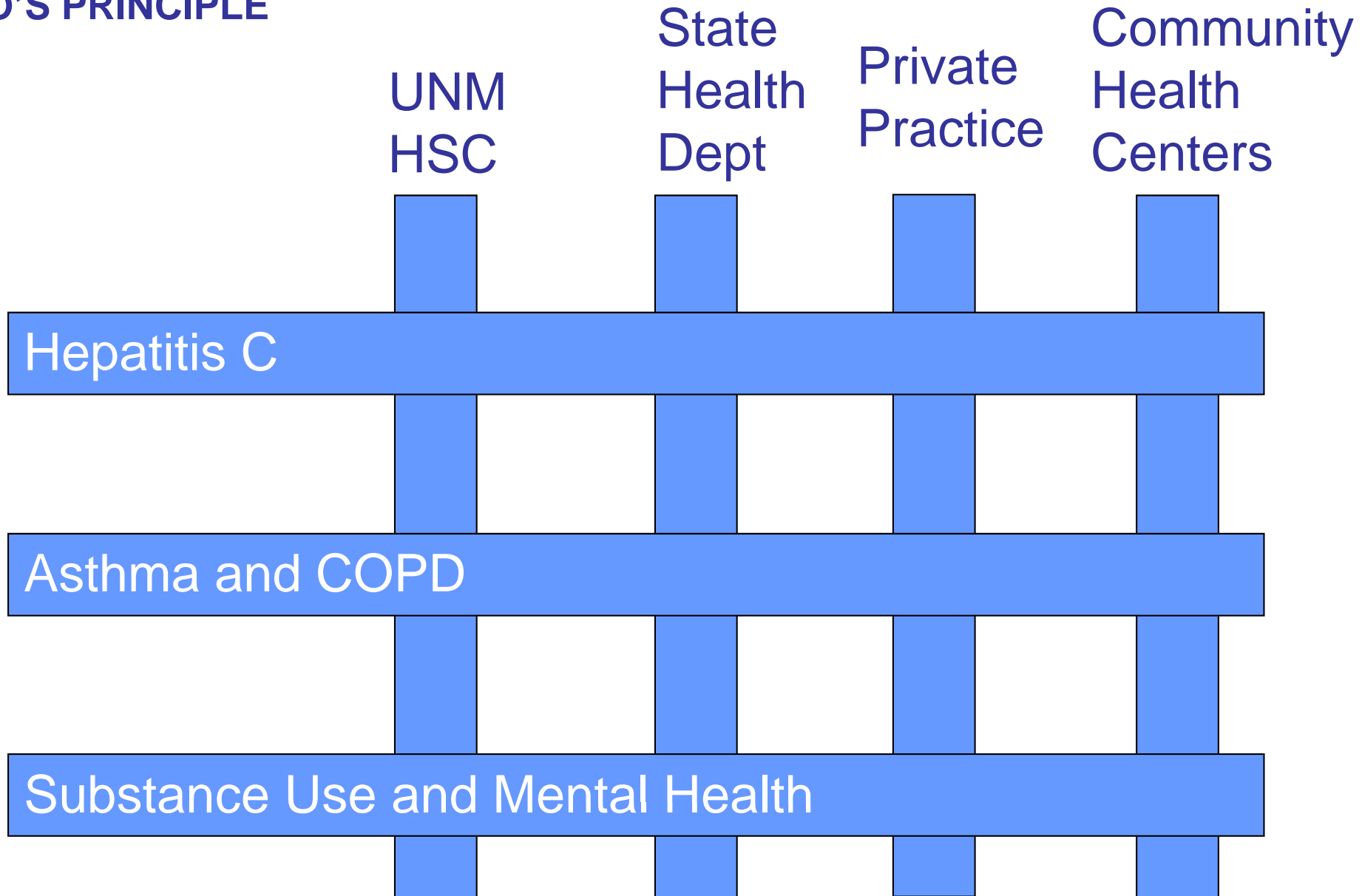
- ❖ Rural primary care clinicians deliver hepatitis C care under the aegis of Project ECHO that is as safe and effective as that given in a University clinic
- ❖ Project ECHO improves access to hepatitis C care for New Mexico minorities

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

Specialists

Primary
Care

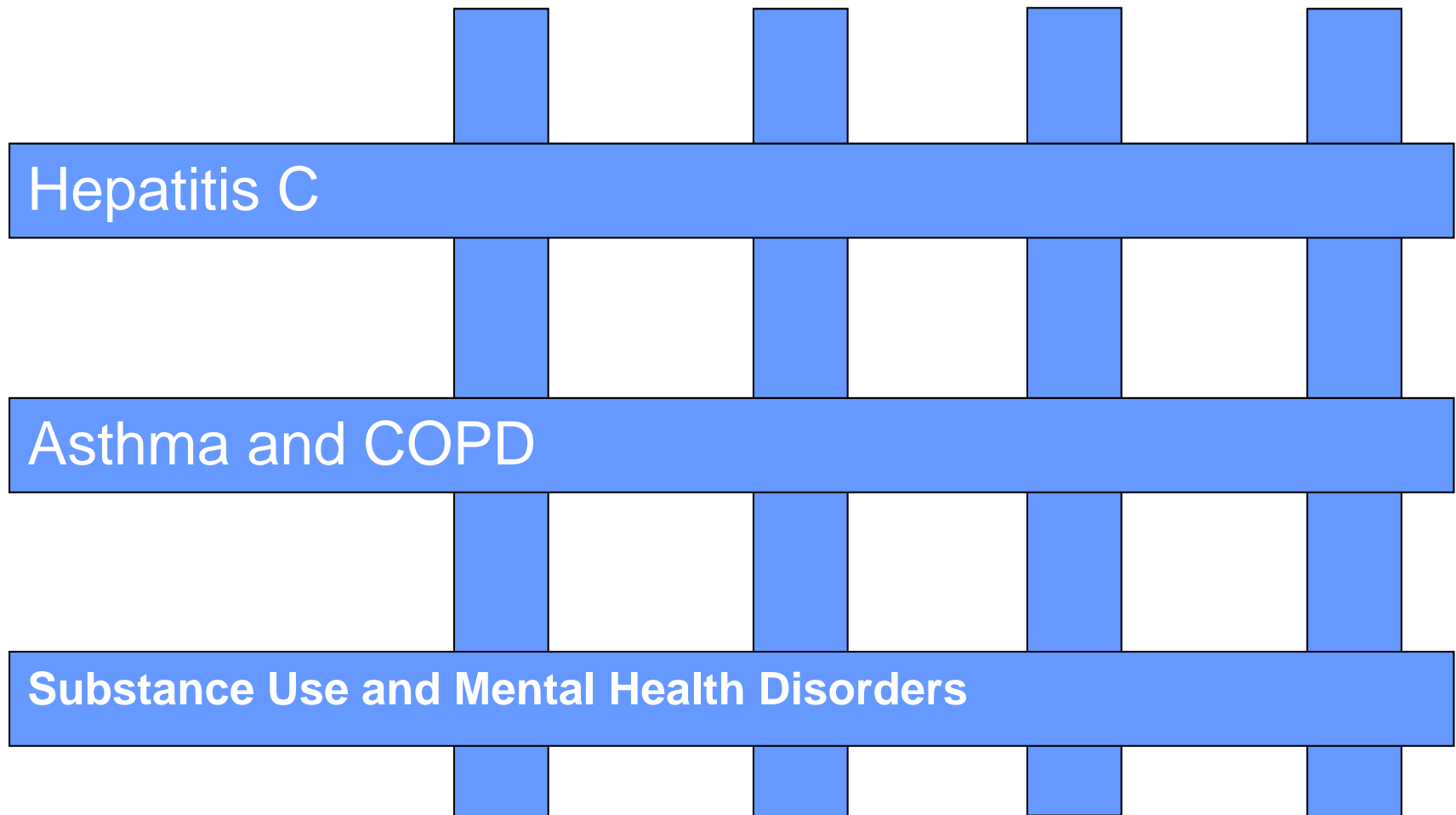
Physician
Assistants

Nurse
Practitioners

Hepatitis C

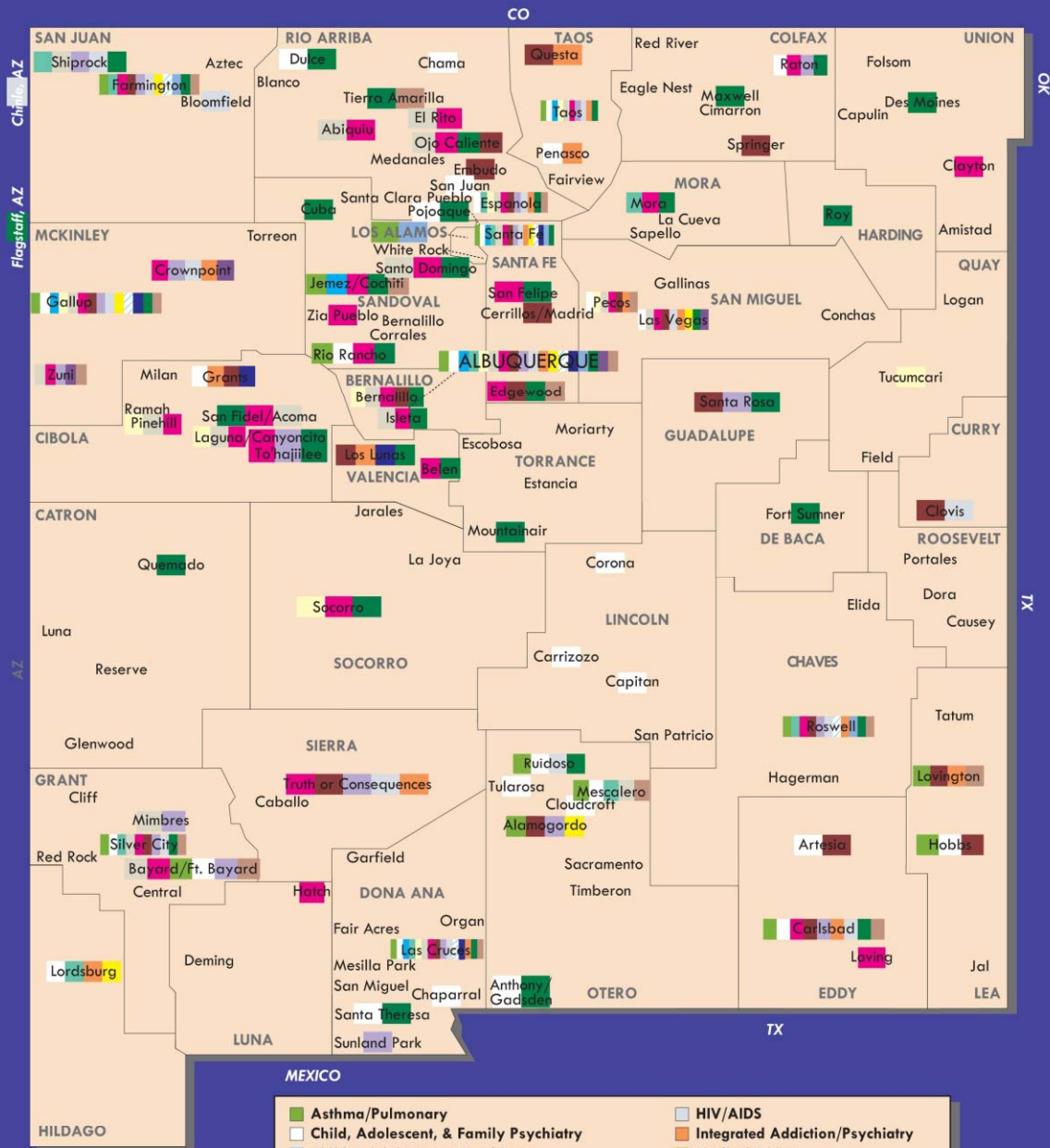
Asthma and COPD

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	Rheumatology- Bankhurst	Chronic Pain- Katzman	Substance Abuse- Komaromy	High Risk Pregnancy Curet	Psychotherapy Katzman
2-4 PM	Palliative Care	Antibiotic Stewardship	Ethics Consultation Simpson	Childhood Obesity Mcgrath	HIV/ AIDS

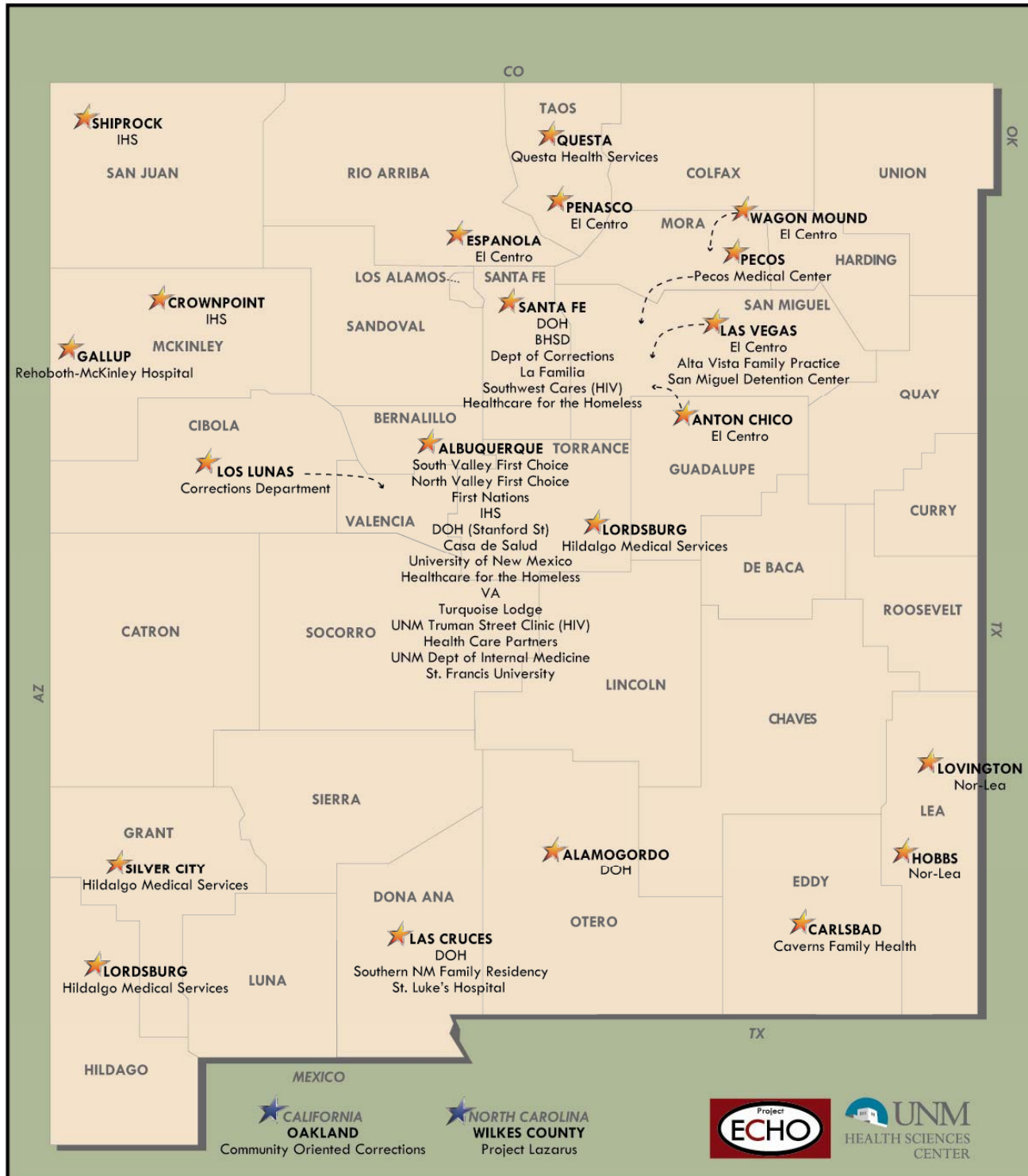


Asthma/Pulmonary	HIV/AIDS
Child, Adolescent, & Family Psychiatry	Integrated Addiction/Psychiatry
Child & Adolescence Psychiatry	Medical Ethics
Chronic Pain/Headache	NMDOH Disease Prevention Team
Community Health Worker - Core Competency	NM Peer Education Program
Community Health Worker - Diabetes Training	Occupational Medicine
Diabetes/Cardiovascular Risk Reduction	Pediatric Obesity
Hepatitis C	Psychotherapy
High Risk Pregnancy	Rheumatology

Integrated Addictions and Psychiatry Clinic

- Focus on treating opiate addiction (heroin, pain pills) with psychosocial support and effective medication
- Trained/certified 175 physicians statewide in use of buprenorphine/Suboxone, 274 total clinicians trained
- Since 2008, 84 weekly telehealth clinics, 654 patients presented and discussed

IAP CLINIC PARTICIPATION SITES



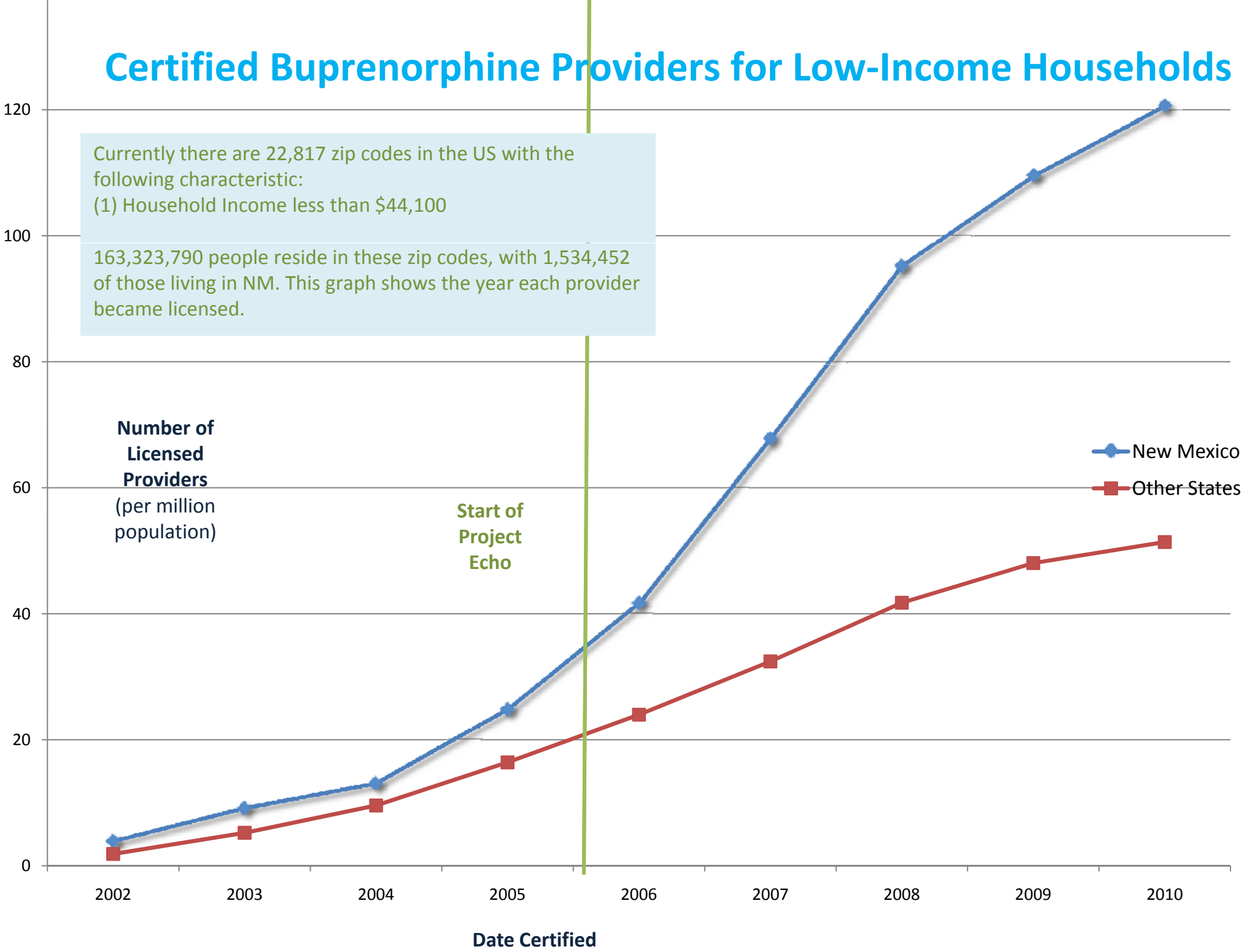
Certified Buprenorphine Providers for Low-Income Households

Currently there are 22,817 zip codes in the US with the following characteristic:
(1) Household Income less than \$44,100
163,323,790 people reside in these zip codes, with 1,534,452 of those living in NM. This graph shows the year each provider became licensed.

Number of Licensed Providers
(per million population)

Start of Project Echo

New Mexico
Other States

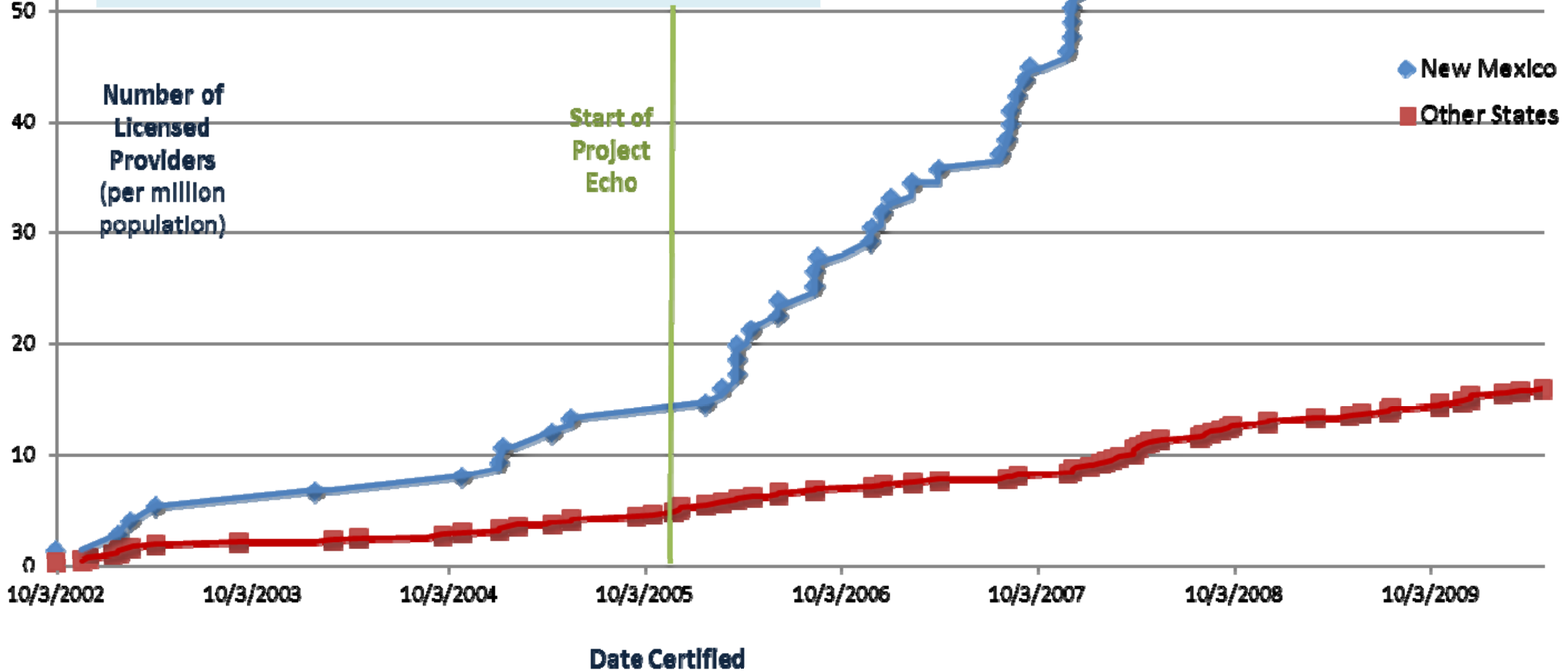


Certified Buprenorphine Providers (rural, low income, hispanic)

Currently there are 632 Zip Codes in the US with the following characteristics:

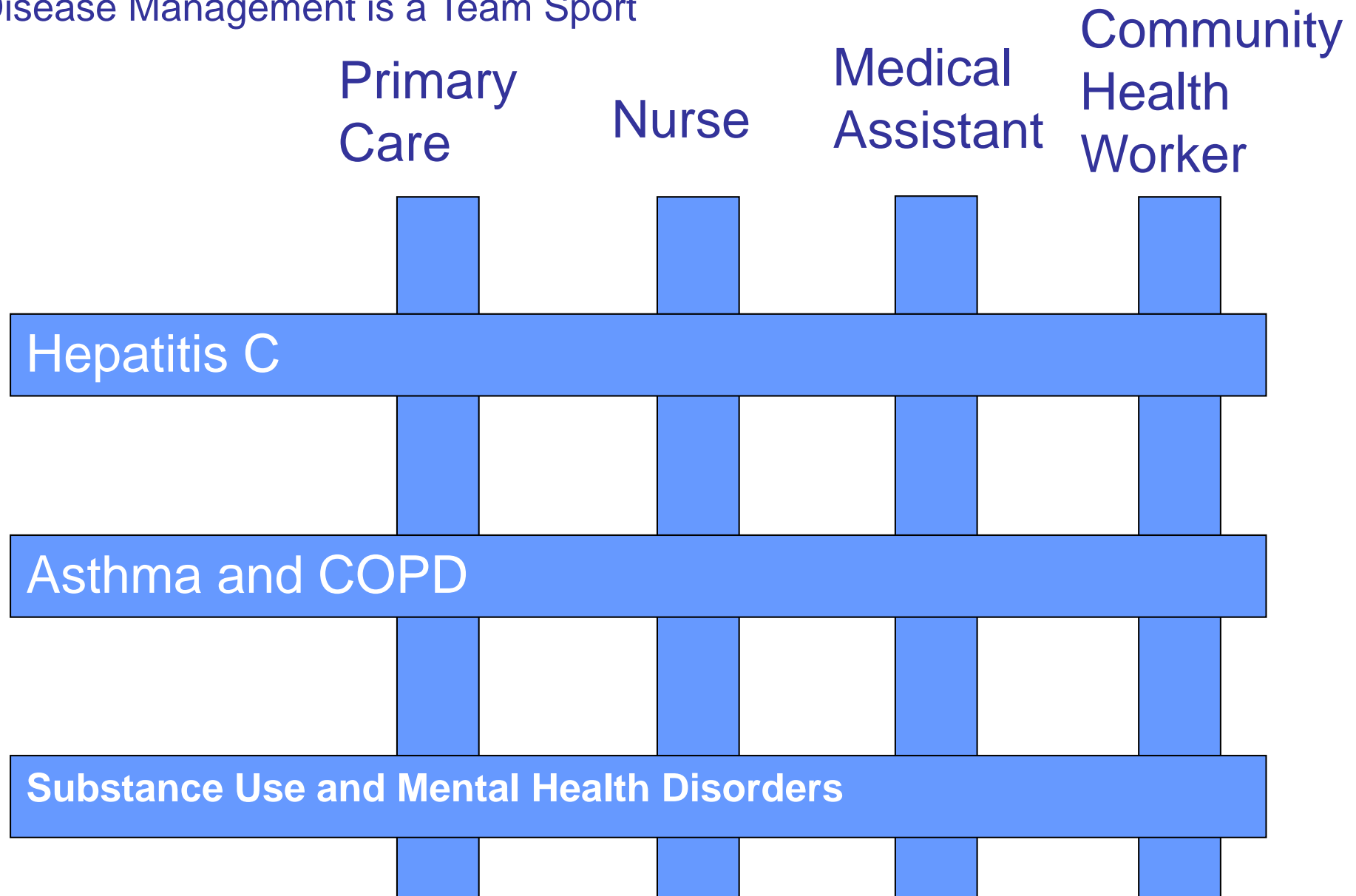
- 1) Rural (less than 1,000 people per sq mile.)
- 2) 40% or more people identify themselves as Hispanic.
- 3) The average household income is less than \$44,100.

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.



FORCE MULTIPLIER

Chronic Disease Management is a Team Sport



CHW Training – TWO TRACKS

- ~ **CHW Specialist Training**
 - ~ **Diabetes, Obesity, Diet, Smoking Cessation, Exercise**
 - ~ **Substance Use Disorders**
 - ~ **Prison Peer Educator**

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





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**



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 Initiative 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 multi point
videoconferencing, best practice
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